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OUTPERFORM

Reason for report:

FLASH NOTE

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IMMUNE DESIGN CORP.

Post-ASCO Analyst Event Highlights Rigorous Approach to Immuno-oncology

• **Bottom line:** Yesterday we attended IMDZ's Post-ASCO Clinical Research Update in New York City, where IMDZ senior management and its Principal Investigators provided an in-depth summary of the three clinical programs thus far. Our key takeaways include: (1) impressive translational efforts that provide support for the underlying mechanism of immune activation for IMDZ' clinical candidates, particularly LV305 and G305. (2) a stronger appreciation that IMDZ's products are highly differentiated, with LV305 being the first-in-class dendritic cell-targeting virus, and its GLAAS TLR agonist having best-in-class potential. (3) robust development program, which include moving CMB305 into phase II before the end of the year, as well as broader plans for its pipeline moving forward, such as a focus on the combination with a checkpoint inhibitor, and the development of a second-generation lentivirus platform.

• **We came away very impressed with the depth of IMDZ's translational research efforts.** Against the background of high historical failure rates for cancer vaccines but strong renewed interest after the success of immune checkpoint inhibitors, we believe IMDZ has developed both a novel approach of delivering antigens to dendritic cells as well as a unique combination aimed at generating both CD4 and CD8 T cells. We saw ample evidence of this in yesterday's presentations on G100, G305 and LV305 given by Frank Hsu (VP and Head of Oncology at IMDZ), Amit Mahipal (Moffitt Cancer Center) and Neeta Somaiah (MD Anderson Cancer Center), respectively: for all three drugs, IMDZ characterized immunological events in each patient in great depth at least prior and after treatment, using a wide repertoire of relevant assays. This translational work has resulted in a number of important findings for IMDZ's programs including LV305's ability to both expand pre-existing clones of target-specific CD8+ T-cells and create new clones, as well as evidence for the diverse repertoire of TCRs generated (including epitopes not previously recognized as immunogenic). In addition, by ascertaining that each aspect of the hypothesized drug mechanism of action actually plays out in patients, IMDZ potentially could avoid many of the pitfalls that have plagued other cancer vaccine developers. Although management indicated to us that their translational-research-heavy approach adds substantially to the cost of running IMDZ's trials, we see this upfront cost as money well invested. Given the relatively small size of the phase I-II studies, we consider this to be a very appropriate context to ask these detailed scientific questions as early as possible to de-risk subsequent larger clinical studies.

• **IMDZ's dendritic cell virus platform is first-in-class and is differentiated over other dendritic cell-targeting vectors.** Management pointed out that LV305 remains the only true dendritic cell-targeting agent available, and that its design allows the pool of T-cells induced to be primarily CD8+. In contrast, in a direct intracellular administration of vaccine DNA using a method such as electroporation, most of the genetic payload ends up in non-dendritic cells. Likewise, management also felt that Listeria delivery vectors, while effective, deliver most of their genetic payload to macrophages rather than dendritic cells.

Key Stats:	**(NASDAQ:IMDZ)**
S&P 600 Health Care Index:	**1,667.16**
Price:	**$22.91**
52 Week High:	$40.13
52 Week Low:	$11.51
Shares Outstanding (mil):	19.2
Market Capitalization (mil):	$439.9

Management also noted that although its GLA-based TLR agonists are not first-in-class, they have the best-in-class potential based on data seen so far.

• **Development plans for G100 and CMB305 include checkpoint inhibitor combos.** Although G100 was previously shown to have single-agent clinical activity in Merkel Cell Carcinoma, it did not appear that IMDZ is necessarily planning on further development in this indication currently. Instead, management pointed out that a second G100 trial is planned, targeting NHL with subtypes not yet disclosed. In this new phase I study, to begin in June-July 2015, G100 would again be combined with radiation therapy but additionally patients would receive a checkpoint inhibitor. CMB305, IMDZ's lead program going forward, is currently in a dose-escalation phase I study. Dose-expansion cohorts in sarcomas, melanoma, ovarian and lung cancer are planned to start in Q3:2015, while a randomized phase II study is planned to commence near year-end 2015. The phase II study will be run in soft tissue sarcomas but may also include one additional indication, based on outcomes from the CMB305 dose expansion study. A combination with a checkpoint inhibitor in this study is of high interest.

• **IMDZ continues to develop its platform.** Management also pointed out to us that IMDZ is actively developing a second-generation dendritic cell-targeting virus that would increase the number of genes and epitopes that can be delivered. Another interesting area of exploration for a second-generation virus platform that IMDZ described to us would be to include a single-chain antibody gene directed against CTLA-4, to maximize T cell activation by dendritic cells in secondary lymphoid organs. Finally, management noted that the firm is actively researching additional molecular vaccine targets beyond NY-ESO-1, and that a second target may be disclosed around the end of 2015.

Disclosures Appendix

Analyst Certification

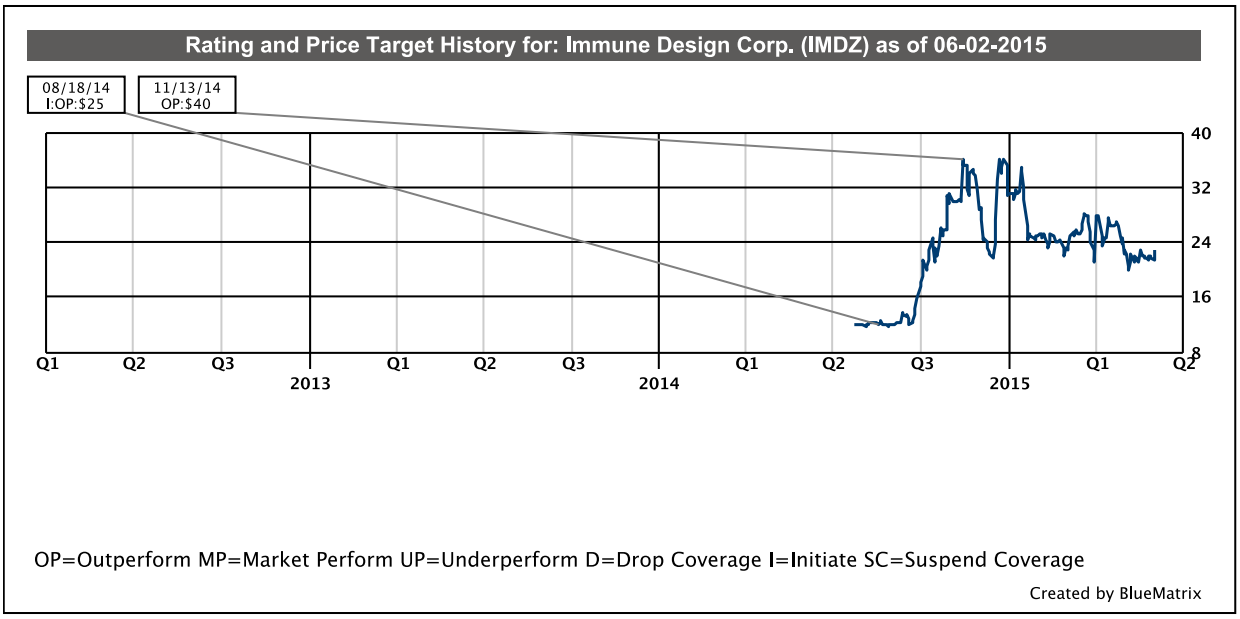
I, Howard Liang, Ph.D., certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

Valuation

Our price target is $40 a share based on a DCF analysis and probability-weighted sales for G100 in Merkel cell carcinoma and low-grade non-Hodgkin's lymphoma (10-30% probability), and for CMB305 in synovial sarcoma (20% probability), melanoma (10% probability), NSCLC (15% probability), and ovarian cancer (10% probability) with a 10% discount rate. We believe this discount rate is appropriate as we use probability-weighted sales for the products. In addition, we also assigned $100M (increased from $50M due to recent expansions of collaborations) to partnered programs but no value for potential products beyond NY-ESO-1.

Risks to Valuation

Early stage of development with uncertainties in efficacy and safety; Unknown future landscape in immunotherapy for cancer; Initial target (NY-ESO-1) remains to be validated; Ability to scale up and manufacture lentivirus as a product; Lack of manufacturing capability and reliance on third-party manufacturers; Competition from immunotherapeutic approaches.



Distribution of Ratings/Investment Banking Services (IB) as of 03/31/15				
			IB Serv./Past 12 Mos.	
Rating	Count	Percent	Count	Percent
BUY [OP]	151	70.20	55	36.00
HOLD [MP]	64	29.80	2	3.00
SELL [UP]	0	0.00	0	0.00

Explanation of Ratings

Outperform (Buy): **We expect this stock to outperform its benchmark over the next 12 months.**

Market Perform (Hold/Neutral): **We expect this stock to perform in line with its benchmark over the next 12 months.**

Underperform (Sell): **We expect this stock to underperform its benchmark over the next 12 months.The degree of outperformance or underperformance required to warrant an Outperform or an Underperform rating should be commensurate with the risk profile of the company.**

For the purposes of these definitions the relevant benchmark will be the S&P 600® Health Care Index for issuers with a market capitalization of less than $2 billion and the S&P 500® Health Care Index for issuers with a market capitalization over $2 billion.

Important Disclosures

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