Zacks Small-Cap Research

Sponsored – Impartial - Comprehensive

August 14, 2018
David Bautz, PhD
312-265-9471
dbautz@zacks.com

scr.zacks.com
10 S. Riverside Plaza, Chicago, IL 60606

AmpliPhi Biosciences Corp. (APHB-NYSE American)

APHB: Meeting with the FDA Soon to Establish Path Forward for AB-SA01 and AB-PA01…

Based on our probability adjusted DCF model that takes into account potential future revenues from the company's personalized phage therapies, AB-SA01, and AB-PA01, APHB is valued at $4.00/share. This model is highly dependent upon continued clinical and regulatory success and will be adjusted accordingly based upon future results.

Current Price (08/14/18)	$1.08
Valuation	**$4.00**

OUTLOOK

On August 9, 2018, AmpliPhi Biosciences Corp. (APHB) announced financial results for the second quarter of 2018 and provided a business update. The company reported that a total of 19 patients with serious or life-threatening infections have been treated with AB-SA01 or AB-PA01 at seven different hospitals and that the company is "encouraged by the results". In addition, the company is scheduled to meet with the FDA in August and September 2018 to discuss the regulatory path forward for AB-PA01 and AB-SA01, including the design of Phase 2 clinical trials.

The company exited the second quarter of 2018 with approximately $5.8 million in cash and cash equivalents, which we believe is sufficient to fund operations into the fourth quarter of 2018, however the company will need to raise additional money to conduct Phase 2 studies.

SUMMARY DATA

52-Week High	**$1.87**
52-Week Low	**$0.75**
One-Year Return (%)	**39.35**
Beta	**1.34**
Average Daily Volume (sh)	**81,846**
Shares Outstanding (mil)	**16**
Market Capitalization ($mil)	**$18**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**8**
Insider Ownership (%)	**2**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2018 Estimate	**-1.4**
P/E using 2019 Estimate	**-1.5**

Risk Level	**Above Avg.**
Type of Stock	**Small-Value**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2017	0.0 A	0.0 A	0.0 A	0.0 A	0.1 A
2018	0.0 A	0.0 A	0.0 E	0.0 E	0.0 E
2019					0.0 E
2020					0.0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2017	-$1.94 A	-$1.21 A	-$0.09 A	-$0.24 A	-$2.01 A
2018	-$0.23 A	-$0.19 A	-$0.14 E	-$0.14 E	-$0.68 E
2019					-$0.63 E
2020					-$0.66 E

© Copyright 2018, Zacks Investment Research. All Rights Reserved.

Business Update

Meeting with the FDA to Determine Regulatory Path for AB-SA01 and AB-PA01

On August 9, 2018, AmpliPhi Biosciences Corp. (APHB) provided a business update concerning the development of the company's lead bacteriophage assets, AB-SA01 and AB-PA01. The company reported that a total of 19 patients with serious or life-threatening infections have been treated with either AB-SA01 or AB-PA01 at a total of seven hospitals. As the company had previously guided, the goal was to get data on approximately 20 patients and then approach the FDA to get guidance on a regulatory path forward and design of Phase 2 trials for AB-SA01 and AB-PA01. AmpliPhi will be meeting with the FDA in August and September 2018 to do just that. Following receipt of the meeting minutes, there should be a clearer picture for what the development pathway will look like for each of the assets and potentially the lead indications for each drug.

Multiple Case Reports Presented for Patients Treated with AB-SA01 and AB-PA01

On June 7, 2018, AmpliPhi Biosciences Corp. (APHB) reported that multiple case reports on patients treated with the company's lead bacteriophage development products, AB-SA01 and AB-PA01, were presented at the American Society of Microbiology (ASM) Annual Meeting and the 41st European Cystic Fibrosis Conference. Topline results from these cases had previously been announced by AmpliPhi with the presentations providing additional details.

At ASM, a presentation described four cases of severe *Staphylococcus aureus* infection treated with AB-SA01. Three of the cases involved patients with endovascular infection and one case of severe vertebral osteomyelitis with epidural abscess. For all the patients, medical and surgical therapy options had been exhausted. Patients were treated with $3x10^9$ plaque-forming units of AB-SA01 intravenously twice-daily for two weeks in combination with the best antibiotic therapy available. The bacteriophage therapy was well tolerated in all patients with no reports of serious adverse events. Three of the patients had elimination of their infection while the fourth patient only received two days of bacteriophage treatment after suffering from uncontrolled septic shock and valve necrosis and passed away during surgery due to dehiscence of newly implanted valves. This is summarized in the following chart.

Patient Hospital ID:	WMP001	WMP003	WMP004	WMP005
Total number of doses	28	6	28	28
Post Phage treatment observations:	C-reactive protein subsided over the course of bacteriophage therapy. Staphylococcal presence in the blood was knocked down after bacteriophage administration and became undetectable after 3 days.	Staphylococcal presence in the blood appeared little effected by 6 doses of AB-SA01 and was present at very high levels (not different scale on vertical axis) until death. Blood cultures were also positive throughout.	C-reactive protein and procalcitonin subsided over the course of bacteriophage therapy	Staphylococcal presence in the blood was knocked down after bacteriophage administration and became undetectable after 3 days
Phage resistant Bacterial isolates at the end of treatment?	No, none cultured	No	No, none cultured	No, none cultured
28-, 60-, 90-day Mortality	No, No, No	Yes	No, No, No	No, No, No

Adapted from: Iredell *et al.*, 2018

At the European Cystic Fibrosis Conference, a presentation described the case of a 26-year-old cystic fibrosis patient who was unable to get a double lung transplant due to recurrent bouts of pneumonia caused by multidrug resistant *Pseudomonas aeruginosa* infection. The patient had received multiple

courses of antibiotics, including colistin, but due to renal failure the colistin had to be stopped. AB-PA01 was administered every six hours for eight weeks intravenously as an adjunctive treatment to systemic antibiotics. There were no bacteriophage-related adverse events reported. The following chart shows the patient's baseline symptoms before bacteriophage treatment began and at the end of treatment. The infection resolved by Day 7 and there was no recurrent pneumonia or CF exacerbations during treatment or 90 days after the end of bacteriophage therapy.

Baseline:

- Hospitalized and bedbound
- Lung Allocation Score* >90
- Temp: 99.7ºF, WBC: 8.9
- Supplemental O_2: 30L/min, high flow blender, Mechanical ventilation: 40% FiO2

End of Treatment:

- Hospitalized with increased physical activity and ambulatory beyond hospital room
- Lung Allocation Score* 48.9,
- Temp: 98.5ºF, WBC: 7.7
- Supplemental O_2: 3L/min via nasal cannula, Mechanical ventilation: 40% FiO2
- Day 7: Pneumonia resolved
- Post-Treatment Days 30, 60, and 90: No recurrence of pneumonia and no CF exacerbation

Source: Aslam *et al.*, 2018

Financial Update

On August 9, 2018, AmpliPhi announced financial results for the second quarter of 2018. R&D expenses for the second quarter of 2018 and 2017 were $1.7 million and $1.1 million, respectively, with an increase in clinical costs and professional and consulting fees primarily attributable for the increase. G&A expenses were $1.4 million for the second quarter of 2018 compared to $2.8 million for the second quarter of 2017. The decrease was primarily due to lower payroll costs and legal fees along with a $0.6 million non-cash decrease in stock-based compensation. Net loss for the second quarter of 2018 was $3.1 million, or $0.19 per share.

As of June 30, 2018, the company had approximately $5.8 million in cash and cash equivalents. Cash burn during the second quarter of 2018 was $2.2 million. AmpliPhi has completed two public offerings thus far in 2018: In January 2018 the company sold 4.0 million shares of common stock at a price of $1.00 per share for gross proceeds of $4 million and in March 2018 the company sold 2.7 million shares of common stock at $1.10 per share for gross proceeds of $3.0 million. We anticipate the company has enough capital to fund operations into the fourth quarter of 2018. As of Aug. 6, 2018, AmpliPhi had approximately 16.5 million shares of common stock outstanding and when factoring in in stock options and warrants a fully diluted share count of approximately 25.7 million.

Conclusion

We're excited to see that AmpliPhi will be meeting with the FDA about the regulatory pathway for AB-SA01 and AB-PA01. We will be very interested to hear the outcome of those meetings as well as any additional details the company will be presenting on the treated patients, as the data that the company has presented thus far is very encouraging. Our current valuation is $4.00 per share. However, we believe there is likely to be significant upside to our model once we learn additional details about what indications the company will be targeting later in 2018 for Phase 2 studies, at which time we may also get a better sense of timelines for approval.

PROJECTED FINANCIALS

AmpliPhi Bio	2017 A	Q1 A	Q2 A	Q3 E	Q4 E	2018 E	2019 E	2020 E
AB-PA01 (*P. aeruginosa*)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth								
AB-SA01 (*S. aureus*)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth								
Licensing & Royalties	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth	-	-	-	-	-	-	-	-
Total Revenues	**$0.1**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
YOY Growth	-	-	-	-	-	-	-	-
Cost of Sales	$0	$0	$0	$0	$0	$0	$0	$0
Product Gross Margin	-	-	-	-	-	-	-	-
General & Administration	$7.6	$1.6	$1.4	$1.5	$1.6	$6.1	$7.0	$8.0
Research & Development	$2.9	$1.5	$1.7	$1.2	$1.2	$5.6	$5.5	$6.5
Other Operating Expenses	$5.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Operating Income	($16.2)	($3.0)	($3.1)	($2.7)	($2.8)	($11.6)	($12.5)	($14.5)
Operating Margin	-	-	-	-	-	-	-	-
Non-Operating Expenses (Net)	$2.0	($0.1)	$0.0	$0.0	$0.0	($0.1)	$0.0	$0.0
Pre-Tax Income	($14.1)	($3.1)	($3.1)	($2.7)	($2.8)	($11.7)	($12.5)	($14.5)
Income Taxes Paid	($1)	$0	$0	$0	$0	$0	$0	$0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Deemed Dividends	$0	$0	$0	$0	$0	$0	$0	$0
Net Income	($12.8)	($3.1)	($3.1)	($2.7)	($2.8)	($11.7)	($12.5)	($14.5)
Net Margin	-	-	-	-	-	-	-	-
Reported EPS	**($2.01)**	**($0.23)**	**($0.19)**	**($0.14)**	**($0.14)**	**($0.68)**	**($0.63)**	**($0.66)**
YOY Growth	*-92%*	-	-	-	-	*-66%*	*-9%*	*5%*
Basic Shares Outstanding	6.4	13.3	16.5	19.0	19.5	17.1	20.0	22.0

Source: Zacks Investment Research, Inc. *David Bautz, PhD*

© Copyright 2018, Zacks Investment Research. All Rights Reserved.

HISTORICAL STOCK PRICE



© Copyright 2018, Zacks Investment Research. All Rights Reserved.

DISCLOSURES

The following disclosures relate to relationships between Zacks Small-Cap Research ("Zacks SCR"), a division of Zacks Investment Research ("ZIR"), and the issuers covered by the Zacks SCR Analysts in the Small-Cap Universe.

ANALYST DISCLOSURES

I, David Bautz, PhD, hereby certify that the view expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report. I believe the information used for the creation of this report has been obtained from sources I considered to be reliable, but I can neither guarantee nor represent the completeness or accuracy of the information herewith. Such information and the opinions expressed are subject to change without notice.

INVESTMENT BANKING AND FEES FOR SERVICES

Zacks SCR does not provide investment banking services nor has it received compensation for investment banking services from the issuers of the securities covered in this report or article.
Zacks SCR has received compensation from the issuer directly or from an investor relations consulting firm engaged by the issuer for providing non-investment banking services to this issuer and expects to receive additional compensation for such non-investment banking services provided to this issuer. The non-investment banking services provided to the issuer includes the preparation of this report, investor relations services, investment software, financial database analysis, organization of non-deal road shows, and attendance fees for conferences sponsored or co-sponsored by Zacks SCR. The fees for these services vary on a per-client basis and are subject to the number and types of services contracted. Fees typically range between ten thousand and fifty thousand dollars per annum. Details of fees paid by this issuer are available upon request.

POLICY DISCLOSURES

This report provides an objective valuation of the issuer today and expected valuations of the issuer at various future dates based on applying standard investment valuation methodologies to the revenue and EPS forecasts made by the SCR Analyst of the issuer's business.
SCR Analysts are restricted from holding or trading securities in the issuers that they cover. ZIR and Zacks SCR do not make a market in any security followed by SCR nor do they act as dealers in these securities. Each Zacks SCR Analyst has full discretion over the valuation of the issuer included in this report based on his or her own due diligence. SCR Analysts are paid based on the number of companies they cover. SCR Analyst compensation is not, was not, nor will be, directly or indirectly, related to the specific valuations or views expressed in any report or article.

ADDITIONAL INFORMATION

Additional information is available upon request. Zacks SCR reports and articles are based on data obtained from sources that it believes to be reliable, but are not guaranteed to be accurate nor do they purport to be complete. Because of individual financial or investment objectives and/or financial circumstances, this report or article should not be construed as advice designed to meet the particular investment needs of any investor. Investing involves risk. Any opinions expressed by Zacks SCR Analysts are subject to change without notice. Reports or articles or tweets are not to be construed as an offer or solicitation of an offer to buy or sell the securities herein mentioned.