

News Release



Rosetta Genomics Reports First Quarter 2008 Financial Results

- **First diagnostic test based on company’s microRNA technology submitted for regulatory approval to the New York State Department of Health by Columbia University Medical Center**
- **Additional West Coast clinical laboratory to validate and offer tests based on Rosetta Genomics’ microRNA technology**
- **Two additional microRNA-related patents allowed**

Rehovot, Israel; Jersey City, New Jersey (May 21, 2008) - Rosetta Genomics, Ltd. (NASDAQ: ROSG), a leading molecular diagnostics company, reported today its consolidated financial results for the quarter ended March 31, 2008 and business highlights.

The 2008 first-quarter net loss of \$3.9 million (including a non-cash expense of \$191,000 related to stock based compensation), or \$0.33 per ordinary share. The first-quarter result compares with a net loss of \$2 million (including a non-cash expense of \$205,000 related to stock based compensation), or \$0.23 per ordinary share, for the corresponding quarter of 2007.

“This has been a remarkable quarter for us at Rosetta Genomics on both the business and scientific fronts,” said Amir Avniel, President and CEO of Rosetta Genomics. “We have continued the rapid advancements towards the launch of the first diagnostic tests based on our microRNA technology, and look forward to the exciting events that lay ahead of us in the following months.”

On the business front, Rosetta Genomics recently announced that Columbia University Medical Center’s Molecular Pathology Laboratory has submitted the first microRNA-based test based on the company’s microRNA technology for regulatory approval to the New York State Department of Health. The test is designed to differentiate squamous from non squamous non-small cell lung cancer (NSCLC) and is the first of three tests the company expects will be submitted for regulatory approval by CLIA certified labs in 2008.

In addition, the company recently announced an agreement with the University of California, Irvine School of Medicine to develop diagnostic tests based on Rosetta’s proprietary microRNA technology.

On the scientific front, in a paper published in the April issue of *Nature Biotechnology*, Rosetta Genomics and collaborators demonstrated the significant potential of microRNAs to be used as biomarkers for diagnosing the primary tumor site in patients with cancer of unknown primary (CUP). The company expects a CUP test based on its microRNA technology to be submitted for regulatory approval by a CLIA certified lab by the end of 2008.



Financial Overview

Operating loss for the first quarter of 2008 was \$3.7 million (including a non-cash expense of \$191,000 related to stock based compensation), compared with an operating loss of \$2.2 million (including a non-cash expense of \$205,000 related to stock based compensation) for the corresponding quarter of 2007. Net loss for the first quarter of 2008 was \$3.9 million, or \$0.33 per ordinary share, compared with a net loss of \$2 million, or \$0.23 per ordinary share, for the corresponding quarter of 2007.

Research and development expenses of \$2.4 million for the first quarter of 2008, compared to \$1.2 million for the first quarter of 2007, remain the Company's largest expense and accounted for 64% of its operating losses.

As of March 31, 2008 we had \$18.6 million in cash, cash equivalents, short and long term bank deposits and marketable securities. Our outlook of total cash usage for operating activities for the next nine month of 2008 is approximately \$10 million.

As previously announced, the Company continues to receive interest payments from its auction rate securities, which all but two are rated AAA. However, due to the continuing uncertainty in the credit market, the company recorded an impairment of \$300,000 during the first quarter.

Recent Highlights

Rosetta Genomics reports the following scientific and corporate highlights:

Diagnostic Programs

- Squamous vs. Non Squamous non-small cell lung cancer (NSCLC) – Columbia University Medical Center's Molecular Pathology Laboratory has submitted this test, designed to differentiate squamous from non squamous non-small cell lung cancer (NSCLC) using a single microRNA, for regulatory approval to the New York State Department of Health. The approval process is estimated to take 2-6 months. The ability of physicians to accurately differentiate squamous from non-squamous NSCLC is an important treatment guide. Bevacizumab, an angiogenesis inhibitor and an important new modality of therapy for non-squamous NSCLC, includes a black-box warning about substantially higher rates of severe or fatal hemorrhage among patients with squamous NSCLC histology compared with non-squamous NSCLC.
- Mesothelioma vs. Adenocarcinoma – Differentiating between mesothelioma and adenocarcinoma is critical for optimal therapy, but it is often difficult to differentiate these tumors. Currently, there is no objective, standardized test to aid pathologists in differentiating between the many possible tumors in the lung and pleura. Based on a few microRNA biomarkers that were identified applying Rosetta Genomics' technology, a test is being developed to separate mesothelioma from adenocarcinoma tumors including lung adenocarcinoma and metastases to the lung or to the pleura. This test is expected to be filed for regulatory approval in H2 2008.
- Cancer of Unknown Primary (CUP) – We continued to advance assay development of a microRNA-based test for cancer of unknown primary (CUP). As demonstrated in a paper published by Rosetta Genomics and collaborators in the April issue of *Nature Biotechnology*, the test is being developed to distinguish among more than 20 possible tissues of origin, and it is expected to be submitted for regulatory approval in H2 2008.



- Additional diagnostic tests – We continued the expansion of our microRNA-based diagnostic pipeline with cancer-related indications and indications related to women’s health.
- Identified microRNAs that are potential biomarkers for differential diagnosis of the following in lung cancer: primary vs. metastases, non-small cell lung cancer vs. small-cell lung cancer, neuroendocrine tumors vs. non-small cell lung cancer, lung cancer vs. thymoma, and carcinoid vs. other neuroendocrine tumors.
- Identified specific microRNAs that are markers to differentiate between primary liver and brain tumors and metastases to these organs.
- Women’s health: Demonstrated correlation between microRNAs in serum and physiological conditions.

Collaborations and Licensing

- Initiated a collaboration with the Henry Ford Health System in Detroit, Michigan, to develop microRNA-based diagnostics and prognostics for brain cancer. Under the collaboration, the parties will conduct a genome-wide molecular analysis of human brain cancer tumors to identify unique microRNA biomarkers that have diagnostic and prognostic potential.
- Signed an agreement with University of California, Irvine School of Medicine, relating to the development and validation of diagnostic tests based on the company's microRNA technology. The tests are designed to differentiate squamous versus non-squamous lung cancer, differentiate mesothelioma from adenocarcinoma, and identify cancers of unknown primary (CUP) origin.

Intellectual Property

- The U.S. Patent and Trademark Office (USPTO) has issued a Notice of Allowance for two of the company's patent applications on human (10/604,726) and viral (10/604,942) microRNAs. The first allowed patent application (10/604,726) is related to two clustered human hairpins and their related microRNAs. The second allowed patent application (10/604,942) is related to microRNA US5-1, a viral microRNA found in Human cytomegalovirus (HCMV), a member of the herpes virus family.

Conferences and Events

Rosetta Genomics presented at the following conferences and events:

- European Society for Medical Oncology (ESMO) 1st European Lung Cancer Conference, April 23-26, Geneva, Switzerland
- American Association for Cancer Research (AACR) Annual Meeting– April 12-16, San Diego, California
- Cambridge Healthtech Institute's (CHI) MicroRNA in Human Disease and Development Conference, March 10-11, Boston, Massachusetts.



- Keystone Symposia, RNAi, MicroRNA, and Non-Coding RNA, March 25-29, Whistler, Canada

Rosetta Genomics will present at the following upcoming event:

- ASCO Annual Meeting, May 30-June 3, Chicago, Illinois.

Conference Call Information

Rosetta Genomics will host a conference call at 4:30 p.m. ET today to discuss first-quarter activities and recent corporate developments. To access the live conference call, U.S. and Canadian participants may dial 1-866- 966-5335; international participants may dial 44-20-3023-4460. To access the 24-hour audio replay, U.S. and Canadian participants may dial 1-866-583-1035; international participants may dial 44-20-8196-1998. The access code for the replay is 181543#. The replay will be available until May 28, 2008.

A live audio webcast of the call will also be available on the "Investors" section of the company's website www.rosettagenomics.com. An archived webcast will be available on the Company's website approximately two hours after the event, and will be archived for 30 days thereafter.

About microRNAs

MicroRNAs (miRNAs) are recently discovered, naturally occurring, small RNAs that act as master regulators and have the potential to form the basis for a new class of diagnostics and therapeutics. Since many diseases are caused by the abnormal activity of proteins, the ability to selectively regulate protein activity through microRNAs could provide the means to treat a wide range of human diseases. In addition, microRNAs have been shown to have different expression in various pathological conditions. As a result, these differences may provide for a novel diagnostic strategy for many diseases.

About Rosetta Genomics

Rosetta Genomics (Nasdaq: ROSG) is a leader in the field of microRNA. Founded in 2000, the company'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 IP position and proprietary platform technologies, Rosetta Genomics is working on the application of these technologies in the development of a full range of microRNA-based diagnostic and therapeutic tools, focusing primarily on cancer and various women's health indications. The company expects that the first microRNA diagnostic tests applying its technology will be launched by licensed clinical laboratories in the United States in 2008.

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Forward-Looking Statement Disclaimer

Various statements in this release concerning Rosetta's future expectations, plans and prospects, including without limitation, statements relating to the role of microRNAs in human physiology and disease, the potential of microRNAs in the development of therapeutics and diagnostic products, the progress and timing of our diagnostic and therapeutic programs, including the expected launch of the first diagnostic tests applying Rosetta Genomics' technology in 2008, and Rosetta's expected cash usage in 2008 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 risks related to: the continued uncertainty in the credit and capital markets that may result in these markets deteriorating further or Rosetta experiencing additional ratings downgrades on any ongoing investments in its portfolio (including on ARS); changes in the accounting treatment and final results for 2007 resulting from final third party valuations of the ARS; the current lack of liquidity of the ARS having a impact on Rosetta's liquidity, cash flow or its ability to fund its operations; other changes in general economic and business conditions; Rosetta's approach to discover and develop novel diagnostics products, which is unproven and may never lead to marketable products or services; Rosetta's ability to fund and the results of further pre-clinical and clinical trials; Rosetta's ability to obtain, maintain and protect the intellectual property utilized by Rosetta's products; Rosetta's ability to enforce its patents against infringers and to defend its patent portfolio against challenges from third parties; Rosetta's ability to obtain additional funding to support its business activities; Rosetta's dependence on third parties for development, manufacture, marketing, sales, and distribution of products and services; the successful development of diagnostic and therapeutic products applying Rosetta's technology, all of which are in early stages of development; Rosetta's ability to obtain regulatory clearances or approvals for products, as may be required under applicable laws; competition from others using technology similar to Rosetta's and others developing products for similar uses; Rosetta's dependence on collaborators; the ability to obtain coverage and payment from health plans and payers for diagnostic and therapeutic products applying Rosetta's technology and Rosetta's short operating history; as well as those risks more fully discussed under "Key Information - Risk Factors" in Rosetta's Annual Report on Form 20-F for the year ended December 31, 2006 on file with the Securities and Exchange Commission. In addition, any forward-looking statements represent Rosetta's views only as of today 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.



ROSETTA GENOMICS LTD. AND ITS SUBSIDIARY
(A development stage company)
CONSOLIDATED BALANCE SHEETS
U.S. dollars in thousands

	March 31,	December 31,
	2008	2007
	Unaudited	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 9,511	\$ 13,590
Short-term bank deposits	114	112
Marketable securities	8,964	8,251
Other accounts receivable and prepaid expenses	405	297
Total current assets	18,994	22,250
LONG-TERM INVESTMENTS	2,089	2,391
SEVERANCE PAY FUND	171	144
PROPERTY AND EQUIPMENT, NET	1,340	1,253
Total assets	\$ 22,594	\$ 26,038
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Short-term bank loan, current maturities of capital lease and of long-term loan	\$ 168	\$ 247
Trade payables	797	516
Other accounts payable and accruals	1,099	1,102
Total current liabilities	2,064	1,865
LONG-TERM LIABILITIES:		
Long-term bank loan and capital lease	50	16
Deferred revenue	228	228
Accrued severance pay	366	324
Total Long-term Liabilities	644	568
COMMITMENTS AND CONTINGENT LIABILITIES		
SHAREHOLDERS' EQUITY:		
Share capital:	27	27
Additional paid-in capital	59,201	58,984
Other comprehensive income	28	86
Deficit accumulated during the development stage	(39,370)	(35,492)
Total shareholders' equity	19,886	23,605
Total liabilities and shareholders' equity	\$ 22,594	\$ 26,038



ROSETTA GENOMICS LTD. AND ITS SUBSIDIARY
(A development stage company)
CONSOLIDATED STATEMENTS OF OPERATIONS
U.S. dollars in thousands (except share and per share data)

	Year ended December 31,		Three months ended March 31,	
	2007	2006	2008	2007
			Unaudited	
Operating expenses:				
Research and development, net	\$ 6,400	\$ 4,781	\$ 2,389	\$ 1,161
Marketing and business development	1,742	1,504	511	375
General and administrative	2,903	1,860	829	680
Operating loss	11,045	8,145	3,729	2,216
Financial expenses (income), net	3,616	(538)	149	(200)
Net loss	\$ 14,661	\$ 7,607	\$ 3,878	\$ 2,016
Basic and diluted net loss per Ordinary share	\$ 1.32	\$ 2.98	\$ 0.33	\$ 0.23
Weighted average number of Ordinary shares used to compute basic and diluted net loss per Ordinary share	11,142,149	2,551,860	11,920,401	8,874,841