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March 10, 2020

HEALTHCARE/BIOTECHNOLOGY

Stock Rating:

OUTPERFORM

12-18 mo. Price Target	$60.00
CATB - NASDAQ	$4.70
3-5 Yr. EPS Gr. Rate	NA
52-Wk Range	$9.76-$4.42
Shares Outstanding	7.1M
Float	6.4M
Market Capitalization	$83.3M
Avg. Daily Trading Volume	174,310
Dividend/Div Yield	NA/NM
Book Value	$0.64
Fiscal Year Ends	Dec
2020E ROE	NA
LT Debt	$0.0M
Preferred	$0.0M
Common Equity	$46M
Convertible Available	No

EPS GAAP	Q1	Q2	Q3	Q4	Year	Mult.
2018A	(0.29)	(0.20)	(0.08)	(1.17)	(5.12)	NM
2019A	(0.62)	(0.62)	(0.56)	(0.55)	(2.35)	NM
Prior (E)	--	--	--	*(0.67)*	*(2.47)*	*NM*
2020E	(0.44)	(0.40)	(0.40)	(0.42)	(1.65)	NM
Prior (E)	--	--	--	--	*(2.67)*	*NM*
2021E	--	--	--	--	(0.83)	NM
Prior (E)	--	--	--	--	*2.04*	*NM*
2022E	--	--	--	--	4.51	NM
Prior (E)	--	--	--	--	*9.42*	*NM*
2023E	--	--	--	--	13.15	NM

Catabasis Pharmaceuticals

4Q19 Review: Gearing Up for Phase 3 PolarisDMD Readout in 4Q20

SUMMARY

On 03/10, Catabasis reported 4Q19 results and provided a corporate update. With the company poised for a Phase 3 PolarisDMD readout in 4Q20 (a subsequent NDA filing in 2021), we see several ongoing execution activities as building momentum for this pivotal catalyst. While the focus will likely remain on the readout and intensify as we soon enter 2H20, management provided highlights from market research activities and reiterated supportive evidence for PolarisDMD's potential success due to the concordance between patient characteristics of PolarisDMD and prior MoveDMD (baseline to be presented at MDA2020 03/21-25). Considering the pivotal readout that, in our view, skews positively from a risk/reward perspective, we stay bullish.

KEY POINTS

- **Gearing up for PolarisDMD in 4Q20,** we believe this pivotal readout could be the seminal moment for the shares. Assessing a primary endpoint of North Star Ambulatory Assessment (NSAA) score, PolarisDMD was well-powered and over-enrolled with 130 patients. We suspect PolarisDMD to take most of the investor focus as we approach a six-months-to-readout timeframe.
- **Execution activities pave the way for** the 2021 NDA and launch. CATB indicated that their blinded market research showed high interest from physicians as well as payors, on edasalonexent's clinical/commercial profile. Besides, non-clinical long-term toxicology studies necessary for NDA filing and manufacturing for commercial supply capacity are all well underway. CATB plans to commercialize edasa in US first while currently evaluating ex-US opportunities.
- **Catabasis is continuing to build the opportunity set around edasalonexent,** both within and outside of the DMD population. Within DMD, recent collaboration with Duchenne UK, will assess a key patient population that the drug could provide benefit for. We note that the potential to treat older/non-ambulatory boys as particularly impactful given the limited gene therapy experience (due to safety/efficacy concerns) in older boys.
- **Outside of DMD, we believe the opportunities** in both LGMD2B and Miyoshi myopathy (collaborated with Jain Foundation) are intriguing as these diseases are also manifested with the over-activiation of NF-kB. CATB indicated on the today's call that the preclinical signals are encouraging, with guidance to report these data and a natural history study later in 1H20.
- **As of 12/31/2019, CATB had a cash asset balance** of $36.2M; with the additional net proceeds $25.6M from the recent financing, CATB has sufficient cash to fund its operation through a potential NDA filing and into 3Q21. We update our model and future estimates which pares down R&D expenses post-Polaris with an uptick in SG&A for pre-commercialization activities.

Stock Price Performance

Company Description

Catabasis is a clinical-stage biotechnology company focused on the discovery, development and commercialization of therapeutics; most notably DMD across all genetic mutations.

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For analyst certification and important disclosures, see the Disclosure Appendix.

5-YEAR PRICE PERFORMANCE

Source: Bloomberg

INVESTMENT THESIS

Given strong long-term data from Phase 2 Part C of the MoveDMD clinical study presented at AAN 2018/WMS 2018, we remain bullish on edasalonexent's potential in DMD. Phase 3 pivotal trial PolarisDMD has commenced. Disease categories as diverse as oncology and PAH have drug approvals based on slowing of disease progression, which is a tangible clinical and pharmacoeconomic benefit for patients, their families and for reimbursement authorities. In this context, we believe edasalonexent has real potential in the armamentarium of DMD treatment.

BASE CASE ASSUMPTION

- CATB is able to enroll its Phase 3 global pivotal trial in DMD with minimal delays (data 4Q20)

CATALYSTS

- **4Q20:** PolarisDMD Phase 3 trial readout
- **2020:** Updates on strategy/regulatory path for edasalonexent in DMD, i.e., accelerated approval, etc.
- **2020:** GalaxyDMD long-term, open-label, extension trial updates
- **1Q20:** Baseline Polaris presentation at MDA2020 (March 21–25)
- **1H20:** Preclinical data from collaboration research of edasalonexent in Limb-girdle muscular dystrophy and Miyoshi myopathy

UPSIDE SCENARIO

- CATB is granted accelerated approval for edasalonexent based on the strength of the long-term Phase 2 MoveDMD dataset; Phase 3 PolarisDMD is confirmatory study

DOWNSIDE SCENARIO

- Edasalonexent Phase 3 PolarisDMD pivotal trial is significantly delayed or unsuccessful

PRICE TARGET CALCULATION

We value edasalonexent in DMD at ~$58/share, applying a typical 8x rare disease multiple to estimated 2027 WW sales of ~$1,076M for DMD, discounted 22% annually. We assume a 65% probability to market and ~$90K/patient/year in pricing. The expected YE20 cash makes up the remaining ~$1/share of our valuation.

KEY RISKS TO PRICE TARGET

Clinical risk, regulatory risk, commercialization risk, intellectual property risk, manufacturing risk, competitive risk, strategic risk, financing risk, liquidity, and small-capitalization risk and currency risk.

Note: We view CATB, as a stock trading under $5, as speculative and appropriate for risk-tolerant investors.

Exhibit 1: CATB Valuation Model

FDSO =	24.44

Product	WW Sales (M)	Year (Peak)	Discount Rate	Sales Multiple	Probability to Market	NPV	Risk-adj. NPV	Comments
Edasalonexent (CAT-1004) - DMD	$1,076	2027	22%	8	65%	$88.7	$57.6	ROE of US SMID Biotech Companies Ranges from 20-25%
Cash/Sh							$1.4	YE20 Cash
						Total =	$59.1	

Source: Company reports, Oppenheimer & Co. & estimates

Exhibit 2: CATB P&L Model

INCOME STATEMENT (in thousands except per share)	FY:14A	FY:15A	FY:16A	FY:17A	FY:18A	Q1A	Q2A	Q3A	Q4A	FY:19A	Q1E	Q2E	Q3E	Q4E	FY:20E	FY:21E	FY:22E	FY:23E	FY:24E
Revenue:																			
Edasanolexent revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,498	119,916	295,083	461,386
Collaboration revenue	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total revenues, net	**0**	**0**	**0**	**500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13,498**	**119,916**	**295,083**	**461,386**
Costs and expenses:																			
Cost of goods sold	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,215	9,593	23,607	36,911
Research and development	15,716	23,030	25,450	18,682	17,042	4,197	5,160	4,697	4,263	18,317	4,300	4,400	4,400	4,600	17,700	14,000	14,714	15,927	17,240
Selling, general and administrative	6,040	8,629	10,108	8,912	9,329	2,137	2,165	1,985	2,484	8,771	2,600	2,650	2,700	2,750	10,700	12,900	15,387	18,703	22,734
Other expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total operating expenses	**21,756**	**31,659**	**35,558**	**27,594**	**26,371**	**6,334**	**7,325**	**6,682**	**6,747**	**27,088**	**6,900**	**7,050**	**7,100**	**7,350**	**28,400**	**28,115**	**39,695**	**58,237**	**76,885**
Income (loss) from Operations	**(21,756)**	**(31,659)**	**(35,558)**	**(27,094)**	**(26,371)**	**(6,334)**	**(7,325)**	**(6,682)**	**(6,747)**	**(27,088)**	**(6,900)**	**(7,050)**	**(7,100)**	**(7,350)**	**(28,400)**	**(14,617)**	**80,221**	**236,846**	**384,501**
Other income and expense																			
Interest income	5	0	242	160	425	226	257	214	148	845	100	100	100	100	400	160	160	160	160
Interest expense	(206)	(978)	(837)	(462)	(100)	0	0	0	0	0	0	0	0	0	0	(140)	(140)	(140)	(140)
Other income	(2)	7	93	32	176	70	(63)	(46)	(11)	(50)	0	0	0	0	0	0	0	0	0
Pre-tax income (Loss)	**(21,959)**	**(32,630)**	**(36,060)**	**(27,364)**	**(25,870)**	**(6,038)**	**(7,131)**	**(6,514)**	**(6,610)**	**(26,293)**	**(6,800)**	**(6,950)**	**(7,000)**	**(7,250)**	**(28,000)**	**(14,597)**	**80,241**	**236,866**	**384,521**
Income tax provision	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net income (GAAP)	**(21,959)**	**(32,630)**	**(36,060)**	**(27,364)**	**(25,870)**	**(6,038)**	**(7,131)**	**(6,514)**	**(6,610)**	**(26,293)**	**(6,800)**	**(6,950)**	**(7,000)**	**(7,250)**	**(28,000)**	**(14,597)**	**80,241**	**236,866**	**384,521**
EPS (GAAP)	**(51.73)**	**(4.06)**	**(2.22)**	**(1.26)**	**(5.12)**	**(0.62)**	**(0.62)**	**(0.56)**	**(0.55)**	**(2.35)**	**(0.44)**	**(0.40)**	**(0.40)**	**(0.42)**	**(1.65)**	**(0.83)**	**4.51**	**13.15**	**21.09**
Average Weighted Shares Outstanding (Basic)	424	8,042	16,230	21,682	5,055	9,686	11,506	11,624	11,980	11,199	15,543	17,353	17,405	17,457	16,939	17,588	17,800	18,015	18,232
Oustanding shares diluted	8,437	9,667	18,427	24,057	9,691	16,646	18,463	18,661	18,960	18,179	22,522	24,332	24,384	24,437	23,919	24,568	24,780	24,995	25,212

Source: Company reports, Oppenheimer & Co. & estimates

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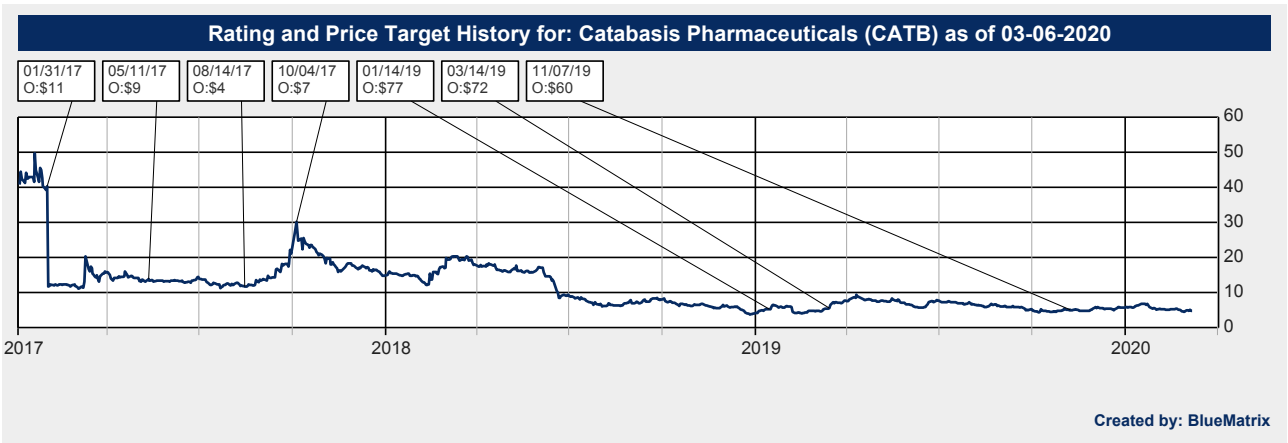

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Sell - anticipates that the shares will depreciate 10% or more in price within the next 12 months, due to fundamental weakness perceived in the company or for valuation reasons, or are expected to perform significantly worse than equities within the peer group.

Distribution of Ratings/IB Services Firmwide

			IB Serv/Past 12 Mos.	
Rating	Count	Percent	Count	Percent
OUTPERFORM [O]	388	63.92	181	46.65
PERFORM [P]	217	35.75	82	37.79
UNDERPERFORM [U]	2	0.33	0	0.00

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March 10, 2020

Rating:
OUTPERFORM
Price:
$4.70
12-Month Price Target:
$15.00 (from $18.00)

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Company Information

Market Cap (M)	$80.1
Enterprise Value (M)	$39
Shares Outst (M)	17.0
52-Week Range	$4.42 - $9.76
Cash/sh	$2.38
Tangible Book Value/sh	$4.89
Net Debt (M)	$(37.57)
Yield	0.00%

REV (M)			in $
FYE Dec	2019A	2020E	2021E
Q1 Mar	0.0A	0.0E	0.0E
Q2 Jun	0.0A	0.0E	0.0E
Q3 Sep	0.0A	0.0E	0.0E
Q4 Dec	0.0A	0.0E	0.0E
Year*	**0.0A**	**0.0E**	**0.0E**

EPS			in $
FYE Dec	2019A	2020E	2021E
Q1 Mar	(0.62)A	(0.38)E	(0.51)E
Previous		*(0.56)E*	
Q2 Jun	(0.62)A	(0.41)E	(0.56)E
Previous		*(0.55)E*	
Q3 Sep	(0.56)A	(0.44)E	(0.59)E
Previous		*(0.55)E*	
Q4 Dec	(0.55)A	(0.46)E	(0.63)E
Previous	*(0.56)E*	*(0.55)E*	
Year*	**(2.35)A**	**(1.69)E**	**(2.29)E**
Previous	*(2.36)E*	*(2.21)E*	
P/E	NM	NM	NM

Pricing data provided by Thomson Reuters.
**Numbers may not add up due to rounding.*

Catabasis Pharmaceuticals (CATB)

Q4/FY19 Financials; Topline Phase 3 PolarisDMD Results On-Track for Q4:20

The Wedbush View

Catabasis is a clinical-stage biopharmaceutical company focused on the treatment of rare diseases. Lead candidate edasalonexent, is a first-in-class oral NF-kB inhibitor for the treatment of Duchenne Muscular Dystrophy (DMD). The Company ended 2019 with cash and cash equivalents of $36.2 million. The next key catalyst for the stock is top-line results from the global Phase 3 PolarisDMD trial in Q4:20, with potential NDA submission in H1:21. Based on promising Phase 2 MoveDMD safety and efficacy data, we anticipate positive results from the Phase 3 trial in Q4 and material upside for CATB. We project gross sales of over $500 million for edasalonexent in 2025.

Q4/FY19 Financials: Catabasis reported Q4/FY19 GAAP EPS (loss) of $(0.55)/ $(2.35). The Company ended 2019 with cash and cash equivalents of $36.2 million, which does not include ~$25.6 million in net proceeds from a follow-on offering priced on February 3, 2020. We project cash runway into Q3:21 (in-line with guidance), covering top-line results from Phase 3 PolarisDMD in Q4:20 and NDA submission in H1:21. We view near-term financing risk as low. We have incorporated Q4/FY19 results into our model.

Top-line Phase 3 PolarisDMD data anticipated in Q4. The trial is a randomized (2:1), double-blind, placebo controlled trial designed to evaluate safety and efficacy of edasalonexent (100 mg/kg/day) in 131 DMD boys ages 4-7 (up to 8th birthday, off steroids for ≥6 months). The primary endpoint is change in North Star Ambulatory Assessment (NSAA) and key secondary endpoints include age appropriate timed function tests (10-meter walk/run, 4-stair climb, time to stand). We note that the baseline age and function were similar between PolarisDMD and Phase 2 MoveDMD. Recall, key safety and efficacy results from the Phase 2 MoveDMD trial demonstrated preservation of muscle function as well as consistent improvements in all four muscle function tests. Based on robust Phase 2 safety and efficacy data, we anticipate positive results from PolarisDMD trial in Q4:20. The Company also initiated an open-label extension trial (GalaxyDMD) designed to provide long-term safety results to support the NDA filing.

Next: PolarisDMD baseline characteristics data presentation is scheduled for the Muscular Dystrophy Association Clinical & Scientific Conference (MDA; March 21-25, 2020; Orlando).

We reiterate OUTPERFORM rating, but reduced our twelve-month price target to $15 from $18 due to share dilution from recent financing. Please see Figure 3.

Pipeline update: In H1:20, the Company plans to report initial results from the preclinical mouse study evaluating the potential of edasalonexent as a treatment for Dysferlinopathy (Limb-girdle muscular dystrophy type 2B/Miyoshi myopathy), a rare disease that causes progressive muscle weakness.

Figure 1: Milestones (*Our Estimates)

March 21-25	Edasalonexent/DMD: Presentation on PolarisDMD baseline characteristics at the Muscular Dystrophy Association Clinical & Scientific Conference (MDA; March 21-25, 2020; Orlando)	--	--
H1:20	Edasalonexent/Dysferlinopathy: Initial preclinical results	--	--
H1:20*	**Edasalonexent + eteplirsen (EXONDYS 51) combo preclinical results**	**50:50**	**±0-5%**
Q4:20	**Edasalonexent/DMD: Top-line Phase 3 PolarisDMD (NCT03703882) results**	**70:30**	**±40-200%**
Q4:20/2021*	Edasalonexent/Non-Ambulatory DMD: Initiate Phase 2 UK trial	--	--
2020*	Edasalonexent/BMD: Initiate clinical activities	--	--
2020*	Edasalonexent/DMD: Preclinical data with UT Southwestern	--	--
H1:21*	Edasalonexent/DMD: Submit NDA	--	--
H1:21*	**Edasalonexent/DMD: FDA accepts NDA for review**	**50:50**	**±0-5%**
H1:22*	**Edasalonexent/DMD: Potential U.S. approval/launch**	**50:50**	**±0-5%**

Source: Company data; Wedbush Securities, Inc. estimates

Figure 2: Updated Model

Catabasis Pharmaceuticals, INC. (CATB:NASDAQ)
Historical and Projected Income Statement
(In thousands)

Wedbush Securities, Inc.

Liana Moussatos, PhD
Shveta Dighe
Kambiz Yazdi

	2018A	2019A					2020E					2021E	2022E	2023E	2024E	2025E
	FY:18A	Q1A	Q2A	Q3A	Q4A	FY:19A	Q1E	Q2E	Q3E	Q4E	FY:20E	FY:21E	FY:22E	FY:23E	FY:24E	FY:25E
Gross Sales:	-	-	-	-	-	-	-	-	-	-	-	-	32,364	113,240	376,424	793,876
Edasalonexent (CAT-1004)	-	-	-	-	-	-	-	-	-	-	-	-	8,536	28,610	65,796	115,182
Edasalonexent (CAT-1004)	-	-	-	-	-	-	-	-	-	-	-	-	8,891	28,949	65,971	113,588
Edasalonexent (CAT-1004)	-	-	-	-	-	-	-	-	-	-	-	-	14,937	49,903	114,613	200,226
CAT-1004 Total Sales		-	-	-	-	-	-	-	-	-	-	-	32,364	107,462	246,379	428,995
CAT-4001	-	-	-	-	-	-	-	-	-	-	-	-	-	2,921	64,262	170,340
CAT-4001	-	-	-	-	-	-	-	-	-	-	-	-	-	1,380	30,314	79,044
CAT-4001 Total Sales		-	-	-	-	-	-	-	-	-	-	-	-	4,301	94,576	249,385
Revenues:																
Product Sales/Royalties																
CAT-1004 Total Revenues		-	-	-	-	-	-	-	-	-	-	-	32,364	98,736	221,277	366,277
CAT-4001 Total Revenues		-	-	-	-	-	-	-	-	-	-	-	-	4,301	93,878	233,278
Total Net Product Revenues*	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**32,364**	**100,213**	**256,553**	**477,052**
Grant Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Collaborative Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 32,364**	**$ 100,213**	**$ 256,553**	**$ 477,052**
Total COGS	-	-	-	-	-	-	-	-	-	-	-	-	3,236	10,021	25,655	47,705
%													10%	10%	10%	10%
Gross Margin	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 29,128**	**$ 90,191**	**$ 230,897**	**$ 429,347**
%													90%	90%	90%	90%
Operating Expenses:																
R&D	17,042	4,197	5,160	4,697	4,263	18,317	4,689	5,158	5,622	6,128	21,598	28,743	23,022	24,919	26,973	29,197
SG&A	9,329	2,137	2,165	1,985	2,484	8,771	2,302	2,418	2,538	2,665	9,924	15,508	36,391	37,869	39,406	41,006
Acquired in-process R&D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	**$ 26,371**	**$ 6,334**	**$ 7,325**	**$ 6,682**	**$ 6,747**	**$ 27,088**	**$ 6,992**	**$ 7,576**	**$ 8,161**	**$ 8,794**	**$ 31,522**	**$ 44,251**	**$ 59,412**	**$ 62,788**	**$ 66,379**	**$ 70,203**
Operating Income (Loss)	**(26,371)**	**(6,334)**	**(7,325)**	**(6,682)**	**(6,747)**	**(27,088)**	**(6,992)**	**(7,576)**	**(8,161)**	**(8,794)**	**(31,522)**	**(44,251)**	**(30,285)**	**27,404**	**164,518**	**359,144**
Other Income / (Expense), net	176	-	(63)	(46)	59	(50)	(13)	(16)	(4)	7	(25)	(15)	(12)	(11)	(11)	(11)
Interest Income	425	226	257	214	148	845	211	208	195	191	805	793	790	790	790	790
Interest (Expense)	(100)	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total other (expenses) income	501	296	194	168	207	795	199	192	191	197	779	778	778	778	778	778
Income Before Income Taxes	**$ (25,870)**	**$ (6,038)**	**$ (7,131)**	**$ (6,514)**	**$ (6,540)**	**$ (26,293)**	**$ (6,793)**	**$ (7,384)**	**$ (7,969)**	**$ (8,597)**	**$ (30,743)**	**$ (43,473)**	**$ (29,507)**	**$ 28,182**	**$ 165,296**	**$ 359,922**
Deemed Dividend to preferred stockholders																
(Provision)/benefit for Income Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	(11,197)	(64,466)	(140,370)
Tax Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	29.3%	39.0%	39.0%
Net Income (Loss)	**$ (25,870)**	**$ (6,038)**	**$ (7,131)**	**$ (6,514)**	**$ (6,540)**	**$ (26,293)**	**$ (6,793)**	**$ (7,384)**	**$ (7,969)**	**$ (8,597)**	**$ (30,743)**	**$ (43,473)**	**$ (29,507)**	**$ 16,985**	**$ 100,831**	**$ 219,553**
Stock-based compensation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
non-GAAP EPS	$ (5.12)	$ (0.62)	$ (0.62)	$ (0.56)	$ (0.55)	$ (2.35)	$ (0.38)	$ (0.41)	$ (0.44)	$ (0.46)	$ (1.69)	$ (2.29)	$ (1.49)	$ 0.82	$ 4.71	$ 9.89
Weighted Average Shares Outstanding (Diluted)	7,142	9,686	11,506	11,624	11,797	11,199	17,897	18,097	18,297	18,497	18,197	18,997	19,797	20,597	21,397	22,197
GAAP EPS	**$ (5.12)**	**$ (0.62)**	**$ (0.62)**	**$ (0.56)**	**$ (0.55)**	**$ (2.35)**	**$ (0.38)**	**$ (0.41)**	**$ (0.44)**	**$ (0.46)**	**$ (1.69)**	**$ (2.29)**	**$ (1.49)**	**$ 0.82**	**$ 4.71**	**$ 9.89**
Outstanding	5,055	9,686	11,506	11,624	11,797	11,199	17,897	18,097	18,297	18,497	18,197	18,997	19,797	20,597	21,397	22,197
Cash	**$37,570**	**$51,664**	**$46,111**	**$40,615**	**$36,244**	**$36,244**	**$55,051**	**$47,667**	**$39,698**	**$31,101**	**$31,101**	**($12,371)**	**($41,878)**	**($24,893)**	**$75,937**	**$295,490**
Cash Per Share	**$7.43**	**$5.33**	**$4.01**	**$3.49**	**$3.07**	**$3.24**	**$3.08**	**$2.63**	**$2.17**	**$1.68**	**$1.71**	**($0.65)**	**($2.12)**	**($1.21)**	**$3.55**	**$13.31**
Net Cash	**$37,570**	**$51,664**	**$46,111**	**$40,615**	**$36,244**	**$36,244**	**$55,051**	**$47,667**	**$39,698**	**$31,101**	**$31,101**	**($12,371)**	**($41,878)**	**($24,893)**	**$75,937**	**$295,490**
Net Cash Per Share	**$7.43**	**$5.33**	**$4.01**	**$3.49**	**$3.07**	**$3.24**	**$3.08**	**$2.63**	**$2.17**	**$1.68**	**$1.71**	**($0.65)**	**($2.12)**	**($1.21)**	**$3.55**	**$13.31**
Cash Burn (Generation)	**($21,201)**	**($34,634)**	**$3,820**	**$2,624**	**$1,326**	**$1,326**	**($3,387)**	**($1,556)**	**$917**	**$5,143**	**$5,143**	**$43,473**	**$29,507**	**($16,985)**	**($100,831)**	**($219,553)**

Sources: Company data, Wedbush Securities, Inc. estimates

Figure 3: Pipeline Valuation

Catabasis (CATB) Product Pipeline Valuation

Product	Indication	Eligible # Patients	Pricing $/Patient	Gross Sales '($000)	Year	Net Revs '($000)	Peak Penetration	Multiple	Est/Actual Launch	Discount Rate	Estimated Fair Value ($000)	Price Target per Share
Edasalonexent (CAT-1004) (WW)	**DMD**	**31,425**	**$73,200**	**$533,178**	**2025**	**$417,690**	**28%**	**5**	**1/30/2022**	**30%**	**$278,092**	**$14.87**
Edasalonexent (CAT-1004) (WW)	**DMD Ages 4 to 7**	**6,675**	**$73,200**	**$144,377**	**2025**	**$112,015**	**35%**	**6**	**1/30/2022**	**30%**	**$97,344**	**$5.21**
Edasalonexent (CAT-1004) (US)	DMD Ages 4 to 7	2,700	$90,000	$80,131	2025	$80,131	40%	6	1/30/2022	30%	$78,799	$4.21
Edasalonexent (CAT-1004) (EU)		3,600	$72,000	$63,648	2026	$31,824	35%	6	1/30/2023	30%	$18,518	$0.99
Edasalonexent (CAT-1004) (RoW)		375	$57,600	$598	2027	$60	5%	6	1/30/2024	30%	$27	$0.00
Edasalonexent (CAT-1004) (WW)	**DMD Ages 8 to non-Ambulatory**	**11,400**	**$73,200**	**$138,982**	**2025**	**$110,843**	**20%**	**5**	**1/30/2022**	**30%**	**$65,880**	**$3.52**
Edasalonexent (CAT-1004) (WW)	**DMD non-Ambulatory**	**13,350**	**$73,200**	**$249,818**	**2025**	**$194,832**	**30%**	**5**	**1/30/2022**	**30%**	**$114,869**	**$6.14**
CAT-4001 (WW)	**Amyotrophic Lateral Sclerosis**	**51,840**	**$61,000**	**$626,017**	**2028**	**$462,734**	**20%**	**2**	**12/4/2023**	**30%**	**$68,174**	**$3.65**
CAT-4001 (WW)	**Friedreich's Ataxia**	**51,840**	**$81,333**	**$666,428**	**2028**	**$490,739**	**20%**	**1**	**12/4/2023**	**30%**	**$35,958**	**$1.92**
CAT-5571 (WW)	**Cystic Fibrosis**	**5,450,000**	**$3,613**	**$930,725**	**2028**	**$736,915**	**4%**	**3**	**12/4/2023**	**30%**	**$202,268**	**$10.82**

We use multiples to account for clinical and regulatory risk at various stages of development.

		Stock	MktCap ($000)	Upside
	12-month Price Target	**$14.87**	**$278,092**	**214%**
	Total Pipeline Value	**$31.26**	**$584,493**	**561%**
	Plus One Year Est Cash	$1.15	$21,551	
	Current Stock Price	**$4.73**	**$80,569**	
	12 months Est Diluted Sharecount (000)	**18,697**		

1: in preclinical testing
2: passed preclinical
3: IND filing/stable mature product
4: Phase 1 data
5: Phase 2 data
6: in Phase 3
7: Phase 3 data
8: regulatory review
9: approved
10: launched

Sources: Company data, Wedbush Securities, Inc. estimates

Valuation

Sum-of-parts: 30% annual discount from peak sales for clinical product/indication, 1-10x multiple, divide by share count and round to nearest dollar. Please see pipeline valuation figure.

Risks to the Attainment of Our Price Target and Rating:

Clinical Risks: We believe clinical risk has been partially alleviated with the release of data from the extension phase of the MoveDMD trial. However, Catabasis will require additional financing for a subsequent Phase 3 trial in which edasalonexent will be expected to demonstrate a statistically significant improvement in muscle function compared to placebo. There is a slightly elevated level of risk in the potential combination therapy arm with edasalonexent and eteplirsen due to uncertainty regarding safety and efficacy profiles. Catabasis uses third parties to conduct preclinical and clinical testing which we view as higher risk as we believe third parties may be less motivated to reduce execution risk.

Regulatory Risks: We believe regulatory risk is relatively average. Although management has Big Pharma experience, Catabasis' pipeline is early-to-mid stage and has not yet achieved regulatory approval for any product candidate.

Manufacturing Risks: We view manufacturing risk to be slightly higher for Catabasis since product manufacturing is based on their novel proprietary SMART linker technology. Although the raw materials are easily accessible and the chemistry surrounding the SMART technology has been characterized it is unknown whether the SMART Linker technology is amenable to commercial manufacturing. Additionally, Catabasis relies on third parties for the manufacture of their product candidates for preclinical, clinical, and potential commercial activities and we view third parties as less motivated, in general. If Catabasis succeeds at obtaining regulatory approval for a product candidate, the current purchase order supply arrangements will need to be augmented with long-term supply arrangements. Catabasis intends to also work with additional manufacturers to provide active pharmaceutical ingredients (APIs) and fill-and-finish services prior to pursuing regulatory approval.

Commercial Risks: We believe commercial risk is relatively high since Catabasis' clinical programs are unpartnered and the company does not have any commercial infrastructure. Catabasis anticipates retaining commercial rights in the U.S. and Canada for all its (orphan/ rare disease) products and establish regional partnerships to commercialize outside the United States. For large markets, such as hypercholesterolemia, the company plans to partner CAT-2054 worldwide and receive milestones and royalties.

Competition Risks: Catabasis' product candidates, if approved, will compete with currently marketed treatments and potentially with product candidates currently in development focusing on the similar mechanism of action which include: 1) CAT-1004/ anti-inflammatory competition from Santhera Pharmaceuticals, Idera and ReveraGen; 2) CAT-4001 competition from potentially multiple companies that are in preclinical studies for Friedreich's Ataxia and ALS; and 3) CAT-5571 for cystic fibrosis from Vertex.

Intellectual Property Risks: Due to the nature of the SMART-linker technology creating new chemical entities (NCEs) and new composition-of-matter protection to 2029 and beyond, we consider intellectual property risk to be low.

Financial Risks: Catabasis is a development stage emerging pharmaceutical company and is unlikely to have product sales or royalty income before H1:22 when we project launch of their first product. The Company ended 2019 with cash and cash equivalent of $36.2 million, which does not include ~$25.6 million in net proceeds from a follow-on offering priced on February 3, 2020. We estimate cash runway into Q3:21 (in line with guidance).

Analyst Certification

We, Liana Moussatos, Shveta Dighe and Kambiz Yazdi, certify that the views expressed in this report accurately reflect our personal opinions and that we have not and will not, directly or indirectly, receive compensation or other payments in connection with our specific recommendations or views contained in this report.

Mentioned Companies

Investment Rating System:

OUTPERFORM: Expect the total return of the stock to outperform relative to the median total return of the analyst's (or the analyst's team) coverage universe over the next 6-12 months.

NEUTRAL: Expect the total return of the stock to perform in-line with the median total return of the analyst's (or the analyst's team) coverage universe over the next 6-12 months.

UNDERPERFORM: Expect the total return of the stock to underperform relative to the median total return of the analyst's (or the analyst's team) coverage universe of the next 6-12 months.

The Investment Ratings are based on the expected performance of a stock (based on anticipated total return to price target) relative to the other stocks in the analyst's coverage universe (or the analyst's team coverage).*

Rating distribution	Investment Banking Relationships

(as of March 10, 2020)	(as of March 10, 2020)
OUTPERFORM: 58.03%	OUTPERFORM: 10.68%
NEUTRAL: 40.00%	NEUTRAL: 2.11%
UNDERPERFORM: 1.97%	UNDERPERFORM: 0.00%

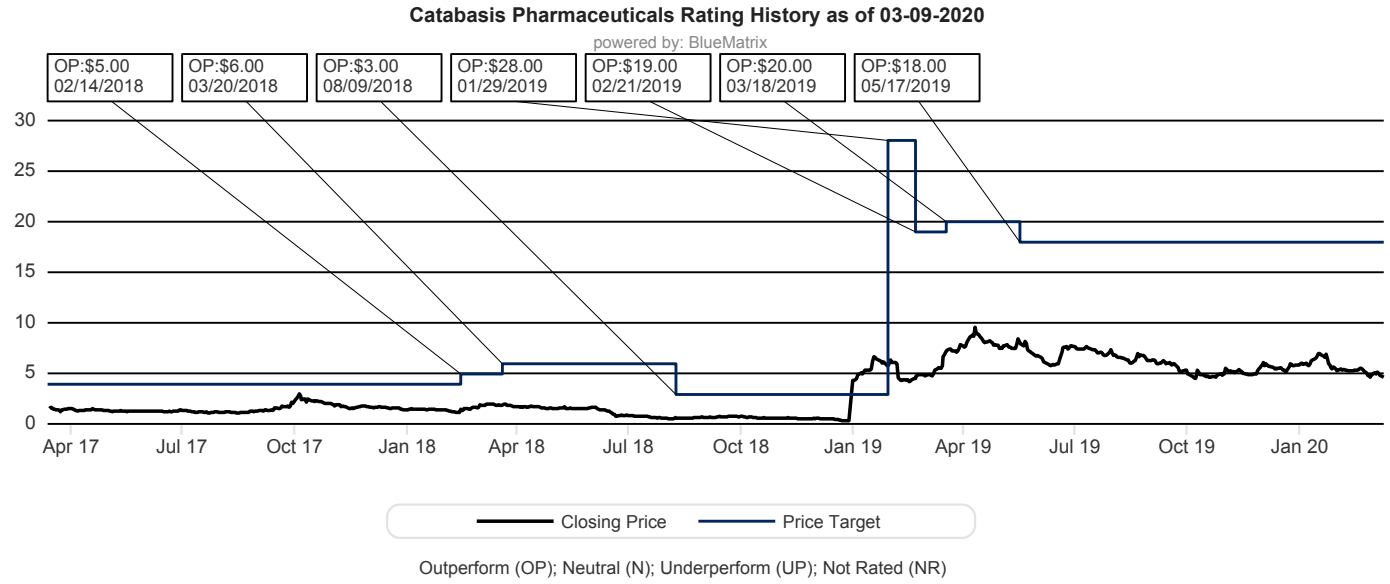
The Distribution of Ratings is required by FINRA rules; however, WS' stock ratings of Outperform, Neutral, and Underperform most closely conform to Buy, Hold, and Sell, respectively. Please note, however, the definitions are not the same as WS' stock ratings are on a relative basis.

The analysts responsible for preparing research reports do not receive compensation based on specific investment banking activity. The analysts receive compensation that is based upon various factors including WS' total revenues, a portion of which are generated by WS' investment banking activities.

Company Specific Disclosures

1. WS makes a market in the securities of Catabasis Pharmaceuticals.

Price Charts



Outperform (OP); Neutral (N); Underperform (UP); Not Rated (NR)

Wedbush disclosure price charts are updated within the first fifteen days of each new calendar quarter per FINRA regulations. Price charts for companies intiated upon in the current quarter, and rating and target price changes occurring in the current quarter, will not be displayed until the following quarter. Additional information on recommended securities is available on request.

Disclosure information regarding historical ratings and price targets is available: Research Disclosures

*WS changed its rating system from (Strong Buy/ Buy/ Hold/ Sell) to (Outperform/ Neutral/ Underperform) on July 14, 2009.

Applicable disclosure information is also available upon request by contacting Leslie Lippai in the Research Department at (212) 833-1375, by email to leslie.lippai@wedbush.com, or the Business Conduct Department (213) 688-8090. You may also submit a written request to the following: Business Conduct Department, 1000 Wilshire Blvd., Los Angeles, CA 90017.

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