News Release

Rosetta Genomics and Marina Biotech Establish Strategic Alliance to Jointly Develop microRNA-based Diagnostics and Therapeutics for Rare Diseases

Alliance combines industry leading microRNA biomarker and target discovery platform with proprietary microRNA drug discovery engine

PRINCETON, N.J., REHOVOT, Israel and BOSTON (April 2, 2014) – Rosetta Genomics Ltd. (NASDAQ: ROSG), a leading developer and provider of microRNA-based molecular diagnostics and therapeutics, and Marina Biotech, Inc. (Pinksheets: MRNA), a leading nucleic acid-based drug discovery and development company focused on rare diseases, jointly announced that they had established a strategic alliance, wherein the companies will collaborate to identify and develop microRNA-based products designed to diagnose and treat various neuromuscular diseases and dystrophies.

The Alliance is exclusive as it relates to neuromuscular diseases and dystrophies, with both Companies free to develop and collaborate outside this field both during and after the terms of the Alliance. The Companies' initial efforts are expected to be focused on Becker and Duchenne muscular dystrophies as well as myotonic dystrophy. Financial terms and other details of the agreement are not being disclosed at this time.

Under the terms of the Alliance, Rosetta will apply its industry leading microRNA discovery expertise for the identification of microRNAs involved in the various dystrophy diseases. If the microRNA is determined to be correlative to the disease, Rosetta may further develop the microRNA into a diagnostic for patient identification and stratification. If the microRNA is determined to be involved in the disease pathology and represents a potential therapeutic target, Marina may develop the resulting microRNA-based therapeutic for clinical development.

"We are delighted to have the opportunity to apply our leading-edge microRNA expertise with Marina's single- and double-stranded nucleic acid therapeutics in order to isolate specific microRNA biomarkers for the development of diagnostics and therapies for a variety of dystrophies. These rare diseases remain a significant unmet medical need," stated Kenneth A. Berlin, President and Chief Executive Officer of Rosetta Genomics. "Targeted diagnostics to identify potential responders/non-responders for specific therapies would mark a significant advance for these patients as dystrophies are degenerative diseases that accelerate over time. In addition, current treatment options are sub-optimal and costly. We believe the development of a diagnostic that can accurately predict response to therapy will bring effective treatment to dystrophy patients earlier and with significant cost savings."

"The Alliance is a perfect match of cutting-edge technologies," stated J. Michael French, President and CEO of Marina Biotech. "Rosetta brings to the Alliance world class expertise in the development of microRNA diagnostics. Importantly, Rosetta can potentially identify novel microRNA targets for further development into clinical candidates. Marina is in the unique position to capitalize on Rosetta's expertise by utilizing Rosetta's microRNA-based diagnostics for patient identification and stratification in Marina's clinical development programs and by utilizing Marina's proprietary chemistries and delivery technologies to advance novel microRNA-based therapeutics – both single-stranded microRNA antagonists and double-stranded microRNA mimics – into the clinic. We believe our SMARTICLES® is the only delivery technology currently in clinical development that is delivering both single-stranded oligonucleotides and double-stranded microRNA mimics. We believe this delivery technology, combined with our conformationally restricted nucleotide chemistry, will permit us to develop best-in-class microRNA antagonists and mimics. Our ability to work with both modalities is potentially critically important in the treatment of multi-system diseases such as myotonic dystrophy. While current technologies are limited by either a single-stranded or a double-stranded approach, Marina can pursue whichever nucleic acid modality most effectively treats these debilitating diseases."

"This latest strategic alliance underscores the versatility of Rosetta's microRNA biomarker platform for the identification of specific microRNA signatures for a variety of indications and applications and positions Rosetta Genomics as the partner of choice for such collaborations," added Mr. Berlin. "Importantly, these partnerships represent our company's third platform for revenue growth. Moving forward, we expect to enter into additional agreements as we seek to monetize our leading microRNA biomarker platform."

About Neuromuscular Disorders and Dystrophies
Neuromuscular disorders affect the nerves that control voluntary muscles, such as those that control the arms and legs. Nerve cells, also called neurons, send messages that control these muscles. When the neurons become unhealthy or die, communication between the nervous system and muscles breaks down. As a result, muscles weaken and waste away. Likewise, dystrophies are progressive degenerative disorders affecting skeletal muscles. In both cases, the diseases can often effect other organ systems such as the heart and central nervous system. Many neuromuscular diseases and almost all dystrophies are genetic, which means there is a mutation in genes which in many cases is passed from family member to family member. Although a cure for these disorders may present itself in the future, currently the goal of drug development efforts is to improve symptoms, increase mobility and increase the individual's lifespan.

About Marina Biotech, Inc.
Marina Biotech is an oligonucleotide therapeutics company with broad drug discovery technologies providing the ability to develop proprietary single and double-stranded nucleic acid therapeutics including siRNAs, microRNA mimics, antagomirs, and antisense compounds, including messengerRNA therapeutics. These technologies were built via a roll-up strategy to discover and develop different types of nucleic acid therapeutics in order to modulate (up or down) a specific protein(s) which is either being produced too much or too little thereby causing a particular disease. We believe that the Marina Biotech technologies have unique strengths as a drug discovery engine for the development of nucleic acid-based therapeutics for

rare and orphan diseases. Further, we believe Marina Biotech is the only company in the sector that has a delivery technology in human clinical trials with differentiated classes of payloads, through licensees ProNAi Therapeutics and Mirna Therapeutics, delivering single-stranded and double-stranded nucleic acid payloads, respectively. Our novel chemistries and other delivery technologies have been validated through license agreements with Roche, Novartis, Monsanto, and Tekmira. The Marina Biotech pipeline currently includes a clinical program in Familial Adenomatous Polyposis (a precancerous syndrome) and a preclinical program in myotonic dystrophy. Marina Biotech's goal is to improve human health through the development of RNAi- and oligonucleotide-based compounds and drug delivery technologies that together provide superior therapeutic options for patients. Additional information about Marina Biotech is available at www.marinabio.com.

About Rosetta Cancer Testing Services

Rosetta Cancer Tests are a series of microRNA-based diagnostic testing services offered by Rosetta Genomics. The Rosetta Cancer Origin Test™ can accurately identify the primary tumor type in primary and metastatic cancer including cancer of unknown or uncertain primary (CUP). Rosetta Mesothelioma Test™ diagnoses mesothelioma, a cancer connected to asbestos exposure. The Rosetta Lung Cancer Test™ accurately identifies the four main subtypes of lung cancer using small amounts of tumor cells. The Rosetta Kidney Cancer Test™ accurately classifies the four most common kidney tumors: clear cell renal cell carcinoma (RCC), papillary RCC, chromophobe RCC and oncocytoma. Rosetta's assays are designed to provide objective diagnostic data; it is the treating physician's responsibility to diagnose and administer the appropriate treatment. In the U.S. alone, Rosetta Genomics estimates that 200,000 patients a year may benefit from the Rosetta Cancer Origin Test™, 60,000 from the Rosetta Mesothelioma Test™, 65,000 from the Rosetta Kidney Cancer Test™ and 226,000 patients from the Rosetta Lung Cancer Test™. The Company's assays are offered directly by Rosetta Genomics in the U.S., and through distributors around the world. For more information, please visit www.rosettagenomics.com. Parties interested in ordering the test can contact Rosetta Genomics at (215) 382-9000 ext. 309.

About Rosetta Genomics

Founded in 2000, Rosetta's integrative research platform combining bioinformatics and state-of-the-art laboratory processes has led to the discovery of hundreds of biologically validated novel human microRNAs. Building on its strong patent position and proprietary platform technologies, Rosetta is working on the application of these technologies in the development and commercialization of a full range of microRNA-based diagnostic tools and therapeutics. Rosetta currently commercializes a full range of microRNA-based molecular diagnostics. Rosetta's cancer testing services are commercially available through its Philadelphia-based CAP-accredited, CLIA-certified lab. For more information, please visit www.rosettagenomics.com.

Marina Biotech Forward-Looking Statements

Statements made in this news release may be forward-looking statements within the meaning of Federal Securities laws that are subject to certain risks and uncertainties and involve factors that may cause actual results to differ materially from those projected or suggested. Factors that could cause actual results to differ materially from those in forward-looking statements include, but are not limited to: (i) the ability of Marina Biotech to obtain additional funding; (ii) the

ability of Marina Biotech to attract and/or maintain manufacturing, research, development and commercialization partners; (iii) the ability of Marina Biotech and/or a partner to successfully complete product research and development, including preclinical and clinical studies and commercialization; (iv) the ability of Marina Biotech and/or a partner to obtain required governmental approvals; and (v) the ability of Marina Biotech and/or a partner to develop and commercialize products prior to, and that can compete favorably with those of, competitors. Additional factors that could cause actual results to differ materially from those projected or suggested in any forward-looking statements are contained in Marina Biotech's most recent filings with the Securities and Exchange Commission. Marina Biotech assumes no obligation to update or supplement forward-looking statements because of subsequent events.

Rosetta Forward-Looking Statement Disclaimer
Various statements in this release concerning Rosetta's future expectations, plans and prospects, including without limitation, statements relating to potential revenue growth, the expectation to enter into additional similar agreements as Rosetta seeks to monetize its leading microRNA platform and expertise, Rosetta identifying novel microRNA targets for further development into clinical candidates and the collaboration resulting in successful identification and development of microRNA-based products, constitute forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including those risks more fully discussed in the "Risk Factors" section of Rosetta's Annual Report on Form 20-F for the year ended December 31, 2013 as filed with the SEC. In addition, any forward-looking statements represent Rosetta's views only as of the date of this release and should not be relied upon as representing its views as of any subsequent date. Rosetta does not assume any obligation to update any forward-looking statements unless required by law.

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