News Release

FOR IMMEDIATE RELEASE

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Dicerna Secures $60 Million in Oversubscribed Series C Financing

Proceeds Will Advance Next Generation RNAi-based Therapeutics into Clinical Studies

WATERTOWN, Mass., August 1, 2013-- Dicerna Pharmaceuticals, Inc., an emerging pharmaceutical company developing RNA interference (RNAi)-based therapeutics against genetically-defined targets in multiple disease areas, announced today that it has closed $60 million in an oversubscribed Series C round of financing. The round was led by new investor RA Capital with participation by Brookside Capital, Deerfield, and Omega Funds. In addition, the round includes all five of Dicerna's existing institutional investors: Abingworth Management, Domain Associates, Oxford Bioscience Partners, Skyline Ventures and SR One. In conjunction with its investment, RA Capital's partner Peter Kolchinsky, Ph.D., has joined Dicerna's board of directors.

"We are pleased to welcome RA Capital, Brookside Capital, Deerfield, and Omega Funds to our dedicated investor syndicate," said Douglas M. Fambrough, Ph.D., chief executive officer of Dicerna. "With our new and current investor support, we have the necessary resources to continue Dicerna's progression into a clinical-stage biopharmaceutical company. Dicerna is developing first-in-class therapeutics by taking well understood and genetically-defined but so far 'undruggable' targets and building our pipeline using our next generation RNAi Dicer Substrate Technology™ platform and our EnCore™ Drug Delivery System. Over the next two years we will launch several Dicer Substrate pharmaceuticals into clinical development, targeting well-understood orphan diseases as well as classic undruggable targets in oncology. We anticipate our first human trials will begin in early 2014."

Proceeds from the financing will be used to advance two or more programs into the clinic and to progress other preclinical programs. The company also plans to use the proceeds to continue to develop innovative drug delivery systems, which combine Dicerna's DsiRNA molecules with targeting moieties allowing for direct delivery into specific cells of interest.

"Dicerna has strong science and a capable management team that is generating an impressive pipeline of next generation RNAi therapeutics addressing serious unmet medical needs," said Dr. Kolchinsky. "The company's novel approach to RNAi will allow it to develop therapeutics with greater potency and enhanced delivery potential, differentiating it from other RNAi approaches. I look forward to working closely with the board as the company transitions multiple preclinical programs into human clinical trials over the next 12 to 18 months."

About Dicer Substrate RNAi (DsiRNA)
Dicerna's DsiRNA molecules are uniquely structured and different from first generation siRNAs. Specifically, the company's DsiRNA molecules are 25 or more base pairs in length and are processed by the Dicer enzyme. The ability to engage the Dicer enzyme, which operates early in the gene silencing cascade, provides functional benefits over conventional, shorter siRNA molecules.

About Dicerna
Dicerna is a private, venture-backed biopharmaceutical company harnessing RNA interference (RNAi) to develop breakthrough, targeted therapeutics. Utilizing its Dicer Substrate Technology™ platform and EnCore™ delivery technology, Dicerna is developing a pipeline of programs to reach previously undruggable intracellular disease targets.

The company has collaborations and alliances with global pharmaceutical companies and will continue to build on this momentum to advance its research and development efforts. Dicerna is based in Watertown, Mass. For more information, please visit www.dicerna.com.

Cautionary Note Regarding Forward Looking Statements
This press release contains forward looking statements, including statements regarding the future of Dicerna and its potential pharmaceutical products and systems, that are subject to significant risks and uncertainty. Dicerna is an early stage biopharmaceutical company with all of its potential drug candidates in laboratory or pre-clinical studies. Most early stage drug candidates fail to become commercially available drugs due to, among other reasons, clinical failure, regulatory problems, or the inability to raise the significant funds required for drug development. RNAi is a novel area of therapeutics and there are no approved RNAi-based drugs. As an early stage company, Dicerna incurs and expects to continue to incur significant operating losses.

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