News Release

Rosetta Genomics Reports Second Quarter 2008 Financial Results

- **Key milestone achieved with first diagnostic test based on company's microRNA technology, developed by Columbia University Medical Center, approved for clinical use**
- **Acquires CLIA-certified lab to expedite commercialization of its microRNA-based tests**
- **Expands pipeline with three additional microRNA-based cancer tests in development**

Rehovot, Israel; Jersey City, New Jersey (August 19, 2008) - Rosetta Genomics, Ltd. (NASDAQ: ROSG), a leading developer of microRNA-based diagnostic and therapeutic products, reported today its consolidated financial results for the quarter ended June 30, 2008 and business highlights.

The company reported a 2008 second-quarter net loss of $3.7 million, or $0.31 per ordinary share. The second-quarter result compares with a net loss of $2.3 million, or $0.19 per ordinary share, for the corresponding quarter of 2007. Net loss for the six months ended June 30, 2008 was $7.6 million, or $0.63 per ordinary share, compared with a net loss of $4.3 million, or $0.41 per ordinary share, for the corresponding period of 2007.

"This has been a very exciting, and eventful, quarter for us with the approval of the first test based on our microRNA technology, and the acquisition of a CLIA-certified lab, both of which represent key milestones on our path to become a fully commercial company," said Amir Avniel, President and CEO of Rosetta Genomics. "The approval of the first test acts as strong validation to microRNA's ability to be utilized as powerful biomarkers, and we expect two additional tests - for differentiating mesothelioma from adenocarcinomas in the lung, and identifying the primary origin of a metastasis, to be submitted for regulatory approval in the coming months. In addition, we expect to begin development of tests at our newly acquired CLIA lab. Furthermore, the rapid progress in our development programs has allowed us to advance three additional cancer tests up our pipeline. These tests are focused on predicting response to ovarian cancer treatment, predicting risk of gastric cancer recurrence, and differentiating small cell from non-small cell lung cancer. Finally, we are moving three additional diagnostics up the pipeline: the first is being developed to detect the presence of colon cancer in serum, the second is being developed to detect the presence of bladder cancer, and the third is being developed to predict colon cancer risk of recurrence after surgery. Rosetta Genomics will continue its rapid pace towards commercialization of microRNA-based tests."

Financial Overview

Operating loss for the second quarter of 2008 was $3.5 million (including a non-cash expense of $295,000 related to stock-based compensation), compared with an operating loss of $2.7 million (including a non-cash expense of $282,000 related to stock-based compensation) for the corresponding quarter of 2007. Net loss for the second quarter of 2008 was $3.7 million, or $0.31 per ordinary share, compared with a net loss of $2.3 million, or $0.19 per ordinary share, for the corresponding quarter of 2007.

Net loss for the six months ended Jun 30, 2008 was $7.6 million (including a non-cash expense of $ 486,000 related to stock-based compensation), or $0.63 per ordinary share, compared with a net loss of $4.3 million (including a non-cash expense of $487,000 related to stock-based compensation), or $0.41 per ordinary share, for the corresponding period of 2007.

Research and development expenses of $2.2 million for the second quarter of 2008 and of $4.6 for the six months ended June 30, 2008, compared to $1.7 million and $2.9 for the corresponding periods of 2007, respectively, remain the company's largest expense and accounted for 62% of its operating loss in the second quarter of 2008.

As of June 30, 2008, we had $14.9 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 remaining six months of 2008 is approximately $6 million. In July 2008 we paid $1.9 million in cash for the purchase of Parkway Clinical Laboratories, Inc.

As previously reported, due to the continuing uncertainty in the credit market, the company continues to impair its long-term investments in auction rate securities, which as of June 30, 2008, were valued at $1.8 million.

Recent Highlights

Rosetta Genomics reports the following scientific and corporate highlights:

Diagnostic Programs

- "miRview"™ is the name chosen for upcoming tests to be developed and offered by Rosetta Genomics.
- First test based on the company's microRNA technology, developed and validated by Columbia University Medical Center, approved for clinical use. The test, which differentiates squamous from non squamous non-small cell lung cancer (NSCLC) with sensitivity of 96% and specificity of 90%, has recently been approved by the New York State Department of Health Clinical Laboratory Evaluation Program. This test will be clinically available through Columbia University Medical Center's High Complexity Molecular Pathology Laboratory.
  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. In addition, several other targeted drugs for NSCLC currently under development may require this type of sensitive differentiation. Rosetta Genomics also plans to offer its own test, miRview™ Squamous, through its CLIA-certified lab.

- 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 differentiate 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. In addition, Rosetta Genomics plans to offer its own test, miRview™ Meso, through its CLIA-certified lab.

- Identifying primary origin of metastases (CUP) – Rosetta Genomics 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. In addition, Rosetta Genomics plans to offer its own test, miRview™ Mets, through its CLIA-certified lab.

- Additional diagnostic tests – We have advanced three new indications into development:
  - Predicting response to treatment of ovarian cancer patients - Platinum-based cytotoxic chemotherapy in conjunction with debulking surgery is currently the gold standard of treatment for patients with ovarian cancer. However, approximately 20-25% of patients do not respond to platinum-based chemotherapy and will require additional second-line treatment. Furthermore, research suggests that administering platinum-based treatment to patients who subsequently do not respond to it may actually hinder their response to the second-line treatment as well. Rosetta Genomics has identified unique microRNA biomarkers that may assist in identifying ovarian cancer patients expected to be resistant to platinum-based chemotherapy.

  - Predicting risk of gastric cancer recurrence - Recurrence after curative resection for gastric cancer is high and is estimated to occur in 80% of patients. This test is being developed to use microRNA biomarkers to predict the risk of recurrence for non-metastatic patients after resection of the primary tumor.

  - Differentiating small from non-small cell lung cancer – An estimated 220,000[1] patients are diagnosed with lung cancer each year in the U.S. alone. Before a patient begins lung cancer treatment, an experienced lung cancer pathologist must review the pathologic material. This is critical because small cell lung cancer, which is generally not treated surgically, can be confused on microscopic examination with non-small cell carcinoma[2]. Rosetta Genomics has identified unique microRNA biomarkers that may be used to differentiate small from non-small cell lung cancers.

- Biomarker Discovery - identified microRNA biomarkers in the serum of colon cancer patients which may serve as the basis for a future blood-based test for colon cancer.

[1] American Cancer Society website, 2008
[2] Travis WD, Colby TV, Corrin B, et al.: Histological typing of lung and pleural tumours. 3rd ed. Berlin: Springer-Verlag, 1999.

Corporate Development

- Completed the acquisition of Parkway Clinical Laboratories Inc., a privately-held company owning a CLIA-certified lab located in Bensalem, Pennsylvania. The acquisition is expected to allow Rosetta Genomics to expedite development and validation of its microRNA-based diagnostic tests both in the U.S. and worldwide. In addition, ownership of the CLIA-certified lab will allow Rosetta Genomics to control the commercialization of its diagnostics, including marketing, sales, and reimbursement strategy.
  The Company expects the first tests will be launched through the lab during Q4, 2008.

Collaborations and Licensing

- Initiated a clinical validation study with The University of Texas M. D. Anderson Cancer Center. The study will focus on Rosetta Genomics' microRNA-based test that identifies the primary site of cancer of unknown primary (CUP) origin. The study will include one hundred patients who are diagnosed with CUP at M. D. Anderson, and who meet the eligibility criteria.

- Initiated a research collaboration with The University of Texas M. D. Anderson Cancer Center and the Kleberg Center for Molecular Markers to develop a microRNA-based diagnostic test to predict risk of disease recurrence in lung cancer patients who have undergone curative resection.

- Signed a collaboration agreement with the Rabin Medical Center in Israel to develop microRNA-based diagnostics in the fields of oncology, gynecology, and obstetrics. The collaboration will leverage microRNAs' significant potential as highly sensitive and specific biomarkers, to develop a wide range of diagnostic and prognostic tests. This is the company's first collaboration to include a focus on diagnostics for women's health indications.

Publications

- Published results of a study conducted by Rosetta Genomics' scientists and collaborators that describes the use of microRNAs in accurately differentiating primary from metastatic tumors of the brain. The results have been published online in the peer-reviewed journal *Brain Pathology*. The findings demonstrate microRNAs' significant potential to act as effective biomarkers that may be applied in a diagnostic test designed to identify primary tumors in patients with brain cancers.

Conferences and Events

Rosetta Genomics presented at the following conferences and events:

- Collins Stewart Fourth Annual Growth Conference, July 2008, New York

- American Society of Clinical Oncology (ASCO) Annual Meeting, June 2008, Chicago, Illinois

Upcoming Conferences

- AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development. September 22-25, Philadelphia, Pennsylvania.
- Maxim Group Growth Conference, October 7th, New York.

Conference Call Information

Rosetta Genomics will host a conference call at 08:30 a.m. ET today to discuss second-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 August 26, 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 microRNAs. 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 first microRNA diagnostic test applying Rosetta Genomics' technology has been approved for clinical use by the State of New York, and the company expects it will be launched by licensed clinical laboratories in the United States in 2008.

Contact: Investors
Joshua Gordon, M.D.
T: 201-946-0561
E: investors@rosettagenomics.com

Media
Ron Kamienchick
T: 1-(646)-509-1893
E: media@rosettagenomics.com

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, 2007 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.

CONSOLIDATED STATEMENTS OF OPERATIONS

U.S. dollars in thousands (except share and per share data)

	Six months ended June 30,		Three months ended June 30,	
	2008	2007	2008	2007
	Unaudited		Unaudited	
Operating expenses:				
Research and development, net	$ 4,571	$ 2,864	$ 2,182	$ 1,703
Marketing and business development	945	787	434	412
General and administrative	1,725	1,275	896	595
Operating loss	7,241	4,926	3,512	2,710
Financial expenses(income) net	334	(655)	185	(455)
Net loss	$ 7,575	$ 4,271	$ 3,697	$ 2,255
Basic and diluted net loss per Ordinary share	$ 0.63	$ 0.41	$ 0.31	$ 0.19
Weighted average number of Ordinary shares to compute basic and diluted net loss per Ordinary	$ 11,929,689	10,374,298	11,939,107	11,857,447

CONSOLIDATED BALANCE SHEETS

U.S. dollars in thousands (except share and per share data)

	June 30, 2008	December 31, 2007
	Unaudited	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 12,090	$ 90
Short-term bank deposits	114	
Marketable securities	2,745	1
Other accounts receivable and prepaid expenses	311	
Total current assets	15,260	50
LONG-TERM INVESTMENTS	1,760	1
SEVERANCE PAY FUND	195	
PROPERTY AND EQUIPMENT, NET	1,311	3
OTHER ASSETS	115	
Total assets	$ 18,641	$ 38
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Current maturities of capital lease and of long-term loan	$ 112	$
Trade payables	506	
Other accounts payable and accruals	915	2
Total current liabilities	1,533	5
LONG-TERM LIABILITIES:		
Long-term bank loan and capital lease	39	
Deferred revenue	228	
Accrued severance pay	381	
Total Long-term Liabilities	648	
COMMITMENTS AND CONTINGENT LIABILITIES		
SHAREHOLDERS' EQUITY:		
Share capital:	27	
Additional paid-in capital	59,503	84
Other comprehensive income	(3)	
Deferred stock-based compensation	—	
Deficit accumulated during the development stage	(43,067)	492)
Total shareholders' equity	16,460	05
Total liabilities and shareholders' equity	$ 18,641	$ 38