AEGIS CAPITAL CORP

Biotechnology
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Company Update / Estimates Change

November 10, 2016

Inovio Pharmaceuticals, Inc.

Rating: Buy

INO Results/ Zika Results Promising

Key Metrics

INO - NASDAQ	$7.60
Pricing Date	Nov 10 2016
Price Target	$12.00
52-Week Range	$4.50 - $11.69
Shares Outstanding (mm)	74.1
Market Capitalization (mm)	$563.2
3-Mo Average Daily Volume	1,122,840
Institutional Ownership	33%
Debt/Total Capital	NM
ROE	NM
Book Value/Share	$2.21
Price/Book	3.4x
Dividend Yield	NM
LTM EBITDA Margin	NM

EPS FY: December

	2015A	Prior 2016E	Curr. 2016E	Prior 2017E	Curr. 2017E
1Q-Mar	(0.17)	--	(0.11)A	--	--
2Q-Jun	(0.09)	--	(0.26)A	--	--
3Q-Sep	0.08	(0.29)E	(0.28)A	--	--
4Q-Dec	(0.25)	(0.29)E	(0.38)E	--	--
FY	(0.43)	(0.96)E	(1.04)E	(1.10)E	(1.18)E
P/E	NM		NM		NM

REVENUE

	2015A	Prior 2016E	Curr. 2016E	Prior 2017E	Curr. 2017E
1Q-Mar	5.2	--	8.1A	--	--
2Q-Jun	5.3	--	6.2A	--	--
3Q-Sep	24.2	4.4E	12.5A	--	--
4Q-Dec	5.9	4.7E	5.0E	--	--
FY	40.6	23.3E	31.8E	24.3E	33.2E

Company Description:
Inovio Pharmaceuticals, Inc. (http://www.inovio.com/) is a DNA vaccine firm based in Plymouth Meeting, PA.

Investment Highlights:

Yesterday INO reported 3Q16 results, ending 3Q with $119.7 million in cash, which we expect to fund its pipeline until 2018. The company burned $18.6 million in cash from its operating activities this quarter and management anticipates net cash burn of ~$60 million this year. For 2017 the company anticipates net burn ~10% higher than 2016, or $66 million for the year. Management expects VGX-3100 to be resolved by 1Q17, with potentially no delay in the overall completion of a Phase 3 trial. 4Q16 includes several clinical read-outs, including the 40 patient Zika trial, INO-3112 in head and neck, and interim data of its MERS vaccine. In 3Q16, INO recorded revenues of $12.5 million versus $24.2 million a year ago and EPS of -$0.28 versus consensus of -$-0.27. R&D expense increased to $27.0 million from $19.6 million last quarter, while SG&A remained flat at $5.8 million. We reiterate our Buy rating and $12 PT.

Discussion:

VGX-3100 hold should be resolved by 1Q, with potentially no delay. As announced last week, in its initial communication, prior to the start of its Phase 3 for cervical dysplasia, the FDA placed the trial on hold, requesting additional data to support Inovio's shelf-life claim for the single-use disposable array of the newly designed and manufactured CELLECTRA 5PSP immunotherapy delivery device (something management expects to supply by year end, setting the clock for a 30 day response from the FDA). Inovio expects to receive a formal letter in November, which may request other information, and after that all said estimate the start of the Phase 3 clinical program will be delayed until the first half of 2017, pending resolution of the FDA's request—though management stresses it may not necessarily delay the overall completion of the trial (we're expecting 2 years till completion). Additionally, the FDA is now requesting 400 patients, which increases the numbers to the upper end of the expected 350-400 range.

Zika: During the quarter the company initiated a Phase I Zika DNA vaccine trial in Puerto Rico (which is projected by the CDC to have a 25% infection rate) to test for safety, immune responses and initial evidence of efficacy. The placebo-controlled double-blind trial will assess differences in Zika infection rates in 160 healthy participants given either placebo or vaccine as part of an exploratory endpoint, and we expect data sometime in 2017. This is the second human Zika vaccine trial initiated by Inovio. All 40 subjects for the first clinical study have been fully enrolled and dosed, and the company will provide results later this year, and looks to enroll a Phase II in 2017. In keeping with its strategy, we expect the company to seek outside financing for this program.

This morning, INO announced results for its Zika DNA vaccine (GLS-5700) in animals demonstrating protection from infection, brain damage, and death with a 100% protection rate, while unvaccinated mice showed signifcant degeneration of the brain after infection. The paper demonstrated immunogenicity in Zika-resistant species and analyzed the Zika vaccine in animals lacking IFNAR alpha and beta receptors, showing the vaccine's response to the Zika virus. In both mouse and non-human primate models, GLS-5700 expressed antigens specific to Zika. We view the success of GLS-5700 protection against the disease in animals as positive, and the first human study results (n=40) are expected later this year. We value the stock at $12, based on a sum of the parts analysis.

(Continued on the next page.)

Ebola: During the quarter, the company expanded the Phase I Ebola vaccine trial by fully enrolling an additional 125 subjects in a second stage after generating positive initial safety and immune response data in the first set of 75 healthy volunteers. The study will assess immune response characteristics generated with fewer intradermal administrations, lower doses, and with and without its DNA-based IL-12 immune activator. The company will have antibody data available for the second stage in 1Q2017 and, if positive results are achieved, plans to approach the FDA and other regulators regarding approval for emergency use.

Cancer Programs: The company completed enrollment of a Phase I INO-3112 trial (n=22) for head & neck cancer, and expects Phase I data in 4Q16, which will be presented at an upcoming cancer conference. The timeline is unclear, as INO licensed the drug to MedImmune in 2015, leaving MedImmune in control of future planning, though the company believes that MedImmune is preparing a study expected to start 1Q16. Inovio and GeneOne Life Science completed enrollment of 75 healthy volunteers in the Phase 1 trial of their GLS-5300 MERS vaccine, with interim data expected in 4Q16.

INO-5150, for prostate cancer targeting PSMA and PSA (n=62) will have results presented at a medical conference in 1H17. The company has expanded its hTERT antigen program from three types of tumor to nine, including ovarian, head and neck, hepatocellular carcinoma and is now targeting 54 subjects at five sites. Interim data is expected throughout 2017, with final readout not expected until 2018, though this does not preclude INO from initiating the next study. The company is also evaluating INO-5401, hTERT in combination with two other antigens and a checkpoint inhibitor, and will provide more color by the first quarter.

INO is developing its hep B immunotherapy candidate INO-1800 independently (previously partnered with Roche), and is currently enrolling, with full 90 patient enrollment expected in 1Q17 and data expected 2H17.

GENEOS : Inovio announced on the call the incorporation of a 100%-owned subsidiary, GENEOS Therapeutics, Inc., to develop and commercialize neo-antigen based personalized cancer therapies. This will leverage Inovio's DNA immunotherapy platform as a separate entity, which it believe can be used rapidly and cost effectively develop personalized cancer vaccines. This will be a separate entity that will raise its own capital, and have a separate management team. Several companies, notably Novarits, and most recently Merck (with a $200 million deal with Moderna Theraputics to develop mRNA based vaccines) are investing in this space. Stay tuned.

This quarter, the company licensed a veterinary vaccine for foot and mouth disease (FMD) to Plumbline Life Sciences, an animal health company headquartered in South Korea. Plumbline will fund all development activities for this FMD vaccine and pay Inovio milestone payments as well as royalties on potential product sales.

3Q16 Results: The company reported revenues of $12.5 million versus $24.2 million a year ago, the major difference being a $15 million upfront payment from their partnership agreement with MedImmune that occurred in the year ago quarter. The company reported EPS of -$0.28 vs consensus of -$-0.27. R&D expense increased to $27.0 million from $19.6 million last quarter, while SG&A remained flat at $5.8 million. As of the end of the quarter, the company had $119.7 million in cash. This includes $4.2 million net proceeds from the sale of 448, 848 shares at an average price of $9.45 per share under an existing ATM agreement. The company burned $18.6 million in cash from its operating activities this quarter and management anticipates net cash burn of ~$60 million this year. For 2017 the company anticipates net burn ~10% higher or $66 million for the year.

Inovio Biomedical Coporation

Income Statement

Fiscal Year ends December

(in 000, except per share items)

	2008A	2014A	2015A	1Q16A	2Q16A	3Q16A	4Q16E	2016E	2017E	2018E
Revenue:										
License fee and milestone payments	791	7,896	27,530	1,934	2,390	2,902	3,192	10,418	10,730	11,803
% growth		-18%	249%	*-12%*	*23.6%*	*21.4%*	*10.0%*	-62%	3%	10%
Collaborative R&D revenue	1,078	-	125					-	-	-
Grants and miscellaneous revenue	228	2,561	12,916	6,176	3,814	9,639	1,765	21,394	22,464	23,587
% growth		-33%	404%	*65%*	*-38%*	*153%*	*-82%*	66%	5%	5%
Total revenue	**2,098**	**10,457**	**40,572**	**8,110**	**6,204**	**12,540**	**4,957**	**31,812**	**33,194**	**35,390**
Operating expenses:										
Research and development	5,750	34,095	57,792	18,189	19,631	26,980	27,790	92,590	106,479	117,126
% growth		*60%*	*70%*	*17%*	*8%*	*37%*	*3.0%*	*60%*	*15%*	*10%*
Selling, general and administrative	10,006	15,858	18,064	5,372	5,800	5,756	5,813	22,740	23,877	25,071
% growth		*16%*	*14%*	*11%*	*8%*	*-1%*	*1.0%*	*26%*	*5%*	*5%*
Gain on sale of assets		-	(1,000)		(1,000)			(1,000)		
Total operating expenses	**15,756**	**49,953**	**74,856**	**23,561**	**24,430**	**32,736**	**33,603**	**114,330**	**130,355**	**142,197**
Income (loss) from operations	**(13,658)**	**(39,496)**	**(34,284)**	**(15,451)**	**(18,227)**	**(20,195)**	**(28,646)**	**(82,518)**	**(97,162)**	**(106,807)**
Interest income (expense), net	49	331	305	333	341	392	70	1,136	200	100
Other income (expense), net	644	348	178	(406)	(114)	3	150	(367)	500	500
Gain (loss) from investment in affiliate	-	2,676	2,600	7,481	(706)	(958)		5,817		
Net income (loss)	**(12,966)**	**(36,140)**	**(31,202)**	**(8,043)**	**(18,705)**	**(20,759)**	**(28,426)**	**(75,933)**	**(96,462)**	**(106,207)**
Net loss attributable to non-controlling stake	-	18	(85)					-	-	-
Income tax benefit			2,098					-	-	-
Net income (loss) attributable to to Inovio	**(12,966)**	**(36,122)**	**(29,188)**	**(8,043)**	**(18,705)**	**(20,759)**	**(28,426)**	**(75,933)**	**(96,462)**	**(106,207)**
EPS	**(1.18)**	**(0.61)**	**(0.43)**	**(0.11)**	**(0.26)**	**(0.28)**	**(0.38)**	**(1.04)**	**(1.18)**	**(1.18)**
Basic share count	10,979	59,127	68,132	72,230	72,957	73,603	74,339	73,282	81,773	89,950
Diluted share count	10,979	59,408	68,733	72,268	72,957	73,789	74,527	73,385	81,773	89,950
% growth		*28.3%*	*15.2%*	*0%*	*1.0%*	*0.9%*	*1.0%*	*7.6%*	*10.0%*	*10.0%*

Source: Company reports, Aegis Capital Corp. estimates

Required Disclosures

Price Target

Our 12-month price target is $12.00.

Valuation Methodology

We value the stock at $12, based on a sum of the parts analysis.

Risk Factors

Issues that could prevent the achievement of our price objective include, but are not limited to, clinical, regulatory, competitive, reimbursement and financial risks. Drugs in clinical development may not advance due to inadequate safety, efficacy, or tolerability. Regulatory agencies may decline to approve regulatory submissions in a timely manner, or may not approve a drug candidate at all. The firm may require substantial funding to advance the clinical progress of its candidates, which could be dilutive to current shareholders. We expect competition for the company's drugs from several public and private companies developing pharmaceuticals.

For important disclosures go to www.aegiscap.com.

We, Jason Wittes and Evan Wang, hereby certify that the views expressed in this research report accurately reflect our personal views about the subject companies and their securities. We also certify that We have not been, do not, and will not be receiving direct or indirect compensation in exchange for expressing the specific recommendations in this report.

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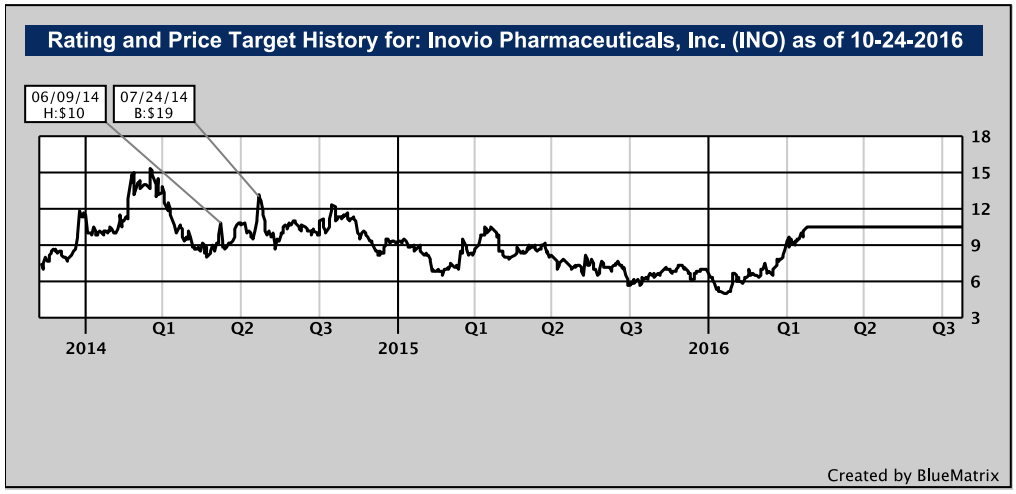

Rating	Percent	Investment Banking Services/Past 12 Mos. Percent
BUY [BUY]	87.50	42.86
HOLD [HOLD]	12.50	36.36
SELL [SELL]	0.00	0.00

Meaning of Ratings

A) A Buy rating is assigned when we do not believe the stock price adequately reflects a company's prospects over 12-18 months.

B) A Hold rating is assigned when we believe the stock price adequately reflects a company's prospects over 12-18 months.

C) A Sell rating is assigned when we believe the stock price more than adequately reflects a company's prospects over 12-18 months.

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