April 16, 2014

OUTPERFORM

Reason for report:

FLASH NOTE

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DICERNA PHARMACEUTICALS, INC.

Phase I DCR-MYC Study Initiated on Schedule

• **Bottom Line:** DRNA today announced the initiation of a Phase I dose-escalating clinical study of DCR-MYC (DCR-M1711), in patients with solid tumors, multiple myeloma, or lymphoma. Recall management guided to a 2Q14 launch of the study. We view the FDA acceptance of the IND filing as an incremental milestone for DRNA's RNAi platform. Recall DRNA's drugs are based on its proprietary dsiRNA payloads formulated with its proprietary delivery technology, and the company has thus far conducted preclinical studies in animal models, including non-human primates. **Reiterate Outperform rating.**

• **Initiation of first-in-man study for DRNA's first Dicer-substrate is an incremental milestone for DRNA's technology platform, in our view.** The Phase I dose-escalation study will assess the safety and tolerability of DCR-MYC in patients with solid tumors, multiple myeloma, or lymphoma who are refractory or unresponsive to standard therapies. DCR-MYC will be administered by one hour intravenous (IV) infusion, once weekly for three weeks followed by a rest week. The goals of this study are to identify the maximum tolerated dose and study the pharmacokinetic profile, potential pharmacodynamic effects, and antitumor activity of DCR-MYC.

• **We believe positive data from this first-in-man Phase I trial expected in 2015 could significantly derisk DRNA's platform.** Recall, efficient systemic delivery of RNAi-inducing payloads has historically been the main issue of RNAi technology, and so far only a few companies have been able to overcome the delivery issue. We believe data in 2015 showing efficient target knock-down would be interesting for potential future partners. We believe DRNA's technology is differentiated from traditional siRNA-based approaches in that its payloads are generally significantly more potent which could improve the therapeutic window if delivered at the same rate.

• **Next up:** Initiation of a Phase I hepatocellular carcinoma (HCC) study in Asia in 2H14.

Key Stats:	**(NASDAQ:DRNA)**
S&P 600 Health Care Index:	**1,228.69**
Price:	**$16.30**
52 Week High:	$46.00
52 Week Low:	$15.00
Shares Outstanding (mil):	17.8
Market Capitalization (mil):	$290.1

Please refer to pages 2 - 4 for Important Disclosures, Price Charts and Analyst Certification.

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Disclosures Appendix

Analyst Certification

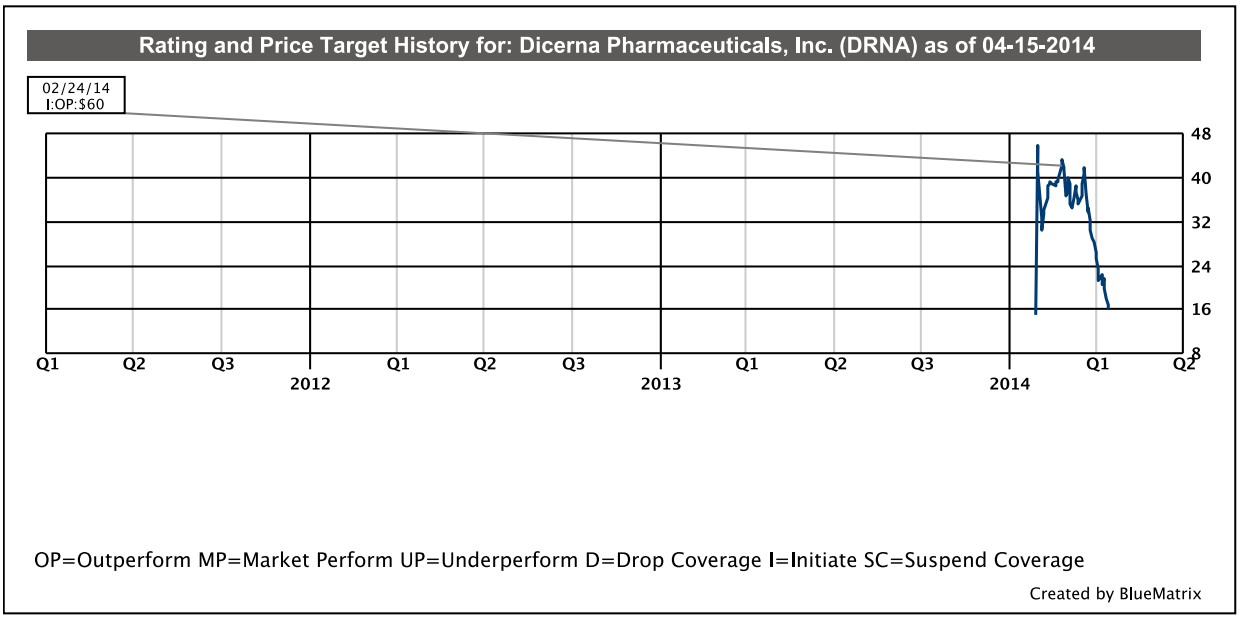
I, Michael Schmidt, Ph.D., certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

Valuation

Our $60 price target for DRNA shares in 12 months is based on a discounted cash flow (DCF) sum-of-parts analysis. Based on our DCF analysis, we attribute $36/share to the pipeline, $2/share to the KHK partnership, $15/share to the platform, and the rest to net cash expected in one year. We use a 12% discount rate for probability of success-weighted pipeline products and a 15% discount rate for the DsiRNA technology platform. We probability-weight the MYC program at 20% and the PH1 program at 25% probability-of-success. We probability-weight the KRAS program at 15% POS and the second undisclosed candidate at 10% POS. We assume DRNA to receive a 9% royalty on worldwide sales for products under the KHK partnership. We value DRNA's technology platform using the assumption it will generate one additional new DsiRNA product candidate per year starting in 2015E. We discount assumed future profits and losses back using a 15% discount rate.

Risks to Valuation

DRNA faces significant clinical and regulatory risks since all of its product candidates are currently in development. DRNA specifically also faces clinical development risk since none of its products have been tested in humans, and the company is developing first-in-class RNAi-based drugs with a novel proprietary delivery mechanism. In addition to that, DRNA's product candidates address new, clinically invalidated targets. Similar to many other developmental stage Biopharma companies, DRNA also faces manufacturing, competitive, commercial, regulatory, and safety risks, as well as risks to its intellectual property. In addition, DRNA faces financing risk dilutive to shareholders since we don't believe the company will be profitable for the foreseeable future. We see additional risks for investors since the company is closely held and substantially all of DRNA's outstanding shares are not subject to lock-up agreements in connection with its IPO.



Distribution of Ratings/Investment Banking Services (IB) as of 03/31/14				
			IB Serv./Past 12 Mos.	
Rating	Count	Percent	Count	Percent
BUY [OP]	131	68.23	46	35.11
HOLD [MP]	61	31.77	3	4.92
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

This information (including, but not limited to, prices, quotes and statistics) has been obtained from sources that we believe reliable, but we do not represent that it is accurate or complete and it should not be relied upon as such. All information is subject to change without notice. This is provided for information purposes only and should not be regarded as an offer to sell or as a solicitation of an offer to buy any product to which this information relates. The Firm, its officers, directors, employees, proprietary accounts and affiliates may have a position, long or short, in the securities referred to in this report, and/or other related securities, and from time to time may increase or decrease the position or express a view that is contrary to that contained in this report. The Firm's salespeople, traders and other professionals may provide oral or written market commentary or trading strategies that are contrary to opinions expressed in this report. The Firm's proprietary accounts may make investment decisions that are inconsistent with the opinions expressed in this report. The past performance of securities does not guarantee or predict future performance. Transaction strategies described herein may not be suitable for all investors. Additional information is available upon request by contacting the Editorial Department at One Federal Street, 37th Floor, Boston, MA 02110.

Like all Firm employees, analysts receive compensation that is impacted by, among other factors, overall firm profitability, which includes revenues from, among other business units, Institutional Equities, and Investment Banking. Analysts, however, are not compensated for a specific investment banking services transaction.

MEDACorp is a network of healthcare professionals, attorneys, physicians, key opinion leaders and other specialists accessed by Leerink and it provides information used by its analysts in preparing research.

In the past 12 months, the Firm has received compensation for providing investment banking services to Dicerna Pharmaceuticals, Inc. .

Leerink Partners LLC makes a market in Dicerna Pharmaceuticals, Inc.

Leerink Partners LLC has acted as the manager for a public offering of Dicerna Pharmaceuticals, Inc. in the past 12 months.

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