

Anavex Life Sciences Corp. (NASDAQ/AVXL)

November 6, 2020

BUY: Anavex2-73 Phase 2 Data at CTAD

Anavex presented “proof of concept” data in Parkinson’s Disease Dementia on 2-73 at the conference on Clinical Trials on Alzheimer’s Disease (CTAD). The Phase 2 trial demonstrated statistically significant improvements in CDR system Cognitive Domain of Attention assessed by Choice Reaction Time ($p = 0.039$) and Digital Vigilance ($p = 0.008$). Statistically significant dose-dependent improvements in Episodic Memory ($p = 0.003$).

Investment Highlights

The data suggest that ANAVEX2-73 prevented the ongoing cognitive decline in treated patients (vs. placebo). The late-breaking abstract of cognitive outcome measures relevant to Alzheimer’s disease found that ANAVEX2-73 was safe and well-tolerated in oral doses up to 50 mg once daily. The results show clinically meaningful, dose-dependent, and statistically significant improvements in the Cognitive Drug Research (CDR) computerized assessment system analysis. The study confirmed the precision medicine approach of targeting SIGMAR1 as a genetic biomarker of response to Anavex2-73.

Parkinson’s Disease Dementia or PDD. PDD is when Parkinson’s disease eventually leads to dementia. The resulting effect is a degradation of specific neurons in the substantia nigra, related to a dramatic decrease in dopamine production and Lewy bodies. Out of all the Parkinson’s patients, 50-80% eventually end up with PDD. Currently, there are no cures for Parkinson’s disease, only medication to help manage the symptoms. Most of these drugs work by enabling dopamine production since there are low concentrations of dopamine in people with Parkinson’s disease. There are several downsides to these medications, though. First off, their effectiveness dramatically decreases over time with prolonged use of the given drug. Secondly, there are many side effects as a result of administering these treatment options, like nausea, lightheadedness, and hallucinations. ANAVEX2-73 has proved to be safer with better efficacy than the remaining drugs on the market.

Valuation. Our valuation is based on our therapeutic models and associated assumptions projected to 2030. Our model assumes multiple financial raises, and as such, our share count is based on a projected, fully diluted out-year basis. Given the early nature of the company and its dependence on clinical trial outcomes in the CNS space, we apply just a 25% probability of success in our models. On top of this, we also add a 30% risk rate in our free cash flow to the Firm (FCFF), our discounted EPS (dEPS), and sum-of-the-parts (SOP) models. We equal weight and average these metrics and then round to the nearest whole number to derive our price target.

Risk to our thesis, include the following: (1) commercial; (2) regulatory; (3) clinical; (4) manufacturing; (5) financial; (6) liability; and (7) intellectual property. We review these risks in the risk section of this report.

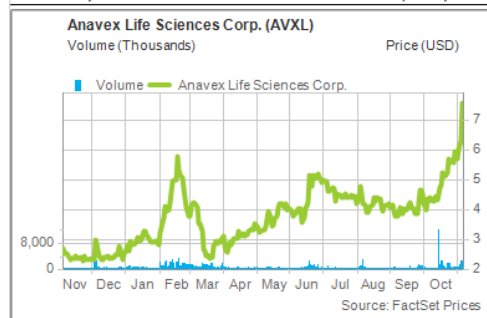
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Current Price	\$5.66
Price Target	\$16.00

Estimates	F2019A	F2020E	F2021E
Expenses (\$000s)	\$ 31,287	\$ 31,438	\$ 33,048
1Q March	\$ 7,474	\$ 7,701	\$ 8,216
2Q June	\$ 8,140	\$ 7,774	\$ 8,247
3Q September	\$ 7,821	\$ 7,967	\$ 8,277
4Q December	\$ 7,852	\$ 7,997	\$ 8,308

	F2019A	F2020E	F2021E
EPS (diluted)	\$ (0.65)	\$ (0.51)	\$ (0.27)
1Q March	\$ (0.16)	\$ (0.12)	\$ (0.07)
2Q June	\$ (0.17)	\$ (0.12)	\$ (0.07)
3Q September	\$ (0.16)	\$ (0.14)	\$ (0.07)
4Q December	\$ (0.16)	\$ (0.13)	\$ (0.07)

EBITDA/Share	
EV/EBITDA (x)	
Stock Data	
52-Week Range	\$2.20 - \$6.31
Shares Outstanding (mil.)	58.7
Market Capitalization (mil.)	\$332
Enterprise Value (mil.)	\$313
Debt to Capital	0%
Book Value/Share	\$0.56
Price/Book	8.2
Average Three Months Trading Volume (K)	1,494
Insider Ownership	4.0%
Institutional Ownership	20.1%
Short interest (mil.)	11.0%
Dividend / Yield	\$0.00/0.0%

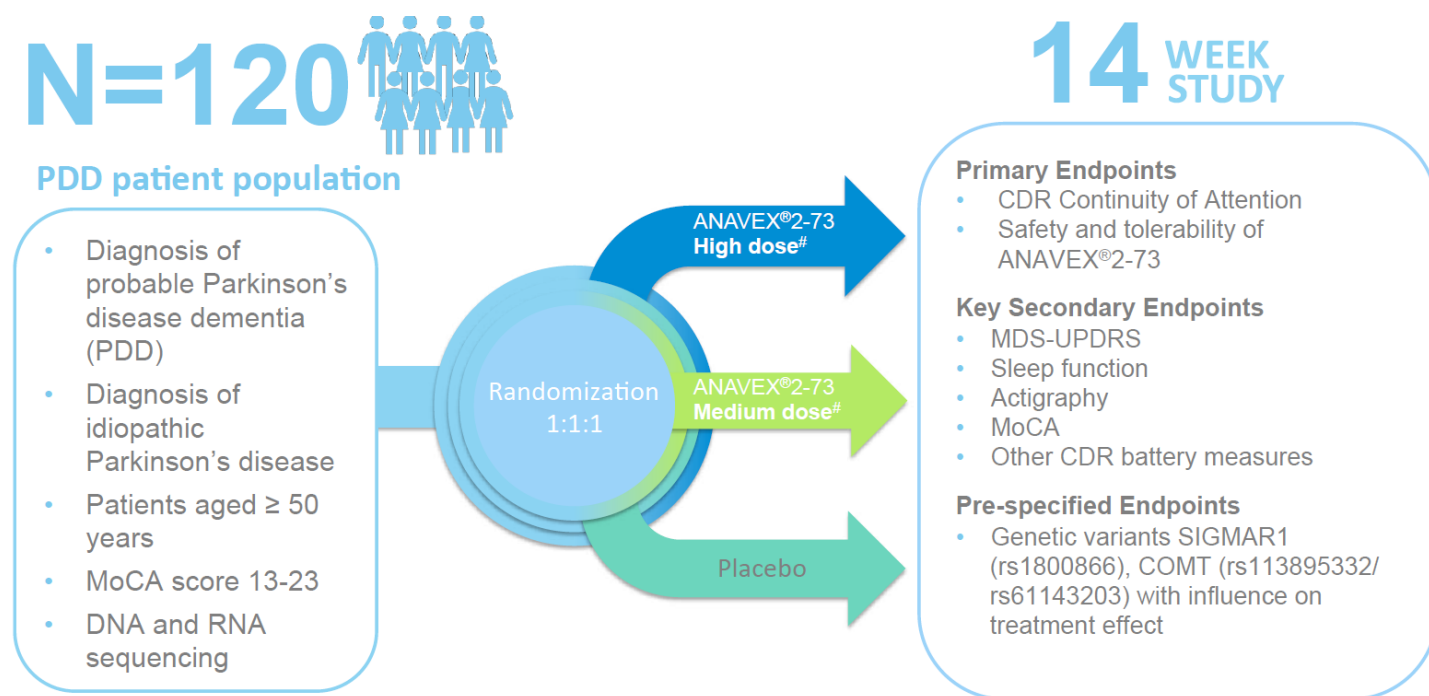


- Intra-day price

Study Design. The ANAVEX2-73-PDD-001 study was an international, double-blind, multicenter, placebo-controlled Phase 2 clinical study and randomized 132 patients with PDD equally to target doses of 30mg, 50mg ANAVEX2-73 or placebo. In addition to safety and cognitive efficacy, sleep function was assessed during the study at week 8 and week 14. ANAVEX2-73-PDD-001 study results are to be submitted for presentation at a medical conference and for publication in a peer-reviewed medical journal. Anavex is planning a pivotal trial of ANAVEX2-73 in Parkinson's Disease Dementia after submitting the results of the study to the FDA to obtain regulatory guidance.

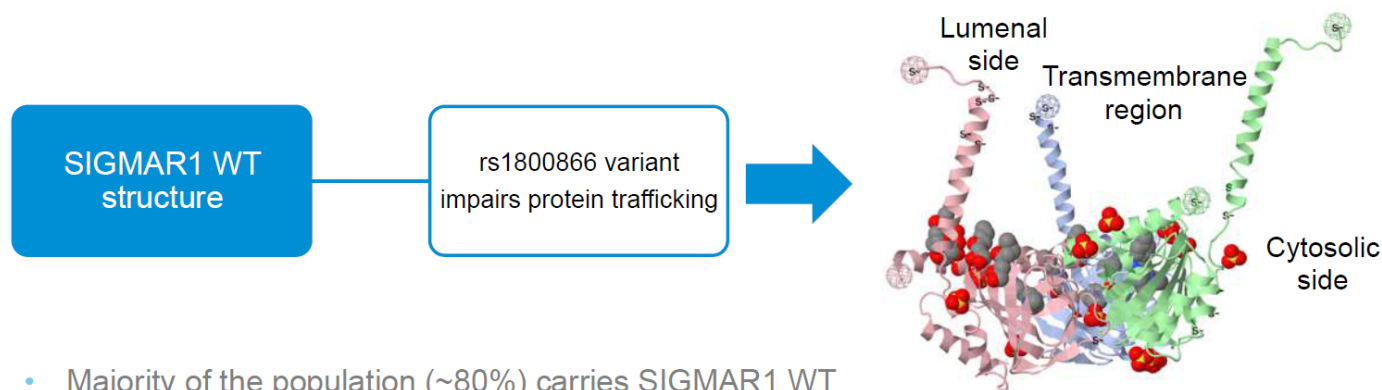
Parkinson's Disease Dementia (PDD). The 14 week PDD clinical study is a Phase 2 trial. The trial enrolled N=132 patients, who are 50 years of age or older, have a MoCA score of 13-23, have a diagnosis of idiopathic Parkinson's disease, and a diagnosis of probable PDD. Like the Alzheimer's study, the PDD population will be divided into three groups, a high dose ANAVEX2-73 group, a medium dose ANAVEX2-73 group, and a control placebo group. The primary endpoint is safety, tolerability, and CDR-continuity of attention. The prespecified endpoints are the genetic variants SIGMAR1 (rs1800866), and COMT (rs113895332/rs61143203) with influence on the treatment effect.

Exhibit 1. ANAVEX2-73 Study Design for PDD



Source: Anavex Life Sciences

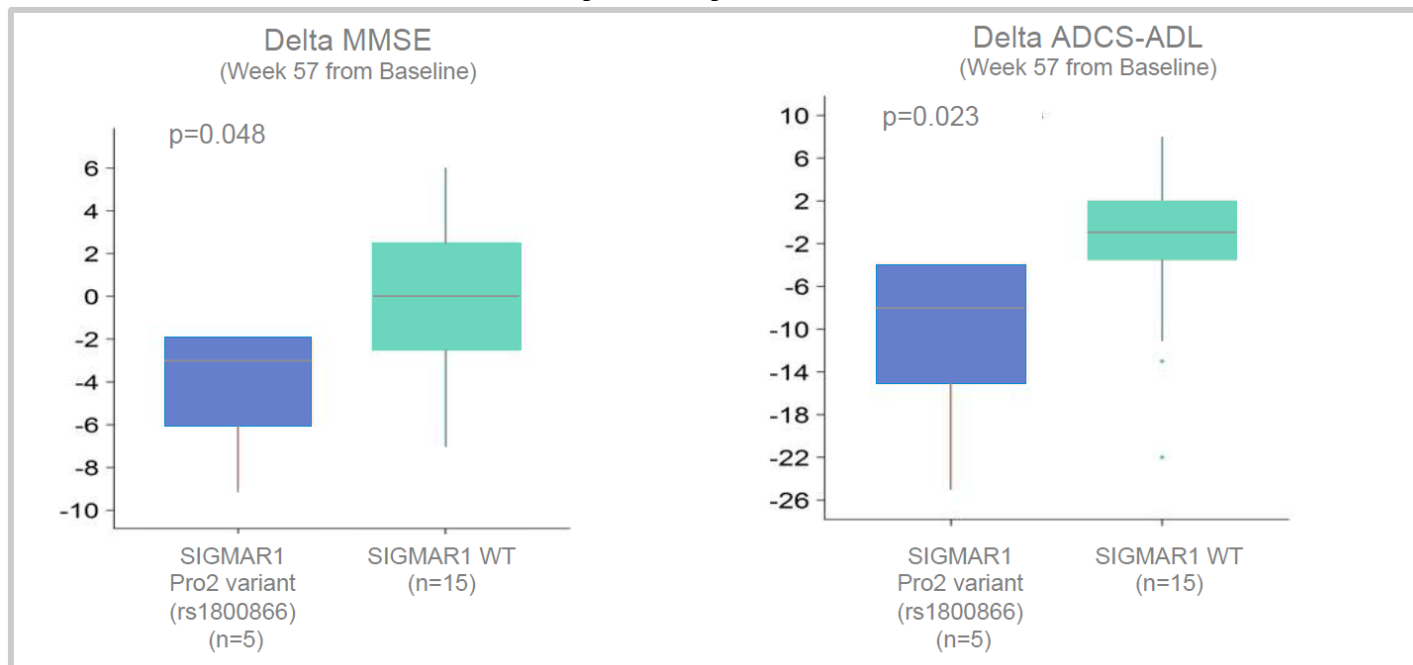
Exhibit 2. SIGMAR1 Gene Plays a Role in Protein Trafficking



- Majority of the population (~80%) carries SIGMAR1 WT
- Majority of patients (~80%) are expected to benefit from SIGMAR1 activation with ANAVEX®2-73
- rs1800866 variant found in the remaining (~20%) of the population can cause structural change, leading to impaired protein trafficking

Source: Anavex Life Sciences and Laurini E., 3D Homology Model of Sigma 1 Receptor.

Exhibit 3. SIGMAR1 WT Gene Associated with Improved Response

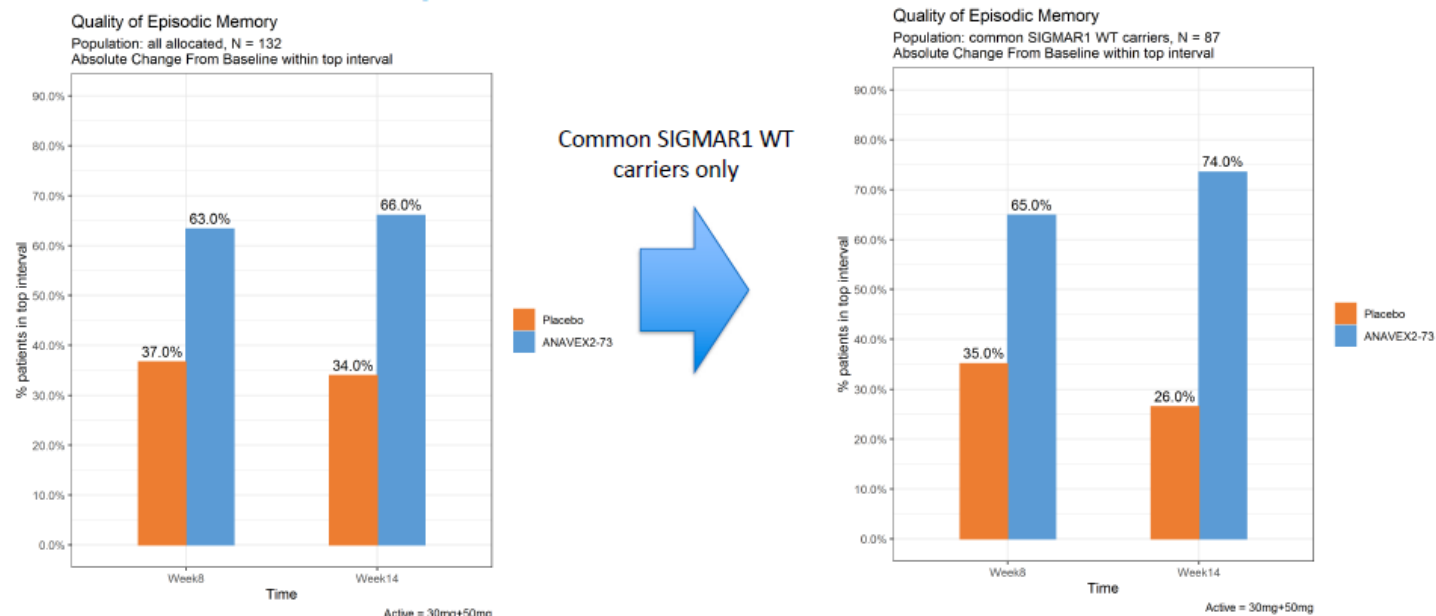


Source: Anavex Life Sciences and H Hampel et al., AAIC 2018

Exhibit 4. Positive Impact of Pre-specified Common SIGMAR1 WT Carriers

Positive Impact of Pre-specified Common SIGMAR1 WT Carriers

ANAVEX®2-73-PDD-001 Study: Improvements of Quality of Episodic Memory with Pre-specified Common SIGMAR1 WT Carriers¹



1. Common SIGMAR1 Wild Type (WT) gene, represents 80%-84% of the worldwide population excluding SIGMAR1 rs1800866 gene variant carriers (16%-20%):
https://www.ncbi.nlm.nih.gov/projects/SNP/snp_ref.cgi?rs=rs1800866

Source: Anavex Life Sciences

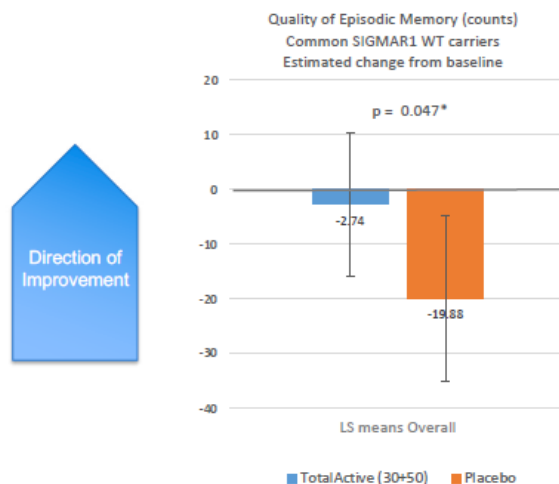
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Exhibit 5. Improvements in Core Cognitive Functions

ANAVEX®2-73-PDD-001 Study: Change in (CDR) System Quality of Episodic Memory

Prevention of on-going decline observed in placebo group



Effects of ANAVEX®2-73 (blarcamesine) treatment. Scores are least square means from the analysis of mixed-effect models for repeated measures of the change from baseline scores over 14 weeks, with Multiple Imputation (MCAR) by Visit and Treatment Group. Error bars are 95% confidence intervals. * P-value < 0.05 statistically significant

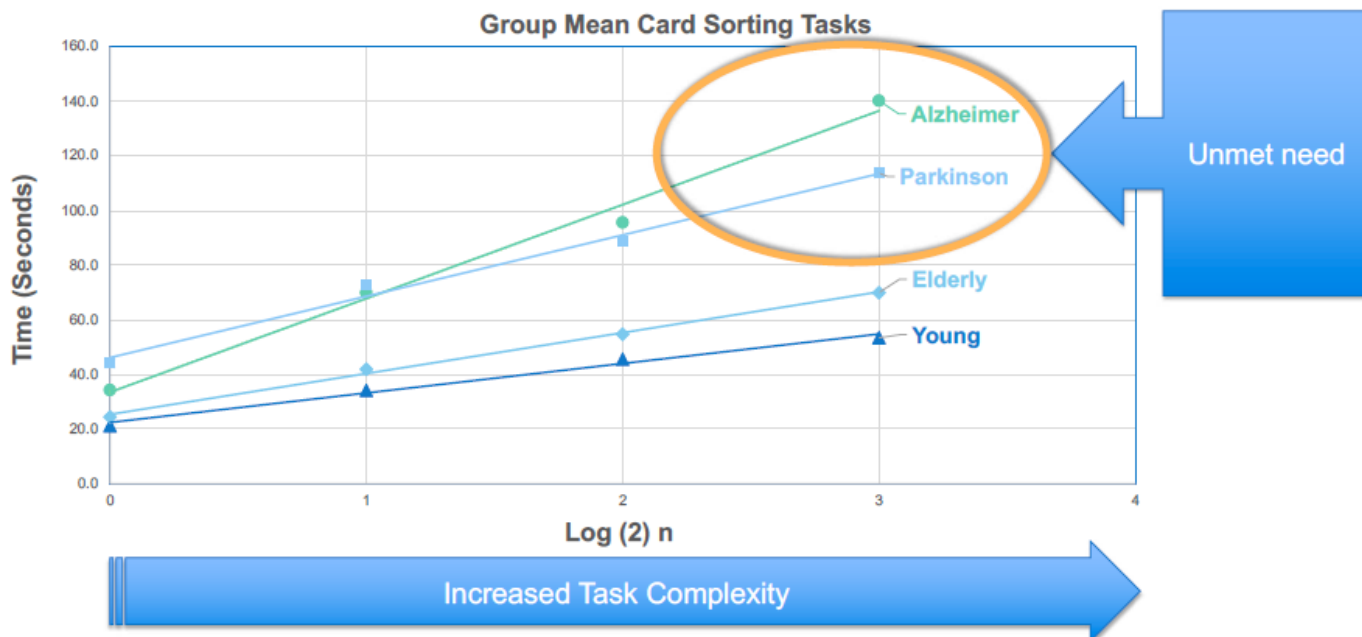
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Source: Anavex Life Sciences

Exhibit 6. Choice Reaction Time Increases with Complex Tasks

Choice Reaction Time Increases with Complex Tasks

Affected in Alzheimer's and Parkinson's Diseases



Source: Mahurin, R. K., & Pirozzolo, F. J. (1993). Application of Hick's law of response speed in Alzheimer and Parkinson diseases. *Perceptual and Motor Skills*, 77(1), 107–113

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Source: Anavex Life Sciences

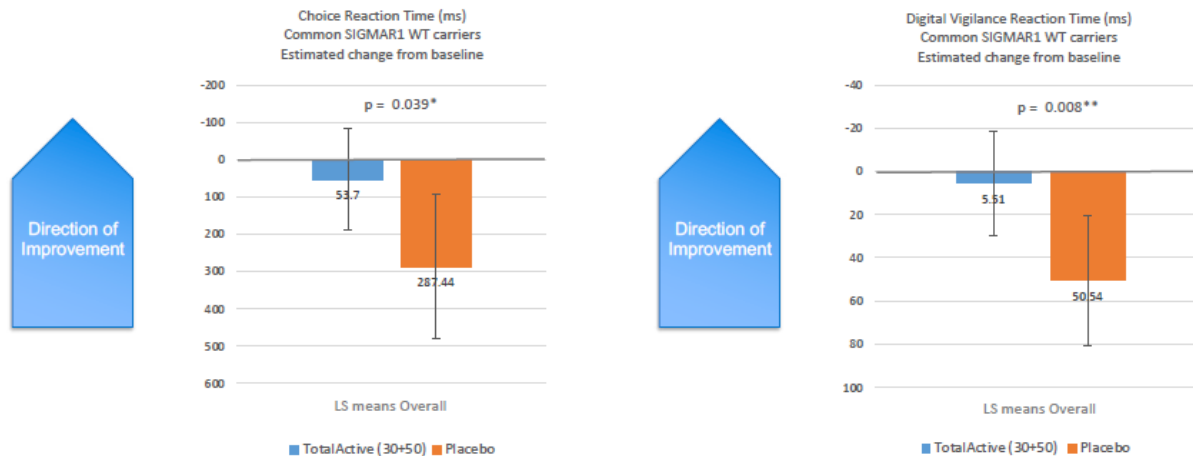
Exhibit 7. Improvement in Core Cognitive Functions

Improvements in Core Cognitive Functions

ANAVEX®2-73-PDD-001 Study: Change in (CDR) System Individual Task Measures

Choice Reaction Time and Digit Vigilance Reaction Time

Prevention of on-going decline observed in placebo group



Effects of ANAVEX®2-73 (blarcamesine) treatment. Scores are least square means from the analysis of mixed-effect models for repeated measures of the change from baseline scores over 14 weeks, with Multiple Imputation (MCAR) by Visit and Treatment Group. Error bars are 95% confidence intervals. * P-value < 0.05 statistically significant; ** P-value < 0.01 statistically significant

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Source: Anavex Life Sciences

Valuation. Our valuation is based on our therapeutic models and associated assumptions projected to 2030. Our model assumes multiple financial raises, and as such, our share count is based on a projected, fully diluted out-year basis. Given the early nature of the company and its dependence on clinical trial outcomes in the CNS space, we apply just a 25% probability of success in our product models. On top of this, we also add a 30% risk rate in our free cash flow to the Firm (FCFF), our discounted EPS (dEPS) and sum-of-the-parts (SOP) models. We equal weight and average these metrics and then round to the nearest whole number to derive our price target.

Exhibit 8. FCFF Model

Average \$	16
Price Target \$	18
Year	2020

DCF Valuation Using FCF (mln):

units ('000)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	(17,381)	(26,213)	(32,160)	(26,436)	(32,391)	90,940	915,400	1,344,698	1,458,838	1,674,005	1,546,506	1,781,979	1,974,281
Tax Rate	0%	0%	0%	0%	5%	10%	18%	18%	30%	31%	31%	39%	39%
EBIT(1-t)	(17,381)	(26,131)	(32,160)	(26,436)	(30,772)	81,846	750,628	1,102,652	1,021,186	1,155,063	1,067,089	1,087,007	1,204,311
CapEx	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	-	-	-	-	-	-	-	-	-	-	-	-	-
Change in NWC (ex cash)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FCF	(17,381)	(26,131)	(32,160)	(26,436)	(30,772)	81,846	750,628	1,102,652	1,021,186	1,155,063	1,067,089	1,087,007	1,204,311
PV of FCF	(29,373)	(33,970)	(32,160)	(20,336)	(18,208)	37,253	262,816	296,976	211,566	184,078	130,814	102,504	87,359
Discount Rate	30%												
Long Term Growth Rate	1%												
Terminal Cash Flow	4,194,325.49												
Terminal Value YE2030	304,249												
NPV	1,546,911												
NPV-Debt	-												
Projected Shares out (thousands)	87,320												
NPV Per Share	\$ 17.72												

Source: Dawson James estimates

Exhibit 9. Discounted EPS Model

Current Year	2020
Year of EPS	2030
Earnings Multiple	15
Discount Factor	30%
Selected Year EPS	\$ 13.79
NPV	\$ 15.00

Discount Rate and Earnings Multiple Varies, Year is Constant							
2030 EPS							
Earnings Multiple	15.00	5%	10%	15%	20%	25%	30%
1		\$8.46	\$5.32	\$3.41	\$2.23	\$1.48	\$1.00
5		\$42.32	\$26.58	\$17.04	\$11.13	\$7.40	\$5.00
10		\$84.65	\$53.16	\$34.08	\$22.27	\$14.80	\$10.00
15		\$126.97	\$79.74	\$51.12	\$33.40	\$22.21	\$15.00
20		\$169.29	\$106.32	\$68.16	\$44.54	\$29.61	\$20.00
25		\$211.62	\$132.90	\$85.20	\$55.67	\$37.01	\$25.00
30		\$253.94	\$159.48	\$102.25	\$66.81	\$44.41	\$30.00
35		\$296.26	\$186.06	\$119.29	\$77.94	\$51.82	\$35.01

Source: Dawson James estimates

Exhibit 10. Sum of the Parts Model

Anavex Sum of the Parts	LT Gr	Discount Rate	Yrs. to Mkt	% Success	Peak Sales MMs	Term Val
AVXL 2-73 U.S. AD	1%	30%	5	50%	\$2,697	\$9,298.91
NPV						\$3.59
AVXL 2-73 ROW AD	1%	30%	5	50%	\$3,214	\$11,081.54
NPV						\$4.27
AVXL 2-73 Rett's Syndrome	1%	30%	3	50%	\$1,905	\$6,568.76
NPV						\$4.28
AVXL 2-73 PDD	1%	30%	3	50%	\$961	\$3,315.39
NPV						\$2.16
Net Margin						25%
MM Shrs OS (2030E)						87
Total						\$14.3

Source: Dawson James estimates

Exhibit 11. Income Statement

Anavex Life Sciences Corp																
Anavex: YE Sept 30	2019A	1Q20A	2Q20A	3Q20E	4Q20E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenue																
Anavex2-73 AD U.S.		-	-	-	-	-	-	-		191,826	338,892	498,171	666,126	533,641	622,073	674,171
Anavex2-73 AD ROW							-	-		555,169	735,599	617,903	642,619	551,582	675,136	803,412
Anavex2-73 Rett's Syndrome							6,642	67,744	207,296	317,162	395,395	439,967	448,767	457,742	466,897	476,235
Anavex2-73 Parkinson's Dementia PDD									-	14,229	58,055	88,824	120,801	184,826	219,943	240,366
Total Product Revenues	-	-	-	-	-	-	6,642	67,744	207,296	1,078,386	1,527,942	1,644,866	1,878,313	1,727,790	1,984,048	2,194,184
% Chg																
% Sequential Growth																
Milestones																
% Sequential Growth																
Total Revenues (\$000)	-	-	-	-	-	-	6,642	67,744	207,296	1,078,386	1,527,942	1,644,866	1,878,313	1,727,790	1,984,048	2,194,184
Expenses																
Cost of Goods Sold (10%)		-	-	-	-	-	-	-	-	74,699	107,449	111,607	130,875	108,522	129,721	147,758
Accounting and Audit Fees																
Amortization and depreciation	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2
Bank charges and interest																
Consulting Fees																
Insurance																
Investor relations																
Legal fees																
Management fees																
Office and miscellaneous expense																
Registration and filing fees																
Rent and administration																
Research and Development	22,260	6,349	6,053	6,083	6,114	24,599	24,762	20,108	16,329	13,260	10,768	8,744	7,101	5,766	4,683	3,803
Salaries and wages																
Travel																
Website design and maintenance																
General and Administrative	6,847	1,352	1,720	1,883	1,883	7,531	8,284	80,000	100,000	75,000	65,000	65,650	66,307	66,970	67,639	68,316
Operating expenses	31,287	7,701	7,774	7,967	7,997	31,438	33,048	100,110	116,331	162,961	183,219	186,003	204,283	181,260	202,044	219,878
Oper. Inc. (Loss)	(31,287)	(7,701)	(7,774)	(7,967)	(7,997)	(31,438)	(26,406)	(32,366)	90,965	915,425	1,344,723	1,458,863	1,674,030	1,546,531	1,782,004	1,974,306
Oper Margin	NM	NM	NM	NM	NM	NM	NM	NM	0	1	1	1	1	1	1	1
Other income (expense)	2,466															
Research and Development incentive	299	47	717													
Interest and financing fees	207					(28)	(30)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
Accretion of debt discount	116															
Change in fair value of derivative liability	(151)															
Debt conversion expense	(42)															
Loss on settlement of accounts payable																
Loss on extinguishment of debt																
Foreign exchange gain (loss)		53	(326)													
Financing related charges and adjustments																
Other non-operating income		1,018	145													
Non-operating income (expense)	2,894	1,118	536	-	-	(28)	(30)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
Financial Income, Net																
Financial Expenses, Net																
Pretax Income	(28,393)	(6,583)	(7,237)	(7,967)	(7,997)	(31,466)	(26,436)	(32,391)	90,940	915,400	1,344,698	1,458,838	1,674,005	1,546,506	1,781,979	1,974,281
Pretax Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Income Tax Benefit (Provision)	(82)						(9,781)	(1,620)	9,094	164,772	389,962	481,416	602,642	603,137	694,972	769,970
Tax Rate	0	(9)	0	0	0	-		5%	10%	18%	29%	30%	31%	31%	31%	31%
GAAP Net Income (loss)	(28,475)	(6,592)	(7,237)	(7,967)	(7,997)	(31,466)	(16,655)	(30,772)	81,846	750,628	954,736	977,421	1,071,363	943,368	1,087,007	1,204,311
Net Margin	NM	NM	NM	NM	NM	NM	NM	NM	0.39	0.70	0.62	0.59	0.57	0.55	0.55	0.55
GAAP-EPS	(0.58)	(0.12)	(0.12)	(0.14)	(0.13)	(0.51)	(0.27)	(0.48)	1.24	10.91	13.34	13.13	13.82	11.70	12.95	13.79
Non GAAP EPS (dil)	(0.58)	(0.12)	(0.12)	(0.14)	(0.13)	(0.51)	(0.27)	(0.48)	1.24	10.91	13.34	13.13	13.82	11.70	12.95	13.79
Wgt'd Avg Shrs (Bas)	48,906	54,774	58,354	58,412	58,471	57,503	58,617	58,852	59,088	59,324	59,562	59,801	60,040	60,281	60,522	60,765
Wgt'd Avg Shrs (Dil)	48,906	54,774	58,354	58,937	59,527	57,898	61,030	63,508	66,087	68,770	71,562	74,468	77,492	80,638	83,913	87,320

Source: Dawson James estimates, company reports

Risk Analysis

Clinical Trial Risk. Anavex is dependent on the outcome of multiple clinical trials. The failure rates associated with disease conditions such as Alzheimer's is historically very high.

Commercial Risk. Anavex hopes to compete in the CNS markets which have traditionally been dominated by large pharma and biotechnology companies with deep pockets (funding and resources), which may make it difficult for Anavex to compete unless the molecule is deemed to be truly differentiated.

Financial Risk. Anavex is likely to require additional capital raises before the company can be self-sustaining. There can be no guarantees that the company will be able to raise the needed capital.

Investment Risk. Anavex is a small capital company, which can translate into high volatility and risk for investors. The company has no revenues and is dependent on the clinical progress of its therapeutics.

Intellectual Property. Anavex may face IP challenges, forcing the company to defend its patents or itself against claims that the company is infringing on other patents. We do know that the lead product is protected by a composition of matter patent to 2033.

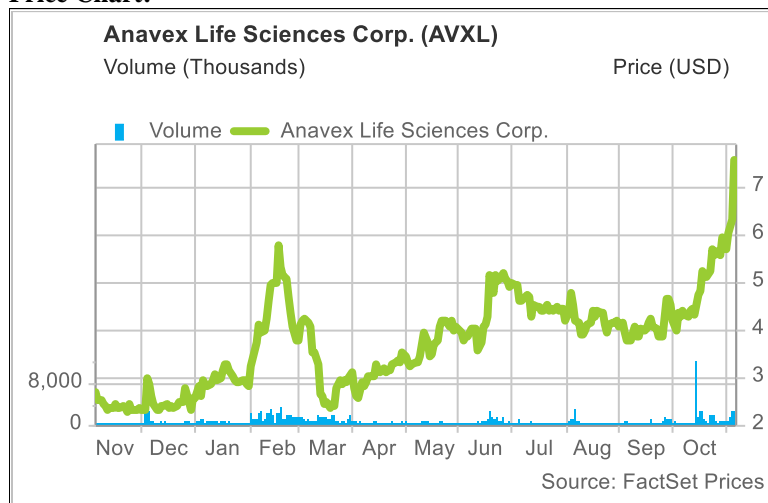
Market Share Risk. The central nervous system (CNS) market is competitive and tends to be dominated by large pharma and large well established biotechnology companies.

Regulatory Risk. Anavex, even with good clinical data, could face extensive delays and other regulatory setbacks.

Companies mentioned in this report

Important Disclosures:

Price Chart:



Price target and rating changes over the past three years:

Initiated – Buy – July 24, 2019 – Price Target \$16.00
 Update – Buy – July 31, 2019 – Price Target \$16.00
 Update – Buy – August 7, 2019 – Price Target \$16.00
 Update – Buy – September 5, 2019 – Price Target \$16.00
 Update – Buy – September 17, 2019 – Price Target \$16.00
 Update – Buy – October 24, 2019 – Price Target \$16.00
 Update – Buy – December 2, 2019 – Price Target \$16.00
 Update – Buy – December 4, 2019 – Price Target \$16.00
 Update – Buy – February 4, 2020 – Price Target \$16.00
 Update – Buy – February 7, 2020 – Price Target \$16.00
 Update – Buy – May 8, 2020 – Price Target \$16.00
 Update – Buy – May 22, 2020 – Price Target \$16.00
 Update – Buy – June 16, 2020 – Price Target \$16.00
 Update – Buy – July 1, 2020 – Price Target \$16.00
 Update – Buy – October 15, 2020 – Price Target \$16.00
 Update – Buy – November 6, 2020 – Price Target \$16.00

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Rating Definitions:

- 1) **Buy:** The analyst believes the price of the stock will appreciate and produce a total return of at least 20% over the next 12-18 months;
- 2) **Neutral:** The analyst believes the price of the stock is fairly valued for the next 12-18 months;
- 3) **Sell:** The analyst believes the price of the stock will decline by at least 20% over the next 12-18 months and should be sold.

The following chart reflects the range of current research report ratings for all companies followed by the analysts of the Firm. The chart also reflects the research report ratings relating to those companies for which the Firm has performed investment banking services.

	Company Coverage		Investment Banking	
Ratings Distribution	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	22	81%	4	18%
Market Perform (Neutral)	5	19%	1	20%
Market Underperform (Sell)	0	0%	0	0%
Total	27	100%	5	19%

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