LAIDLAW & COMPANY
Est. 1842
London
New York
San Francisco
Boston

EQUITY RESEARCH
Company Report

February 16, 2017

MabVax Therapeutics (MBVX - $2.64)

Healthcare/Biotechnology

Maturing MVT-5873 Clinical Data Could Expand Opportunities

Ticker:	**MBVX**
Rating:	**Buy**
Price Target:	**$18.00**

After a recent meeting with MBVX management, we walked away with increased confidence given the maturation of Phase I/IIa MVT-5873 in pancreatic ductal adenocarcinomas (PDACs) study has helped MBVX to identify more possibilities to advance the drug forward with potentially more upside.

- **Details.** MBVX reported encouraging preliminary results of MVT-5873 in difficult-to-treat advanced PDACs monotherapy dose finding study (Figure 1). The data showed 7/22 patients were stable at 4 cycles of treatment with 2 RECIST assessments, and 10/22 patients were stable at 2 cycles of treatments with 1 RECIST assessment. As such, we believe these initial results suggested MVT-5873 exhibited encouraging activities as a monotherapy. We believe this is promising and important as MVT-5873 needs to provide its own therapeutic effect when used in combination with Abraxane plus gemcitabine as a potential first-line pancreatic cancer therapy. In addition, MBVX is contemplating the use of MVT-5873 as a maintenance therapy after initial first-line chemotherapy to mitigate shortcomings of repeating chemotherapies, like 1) intolerable cumulative toxicity after multi-cycle of treatments; and 2) the lack of benefit by continuing treatment until progression of disease. The objective of maintenance therapy is to prolong disease control, of which is already achieved by first-line therapy. In addition, with the IND approved, MVT-1075 radioimmunotherapy Phase I trial could start in 1H17. The first part of the MVT-2163 PET imaging agent Phase I study progressed well and MBVX is planning to start an expansion cohort in newly diagnosed PDAC patients before surgery in mid-2017. Further, MBVX is actively exploring potential partnering opportunities to accelerate development and increase shareholder values.
- **Implications.** We are encouraged by MVT-5873 demonstrating monotherapy activities in difficult-to-treat advanced PDACs and believe it bodes well for this drug, potentially to combine with chemotherapies as a first-line treatment. In addition, we view MVT-5873's activities could also potentially expand the utility of this drug as a relatively new and novel maintenance therapy. We also view the clinical progress of MVT-2163 PET imaging agent and potential advancement of MVT-1075 into Phase I trial could materially increase the value of the HuMab-5B1-based platform.
- **Action.** We are reiterating our Buy rating and $18 price target to reflect our view on highly encouraging developments of the broad HuMab-5B1-based platform. Valuation is based on peer comparable, probability adjusted DCF and sum-of-the-parts analyses.

Trading Data:

Last Price (2/15/2017)	$2.64
52–Week High (3/21/2016)	$6.48
52–Week Low (2/13/2017)	$2.51
Market Cap. (MM)	$17
Shares Out. (MM)	2.682

Earnings Estimates: (per share)

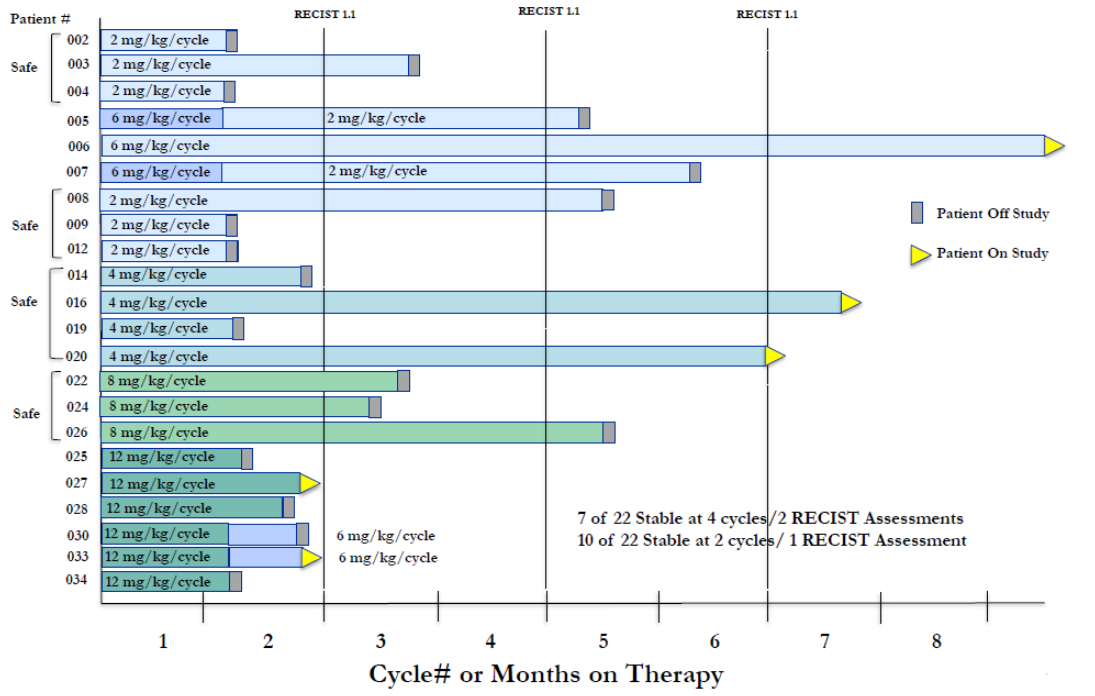
(Dec)	1Q	2Q	3Q	4Q	FY	P/E
FY-17E	-0.83	-0.82	-0.85	-0.83	-3.33	NM
FY-16E	-0.15A	-0.92A	-0.86A	-0.86	-3.71	NM
FY-15A	-6.25	-0.29	-0.20	-1.03	-13.44	NM
FY-14A	-	-	-	-	-9.51	NM

Source: Laidlaw & Company estimates

Yale Jen, Ph.D.
Managing Director /
Senior Biotechnology Analyst
(212) 953-4978
yjen@laidlawltd.com

- **Maintenance therapy in pancreatic cancer treatment is a new and novel approach.** Maintenance therapy for managing pancreatic cancer is a novel concept but has already generated encouraging results from a Phase II study (PACT-12) evaluating Sutent (sunitinib) in patients of stabilized disease after 6 months of first-line chemotherapy[1]. Although Sutent alone did not demonstrate to be an effective 2nd-line pancreatic cancer treatment, it demonstrated a significant improvement in progression free survival in 6 month (PFS-6) of 22% vs. 3.6% of the control (primary endpoint). Median PFS was 3.2 months vs. 2 months ($p<0.01$). Stable disease was achieved in 62% vs. 21% patients ($P=0.02$). The two-year OS was 23% vs. 7%. Overall, roughly similar percentage of patients (81% vs. 86%) subsequently need to take 2nd-line treatment. In our opinion, although maintenance therapy with Sutent is far from curative, this treatment modality could potentially provide a more tolerable treatment for improving OS and PFS in some patients.

Figure 1: Interim clinical results of MVT-5873 single agent dose-finding Phase I study



Source: Company presentation

[1] *Reni, M., et. Al., Europ. J of Cancer (2013) 49:3609-3615*

Yale Jen, Ph.D.
yjen@laidlawltd.com

Anticipated milestones in 2017 and beyond

Product	Indication	Event	Timing	Importance
MVT-5873	Pancreatic adenocarcinoma (PDAC)	Report top-line results of the single agent Phase I /II study	**1H17**	***
		Report interim results of the combination Phase I /II study	**1H17**	****
		Report results of the combination Phase I /II study	**2H17**	****
MVT-1075	Pancreatic adenocarcinoma (PDAC)	Potentially start Phase I study	**1H17**	***
		Potentially report early Phase I data	**2H17**	***
HuMab-5B1 ADC	Pancreatic adenocarcinoma (PDAC)	Potentially start Phase I study	**2018**	***
MVT-2163	Pancreatic adenocarcinoma (PDAC)	Potentially report Phase I study top-line results	**Mid-2017**	****
		Potentially report early Phase I data	**2H17**	***
		Potential partnership for further development	**2017**	****
Sarcoma vaccine	Sarcoma	Potentially report Phase II study OS results	**2017**	***
Ovarian cancer vaccine	Ovarian cancer	Potentially report Phase II study OS results	**1H17**	***

***** / ***** Major catalyst event that could impact share price very significantly while *** event is more informative*

Source: Laidlaw & Company estimates and company presentation.

Yale Jen, Ph.D.
yjen@laidlawltd.com

Major risks

Clinical study failure could have a major impact on MBVX share value. Despite promising pre-clinical results of the company's lead products, HuMab-5B1 and HuMab-5B1-PET, it remains too early to predict the longer term safety and efficacy from the upcoming clinical studies. Given that clinical validation has not been established, it would be critical for these studies to demonstrate efficacy and a positive safety profile in order to increase the assets and shareholder value. Negative results of Phase I and future clinical studies could have a materially negative impact on the shareholder value; especially since the company has a very diverse-limited pipeline profile.

Yet-to-be-validated vaccinated patient derived monoclonal antibody (Mab) screening platform could remain uncertain. Although monoclonal antibodies have been established as a validated cancer treatment modality; currently there is no Mab derived from vaccinated patients that has been approved or is in a late clinical development stage to demonstrate efficacy. As such, clinical risks for monoclonal antibody based cancer therapy derived from successfully vaccinated patients are higher than similar products generated from other more proven development platforms.

Product may not be approved or reach anticipated sales. Although MBVX's current pipeline products have exhibited the potential to generate positive clinical outcomes from current and future trials; it remains too early to project whether any of these products would be approved by regulatory agencies. Even if the products were to enter the market, sales could be significantly below projections due to the specific product label under approval, physician consensus for prescribing the drug, changes of treatment paradigms, entrance of competitors, and the possible changes in pricing flexibility and payer reimbursement. A revenue outlook below expectations could also negatively affect MBVX shareholder value.

Additional financings could dilute shareholder value. Although the company currently has ~$10MM (pro forma) cash after its recent financing, MBVX most likely would need more financial resources going forward if they want to expand and further develop their pipeline. Should the future operational expenses, especially from R&D, increase significantly, products not receive FDA approval, or product revenue not reach expectations; the company might need to issue new equity to raise additional cash. Under such a scenario, the share value of existing shareholders could be diluted.

Limited trading liquidity limits shareholder options. Given that MBVX shares only entered the public market recently; daily trading volume and name recognition are relatively modest. As such, shareholders wanting to increase or reduce their positions more substantially in a volatile stock market may face constraints.

Yale Jen, Ph.D.
yjen@laidlawltd.com

Figure 1: Income Statement

MabVax Therapeutics – Income Statement

($ '000)	2014	2015	1Q16	2Q16	3Q16	4Q16E	2016E	2017E	2018E	2019E	2020E	2021E
Revenue												
Grants	304	1,267	148	-	-	0	148	0	1	1	0	0
Product revenue	10	0	0	-	-	0	0	0	0	0	1,500	3,383
Total revenues	314	1,267	148	0	0	0	148	0	1	1	1,500	3,383
Gross revenue											1,500	3,383
Research and development	3,503	9,597	1,701	1,596	1,671	1,705	6,672	8,023	9,547	11,361	13,747	16,084
General and administrative	5,204	9,795	2,652	1,929	2,421	2,469	9,470	10,276	11,304	12,321	13,307	14,239
Marketing and sales												
Total operating costs and expenses	8,707	19,392	4,352	3,525	4,092	4,174	16,143	18,299	20,851	23,683	27,054	30,323
Operating Incomes (losses)	(8,393)	(18,125)	(4,204)	(3,525)	(4,092)	(4,174)	(15,995)	(18,299)	(20,850)	(23,682)	(25,554)	(26,939)
Interest and other income (expense)	(0)	(0)	(200)	(263)	(266)	(400)	(1,129)	(1,160)	(1,160)	(1,160)	(1,160)	(1,160)
Change in fair value of warrant liability	475	20	-	-	-	0	0	0	0	0	0	0
Tax												
Net Income (Loss)	(7,918)	(18,105)	(4,405)	(3,788)	(4,358)	(4,574)	(17,124)	(19,459)	(22,010)	(24,842)	(26,714)	(28,099)
Deemed dividend on Series A-1 preferred-stock	(2,215)	(9,018)	-	-	-	0	0	0	0	0	0	0
Deemed dividend on Series A-1 warrant		(179)	-	-	-	0	0	0	0	0	0	0
Deemed dividend on Series B preferred stock		(8,656)	-	-	-	0	0	0	0	0	0	0
Accretion of preferred stock dividends	(445)	(93)	-	-	-	0	0	0	0	0	0	0
Net loss allocable to common stockholders	(10,578)	(36,051)	(4,405)	(3,788)	(4,358)	(4,574)	(17,124)	(19,459)	(22,010)	(24,842)	(26,714)	(28,099)
Basic and diluted net loss per share	($9.51)	($13.44)	($0.15)	($0.92)	($0.86)	($0.86)	($3.71)	($3.33)	($2.49)	($2.10)	($1.93)	($1.77)
Shares used to calculate the basic and diluted net loss per share	1,112	2,682	3,947	4,129	5,041	5,341	4,615	5,841	8,841	11,841	13,841	15,841
Margin Analysis (% of Sales/Revenue)												
Costs of goods										15%	15%	15%
R&D	1115%	757%	1149%	NA	NA	NA	4507%	NA	954710%	1136105%	916%	475%
SG&A	1657%	773%	1791%	NA	NA	NA	6397%	NA	1130410%	1232147%	887%	421%
Operating Income (loss)	-2671%	-1430%	-2840%	NA	NA	NA	-10803%	NA	-2085020%	-2368152%	-1704%	-796%
Pretax	-2520%	-1429%	-2975%	NA	NA	NA	-11566%	NA	-2201020%	-2484152%	-1781%	-831%
Tax Rate												
Net Income	-705%	-2845%	-2975%	NA	NA	NA	-11566%	NA	-2201020%	-2484152%	-1781%	-831%
Financial Indicator Growth Analysis (YoY%)												
Total Revenue	NA	303%	-38%	-100%	-100%	-100%	-88%	-100%	NA	0%	149904%	126%
R&D	NA	174%	-1%	-31%	-47%	-30%	-30%	20%	19%	19%	21%	17%
SG&A	NA	88%	170%	-54%	6%	6%	-3%	9%	10%	9%	8%	7%
Operating Income (Losses)	NA	116%	70%	-45%	-23%	5%	-12%	14%	14%	14%	8%	5%
Pretax Income	NA	241%	-78%	-41%	-17%	15%	-53%	14%	13%	13%	8%	5%
Net Income	NA	241%	-78%	-41%	-17%	15%	-53%	14%	13%	13%	8%	5%
EPS	NA	41%	-98%	216%	332%	-17%	-72%	-10%	-25%	-16%	-8%	-8%

Yale Jen, Ph.D. 212-953-4978

Source: Bloomberg LP; Company reports; Laidlaw & Company estimates.

Yale Jen, Ph.D.
yjen@laidlawltd.com

DISCLOSURES:

ANALYST CERTIFICATION

The analyst responsible for the content of this report hereby certifies that the views expressed regarding the company or companies and their securities accurately represent his personal views and that no direct or indirect compensation is to be received by the analyst for any specific recommendation or views contained in this report. Neither the author of this report nor any member of his immediate family or household maintains a position in the securities mentioned in this report.

EQUITY DISCLOSURES

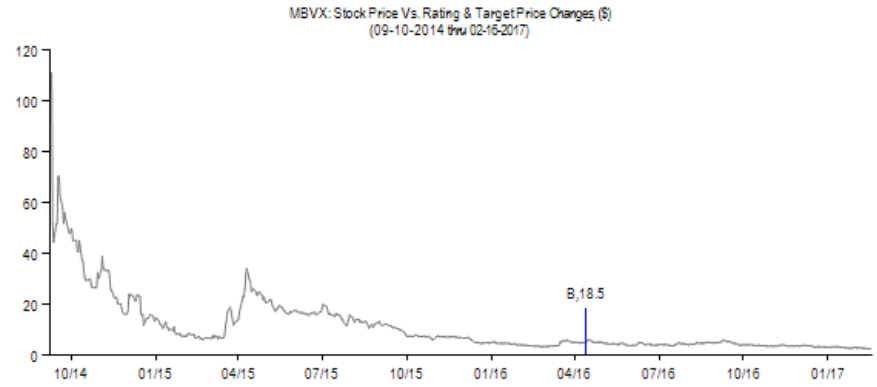
For the purpose of ratings distributions, regulatory rules require the firm to assign ratings to one of three rating categories (i.e. Strong Buy/Buy-Overweight, Hold, or Underweight/Sell) regardless of a firm's own rating categories. Although the firm's ratings of Buy/Overweight, Hold, or Underweight/Sell most closely correspond to Buy, Hold and Sell, respectively, the meanings are not the same because our ratings are determined on a relative basis against the analyst sector universe of stocks. An analyst's coverage sector is comprised of companies that are engaged in similar business or share similar operating characteristics as the subject company. The analysis sector universe is a sub-sector to the analyst's coverage sector, and is compiled to assist the analyst in determining relative valuations of subject companies. The composition of an analyst's sector universe is subject to change over time as various factors, including changing market conditions occur. Accordingly, the rating assigned to a particular stock represents solely the analyst's view of how that stock will perform over the next 12-months relative to the analyst's sector universe.

Additional information available upon request.

‡ Laidlaw & Company has received compensation from the subject company for investment banking services in the past 12 months and expects to receive or intends to seek compensation for investment banking services from the company in the next three months.
The member or affiliate managed or co-managed a public offering of securities for the subject company in the past 12 months;

RATINGS INFORMATION

Rating and Price Target Change History



3 Year Rating Change History

Date	Rating	Closing Price ($)
04/13/2016	Buy (B)	5.18

3 Year Price Change History

Date	Target Price ($)	Closing Price, ($)
04/13/2016	18.50**	5.18

** *Split Adjusted*

Source: Laidlaw & Company **Created by: Blue-Compass.net**

Laidlaw & Company Rating System*		% of Companies Under Coverage With This Rating	% of Companies for which Laidlaw & Company has performed services for in the last 12 months	
			Investment Banking	Brokerage
Strong Buy (SB)	Expected to significantly outperform the sector over 12 months.	2.44%	2.44%	0.00%
Buy (B)	Expected to outperform the sector average over 12 months.	60.98%	26.83%	2.44%
Hold (H)	Expected returns to be in line with the sector average over 12 months.	2.44%	0.00%	0.00%
Sell (S)	Returns expected to significantly underperform the sector average over 12 months.	4.88%	0.00%	0.00%

ADDITIONAL COMPANIES MENTIONED

ADDITIONAL DISCLOSURES

As of the date of this report, neither the author of this report nor any member of his immediate family or household maintains an ownership position in the securities of the company (ies) mentioned in this report.

This report does not provide individually tailored investment advice and has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. Laidlaw & Co (UK), Ltd. recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives. The securities, instruments, or strategies discussed in this report may not be suitable for all investors, and certain investors may not be eligible to purchase or participate

in some or all of them. This report is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy.

Associated persons of Laidlaw & Co (UK), Ltd not involved in the preparation of this report may have investments in securities/instruments or derivatives of securities/instruments of companies mentioned herein and may trade them in ways different from those discussed in this report. While Laidlaw & Co (UK), Ltd., prohibits analysts from receiving any compensation. Bonus or incentive based on specific recommendations for, or view of, a particular company, investors should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest.

With the exception of information regarding Laidlaw & Co (UK), Ltd. this report is based on public information. Laidlaw & Co (UK), Ltd makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete and it should not be relied upon as such. Any opinions expressed are subject to change and Laidlaw & Co (UK), Ltd disclaims any obligation to advise you of changes in opinions or information or any discontinuation of coverage of a subject company. Facts and views presented in this report have not been reviewed by, and may not reflect information known to, professionals in other Laidlaw & Co (UK), Ltd business areas. Laidlaw & Co (UK), Ltd associated persons conduct site visits from time to time but are prohibited from accepting payment or reimbursement by the company of travel expenses for such visits. The value of and income from your investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities/instruments prices. market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in securities/instruments transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. If provided, and unless otherwise stated, the closing price on the cover page is that of the primary exchange for the subject company's securities/instruments.

Any trademarks and service marks contained in this report are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data. This report or any portion thereof may not be reprinted, sold or redistributed without the written consent of Laidlaw & Co (UK), Ltd. This report is disseminated and available primarily electronically, and, in some cases, in printed form.

The information and opinions in this report were prepared by Laidlaw & Co (UK), Ltd. For important disclosures, please see Laidlaw & Co (UK), Ltd.'s disclosure website at www.Laidlawltd.com, or contact your investment representative or Laidlaw & Co (UK), Ltd at 546 Fifth Ave, 5th Floor, New York, NY 10036 USA.

Yale Jen, Ph.D.
yjen@laidlawltd.com

NOTES:

Yale Jen, Ph.D.
yjen@laidlawltd.com