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Revealing Genomic Answers

Rosetta Genomics Enters Collaboration to Develop a microRNA Classifier Relating to Patients with Non-Small Cell Lung Cancer Considered for Treatment with Immuno-oncology Drugs

PHILADELPHIA and REHOVOT, Israel (May 23, 2017) – Rosetta Genomics Ltd. (NASDAQ: ROSG), a genomic diagnostics company that improves treatment decisions by providing timely and accurate diagnostic information to physicians, announces that the Company has entered into a collaboration with Meir Medical Center (Kfar Saba, Israel) to conduct a study to identify differentially expressed microRNAs between PD-L1 positive (>50%) and PD-L1 negative samples obtained from non-small cell lung cancer (NSCLC) patients who were considered for treatment with an immuno-oncology drug.

The principal investigator, Maya Gottfried, M.D., is the Head of Oncology and Head of Lung Oncology at Meir Medical Center. Dr. Gottfried is a key opinion leader in oncology who has led numerous immuno-oncology clinical trials, and has more than 30 articles published in peer-reviewed, high-impact scientific publications.

Results of a preliminary study employing Rosetta's proprietary technologies indicate promising immune-related microRNA candidates. The current study, which will interrogate additional samples, will be used to create a microRNA-based classifier that can differentiate between PD-L1 positive and negative samples, leading to an accurate and quantitative measurement that can give support to the current complex algorithm of PD-L1 immunohistochemistry reactivity.

Research in cancer immunology is currently accelerating following a series of cancer immunotherapy breakthroughs during the last five years. Various monoclonal antibodies which block the interaction between checkpoint molecules PD-1 on immune cells and PD-L1 on cancer cells have been used to successfully treat NSCLC, including some durable responses lasting years. Several drugs, including OPDIVO® (nivolumab), KEYTRUDA® (pembrolizumab) and TECENTRIQ® (atezolizumab), are approved by the U.S. Food and Drug Administration (FDA) for use in patients who have failed or progressed on platinum-based or targeted therapies. Importantly, KEYTRUDA is now FDA approved as a first line treatment option for patients with metastatic NSCLC whose tumors have high PD-L1 expression (Tumor Proportion Score (TPS) ≥50%) as determined by an FDA-approved test, with no EGFR or ALK genomic tumor aberrations, and no prior systemic chemotherapy treatment.

Despite impressive treatment outcomes in a subset of patients who receive these immune therapies, still many patients with NSCLC fail to respond to anti-PD-1/PD-L1 and the identification of a biomarker to select these patients remains highly sought after.

“Identifying the right patients is critical for optimizing the use of this new class of therapeutics which is transforming the care of patients with cancer who are not responding to other

treatment regimens. MicroRNAs, with their high reproducibility, robustness and accuracy are well suited to provide this valuable clinical information. The preliminary studies conducted by Rosetta Genomics are encouraging and we look forward to working together to develop this important biomarker in order to optimize treatment for patients with NSCLC," stated Dr. Gottfried.

"We are excited to be collaborating with Dr. Gottfried, a renowned oncology researcher and clinician, in developing a microRNA classifier to distinguish between PD-L1 positive and negative samples in NSCLC patients as it underscores our leadership position in the development of microRNA-based biomarkers. We expect this study will build on and support our earlier work with other researchers that suggests microRNAs can be better predictors of response to immuno-oncology drugs than other biomarkers currently being utilized to predict response," noted Kenneth A. Berlin, President and Chief Executive Officer of Rosetta Genomics. "Importantly, the development of a microRNA signature for PD-L1 can be transformational for patients, providers and payers and would be useful both in the drug development setting as well as in the clinical setting thus presenting two avenues for generating revenues."

OPDIVO® is a registered trademark of Bristol-Myers Squibb, KEYTRUDA® is a registered trademark of Merck & Co. and TECENTRIQ® is a registered trademark of Genentech USA, a member of the Roche Group.

About Rosetta Genomics

Rosetta is pioneering the field of molecular diagnostics by offering rapid and accurate diagnostic information that enables physicians to make more timely and informed treatment decisions to improve patient care. Rosetta has developed a portfolio of unique diagnostic solutions for oncologists, urologists, endocrinologists, cytopathologists and other specialists to help them deliver better care to their patients. RosettaGX Reveal™, a Thyroid microRNA Classifier for the diagnosis of cancer in thyroid nodules, as well as the full RosettaGX™ portfolio of cancer testing services are commercially available through the Company's Philadelphia, PA- and Lake Forest, CA-based CAP-accredited, CLIA-certified labs.

Forward-Looking Statement Disclaimer

Various statements in this release concerning Rosetta's future expectations, plans and prospects including, but not limited to statements relating to creating a microRNA based classifier that can differentiate between PD-L1 positive and negative samples and generating revenues via the development of a microRNA signature and statements containing the words "expect," "believe," "will," "may," "should," "project," "estimate," "anticipated," "scheduled," and like expressions, and the negative thereof, 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 risks and uncertainties, including, but are not limited to the following: we will require substantial additional funds to continue our operations and, if additional funds are not available, we may need to significantly scale back or cease our operations; we have a history of losses and may never be profitable; if we are unable to expand sales of our diagnostic tests in the United States, it would have a material adverse effect on our business and financial condition; if we are unable to find profitable strategic alternatives for our PersonalizeDx diagnostic testing and services business, it would have a material adverse effect on our business and financial condition; the intensely competitive biotechnology market could diminish

demand for our tests and products; the market may not be receptive to any diagnostic tests or therapeutic products using our microRNA technology; we currently have limited sales, marketing or distribution experience and may in the future depend significantly on third parties to commercialize microRNA-based diagnostic tests or therapeutic products we may develop; we are largely dependent upon our distributors for the success of commercialization of our current diagnostic tests; health insurers and other third-party payors may decide not to cover our diagnostic products or may provide inadequate reimbursement, which could jeopardize our commercial prospects; because of Medicare billing rules, we may not receive reimbursement for all tests provided to Medicare patients; if we fail to comply with our obligations under any licenses or related agreements, we could lose license rights that may be necessary for developing microRNA-based diagnostics and therapeutics; if we fail to comply with the complex federal, state, local and foreign laws and regulations that apply to our business, we could suffer severe consequences that could materially and adversely affect our operating results and financial condition; we contract with a single manufacturer for the purchase of microarray chips for certain tests, and the failure of this manufacturer to supply sufficient quantities on a timely basis could have a material adverse effect on our business; and other risk factors discussed under the heading "Risk Factors" in Rosetta's most recently filed Annual Report on Form 20-F, 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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