Rosetta Genomics Ltd. (ROSG)

20-F

Annual and transition report of foreign private issuers pursuant to sections 13 or 15(d)
Filed on 03/31/2011
Filed Period 12/31/2010

As filed with the Securities and Exchange Commission on March __, 2011

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F
(Mark One)

☐ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2010

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☐ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of event requiring this shell company report . . . . . .

Commission file number: 001-33042

ROSETTA GENOMICS LTD.
(Exact name of Registrant as specified in its charter)

Not Applicable
(Translation of Registrant's Name into English)

Israel
(Jurisdiction of incorporation or organization)

10 Plaut Street, Science Park
Rehovot 76706 POB 4059, Israel
(Address of principal executive offices)

Kenneth A. Berlin, CEO and President
3711 Market St., Suite 740
Philadelphia, PA, 19104, USA
Tel: 215-382-9000
Fax: 215-382-0815
(Name, Telephone, E-mail and or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of each class	**Name of each exchange on which registered**
Ordinary shares, par value NIS 0.01 per share	The NASDAQ Stock Market LLC

Securities registered or to be registered pursuant to Section 12(g) of the Act. None
Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act. None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the Annual Report: As of December 31, 2010, the issuer had 19,404,938 ordinary shares outstanding and no preferred shares outstanding.

Indicate by check mark if the registrant is a well known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☐ No ☒

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or (15)(d) of the Securities Exchange Act of 1934. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter periods that the registrant was required to file such reports), and (2) has been subject to such reporting requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☐ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated Filer ☐ Accelerated Filer ☐ Non-Accelerated Filer ☒
Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

☒ U.S. GAAP

☐ International Financial Reporting Standards as issued by the International Accounting Standards Board

☐ Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.Item 17 ☐ Item 18 ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

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INTRODUCTION

As used in this Annual Report on Form 20-F (hereinafter referred to as this "Annual Report"), unless the context requires otherwise, references to "we", "our", "us", "Rosetta" or the "Company" are references to Rosetta Genomics Ltd., a company organized under the laws of the State of Israel, and its subsidiaries.

Our consolidated financial statements have been prepared in accordance with United States generally accepted accounting principles, or U.S. GAAP. Except as otherwise specified, financial information is presented in U.S. dollars. All references in this Annual Report to "U.S. dollars," "dollars" or "$" are to United States dollars and all references in this Annual Report to "NIS" or "shekels" are to New Israeli Shekels.

FORWARD-LOOKING STATEMENTS

This Annual Report contains forward-looking statements. These forward-looking statements include, in particular, statements about our plans, strategies and prospects and may be identified by terminology such as "may," "will," "should," "expect," "scheduled," "plan," "intend," "anticipate," "believe," "estimate," "aim," "potential," or "continue" or the negative of those terms or other comparable terminology. These forward-looking statements are subject to risks, uncertainties and assumptions about us. Although we believe that our plans, intentions and expectations are reasonable, we may not achieve our plans, intentions or expectations.

Important factors that could cause actual results to differ materially from the forward-looking statements we make in this Annual Report are set forth in "Item 3. Key Information - D. Risk Factors." All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements in "Risk Factors," in which we have disclosed the material risks related to our business. These forward-looking statements involve risks and uncertainties, and the cautionary statements identify important factors that could cause actual results to differ materially from those predicted in any forward-looking statements. We undertake no obligation to update any of the forward-looking statements after the date of this Annual Report to conform those statements to reflect the occurrence of unanticipated events, except as required by applicable law.

You should read this Annual Report and the documents that we reference in this Annual Report and have filed as exhibits to this Annual Report, that we have filed with the Securities and Exchange Commission (the "SEC"), completely and with the understanding that our actual future results, levels of activity, performance and achievements may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

PART I

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not Applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not Applicable.

ITEM 3. KEY INFORMATION

A. SELECTED CONSOLIDATED FINANCIAL DATA

We have prepared our historical consolidated financial statements in accordance with generally accepted accounting principles in the United States (U.S. GAAP). The following financial data for the years ended December 31, 2008, 2009 and 2010, and as of December 31, 2009 and 2010 have been derived from our audited financial statements which are included elsewhere in this Annual Report. The following financial data for the years ended December 31, 2006 and 2007 and as of December 31, 2006, 2007 and 2008 have been derived from our audited financial statements which are not included in this Annual Report. In July 2008, through our wholly owned subsidiary Rosetta Genomics Inc., we purchased Parkway Clinical Laboratories, Inc., a privately held Pennsylvania corporation owning a CLIA-certified laboratory. Parkway remained an indirect wholly owned subsidiary until we sold it in May 2009. Operating results for Parkway have been classified as discontinued operations for all presented periods. On February 4, 2010, we established Rosetta Green Ltd. ("Rosetta Green") as a controlled subsidiary. As of December 31, 2010, we owned approximately 76.2% of the outstanding ordinary shares of Rosetta Green, therefore, Rosetta Green is part of the consolidation in 2010 . You should read this information in conjunction with our consolidated financial statements, including the related notes, and "Item 5. Operating and Financial Review and Prospects" included elsewhere in this Annual Report. Our historical results for any prior period are not necessarily indicative of results to be expected for any future period.

	Year Ended December 31,				
	2010	2009	2008	2007	2006
	(In thousands, except share and per share data)				
Consolidated Statement of Income:					
Revenues:	$ 279	$ 150	$ -	$ -	$ -
Cost of revenues	628	339	-	-	-
Gross loss	349	189	-	-	-
Consolidated Statements of Operations:					
Operating expenses:					
Research and development	6,486	6,552	8,705	6,400	4,781
Marketing and business development	5,402	4,451	2,177	1,742	1,504
General and administrative	2,866	3,605	3,189	2,903	1,860
Other expenses related to the settlement with Prometheus	554	-	-	-	-
Total operating expenses	15,308	14,608	14,071	11,045	8,145
Operating loss	15,657	14,797	14,071	11,045	8,145
Financial expenses (income), net	(1,054)	(45)	(5,449)	3,616	(538)
Loss from continuing operations	14,603	14,752	8,622	14,661	7,607
Net loss from discontinued operations	539	1,753	841	-	-
Net loss after discontinued operations	15,142	16,505	9,463	14,661	7,607
Attributable to non-controlling interest	(387)	-	-	-	-
Net loss attributable to Rosetta Genomics	$ 14,755	$ 16,505	$ 9,463	$ 14,661	$ 7,607
Basic and diluted net loss per ordinary share from continuing operations	$ 0.84	$ 1.09	$ 0.72	$ 1.32	$ 2.98
Basic and diluted net loss per ordinary share from discontinued operations attributable to Rosetta Genomics	$ 0.03	$ 0.13	$ 0.07	$ -	$ -
Basic and diluted net loss per ordinary share attributable to Rosetta Genomics	$ 0.87	$ 1.22	$ 0.79	$ 1.32	$ 2.98
Weighted average number of ordinary shares used to compute basic and diluted net loss per ordinary share attributable to Rosetta Genomics	16,908,087	13,543,324	12,038,295	11,142,149	2,551,860

	As of December 31,				
	2010	2009	2008	2007	2006
	(In thousands)				
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 2,727	$ 3,329	$13,727	$13,590	$ 5,228
Restricted cash	-	1,076	643	-	-
Short-term bank deposits	190	3,143	840	112	5,149
Marketable securities	392	2,756	426	8,251	386
Trade receivable	21	72	-	-	-
Working capital	470	8,628	14,004	20,385	11,141
Total assets	5,293	12,743	20,268	26,038	13,243
Convertible loan	-	1,500	750	-	-
Long-term liabilities	2,605	3,596	1,615	568	601
Total shareholders' equity (deficiency)	(630)	6,842	16,100	23,605	11,099
Capital stock	74,778	68,206	61,052	59,011	31,975

B. CAPITALIZATION AND INDEBTEDNESS

Not applicable.

C. REASONS FOR THE OFFER AND USE OF PROCEEDS

Not applicable.

D. RISK FACTORS

If any of the following risks occurs, our business, business prospects, financial condition, results of operations, or cash flows could be materially harmed.

Risks Related to Our Business, Our Financial Results and Need for Financing

The approach we are taking to discover and develop novel diagnostics and therapeutics is new and may never lead to commercially accepted products.

We have concentrated our research and development efforts on diagnostics and therapeutics in the new field of microRNAs. To date, we have commercialized only four diagnostic tests: miRview™ mets, miRview™ meso and miRview™ squamous, which were launched in late 2008, and miRview™ mets2, which was launched in December 2010. These tests have achieved very limited commercial success. The scientific discoveries that form the basis for our efforts to develop diagnostics and therapeutics are relatively new, and the scientific evidence to support the feasibility of developing products based on these discoveries is limited. Further, our focus solely on developing microRNA-based diagnostics and therapeutics as opposed to multiple or more proven technologies for the development of diagnostics and therapeutics increases the risks associated with the ownership of our ordinary shares. If we or a collaborative partner are not successful in commercializing our existing diagnostic tests or developing and commercializing additional microRNA-based tests or products, our business may fail.

Because we have a short operating history, there is a limited amount of information about us upon which our business and prospects can be evaluated.

Our operations began in 2000, and we have only a limited operating history upon which our business and prospects can be evaluated. In addition, as an early-stage company, we have limited experience and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biotechnology area. For example, to execute our business plan, we will need to successfully:

- build and maintain a strong intellectual property portfolio;
- execute development activities using an unproven technology;
- execute marketing and distribution activities;
- continue to develop and maintain successful strategic relationships;
- manage our spending while costs and expenses increase as we expand our efforts to discover, develop and commercialize diagnostics and therapeutics based on microRNAs; and
- gain commercial and, if applicable, regulatory acceptance of our tests and products.

If we are unsuccessful in accomplishing these objectives, we may not be able to raise capital, develop tests or products, expand our business or continue our operations.

We have a history of losses and may never be profitable.

We have experienced significant operating losses since our inception in 2000, and as of December 31, 2010, we had an accumulated deficit of $76.2 million. We had net loss attributable to Rosetta Genomics after discontinued operation of $14.8 million for the year ended December 31, 2010. Our net loss attributable to Rosetta Genomics before discontinued operation for the year ended December 31, 2010 was $14.2 million. Furthermore, we do not expect to generate significant revenues from the sale of diagnostics or therapeutics in the near future. We anticipate that the majority of any revenues we generate over the next several years will be from our existing and future collaborations and licensing arrangements and the sale of diagnostic tests using our microRNA technology, including our currently marketed tests. We cannot be certain, however, that our existing collaborations will be successful or that we will be able to secure any collaborations or achieve any milestones that may be required to receive payments or that diagnostic tests based on our technologies, including our currently marketed tests, will be successfully commercialized. If we are unable to secure significant revenues from collaborations and the sale of tests or products, we may be unable to continue our efforts to discover, develop and commercialize microRNA-based diagnostics and therapeutics without raising additional funds from other sources.

We will require substantial additional funds to complete our research and development activities and, if additional funds are not available, we may need to significantly scale back or cease our operations.

We have used substantial funds to discover, develop and protect our microRNA tests and technologies and will require substantial additional funds to conduct further research and development, including any required preclinical testing and clinical trials of any diagnostic test or therapeutic product, and to manufacture and market any tests or products that are approved for commercial sale. Because the successful development and commercialization of microRNA-based diagnostics and therapeutics is uncertain, we are unable to estimate the actual funds we will require to develop, obtain required regulatory approval and commercialize them. The timing of our need for additional funds will depend on a number of factors, many of which are difficult to predict or are outside of our control, including:

- progress in our research and development programs;

- the resources, time and costs required to initiate and complete development and any required preclinical studies and clinical trials, and obtain any required regulatory approvals;
- the timing, receipt, and amount of milestone, royalty and other payments from present and future collaborators, if any;
- costs necessary to protect our intellectual property; and
- the timing, receipt and amount of sales, if any, by us of any approved tests or products.

Based on our current operations, our existing funds, including the proceeds from the February 2011 private placement and concurrent registered offerings, will only be sufficient to fund operations until mid-November, 2011. We are implementing initiatives to allow the anticipated budget deficit for 2011 to be covered. However, in order to remain a going concern beyond December 31, 2011, we will require significant funding. We intend to seek funding through collaborative arrangements and public or private equity offerings and debt financings. Additional funds may not be available to us when needed on acceptable terms, or at all. Furthermore, the terms of the February 2011 private placement restrict us from conducting an equity financing until April 22, 2011, and the terms of the February 2011 concurrent registered offering restrict us from conducting an equity financing until April 24, 2011 (60 days following the closing date of such offering). In addition, the terms of any financing may adversely affect the holdings or the rights of our existing shareholders. For example, if we raise additional funds by issuing equity securities, further dilution to our then-existing shareholders may result. Debt financing, if available, may involve restrictive covenants that could limit our flexibility in conducting future business activities. If we are unable to obtain funding on a timely basis, we may be required to significantly curtail one or more of our research or development programs. We also could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, tests or products in development or approved tests or products that we would otherwise pursue on our own. We also may monetize certain assets, such as the shares of Rosetta Green held by us, subject to certain limitations and restrictions imposed on us. Our failure to raise capital when needed will materially harm our business, financial condition and results of operations. See also "Item 5. Operating and Financial Review and Prospects – B. Liquidity and Capital Resources."

Fluctuations in currency exchange rates of the New Israeli Shekel vs. the U.S. dollar may have a significant impact on our reported results of operations.

Fluctuations in currency exchange rates may have a significant impact on our reported results of operations. Although our reporting currency is the U.S. dollar, significant portions of our expenses are denominated in New Israeli Shekels, or NIS. In periods when the U.S. dollar is devalued against the NIS, our reported results of operations may be adversely affected. In addition, fluctuations in currencies may result in valuation adjustments in our assets and liabilities which could affect our reported results of operations.

Fluctuations in our share price may have a significant impact on our reported liabilities and reported results of financial income or expenses.

Fluctuations in our share price may have a significant impact on our reported liabilities because certain outstanding warrants are classified as liabilities measured at fair value each reporting period until they are exercised or expire, with changes in the fair values being recognized in our statement of operations as financial income or expense. In periods when share price is ascending, the reported liability and the reported results of financial expense are adversely affected.

Risks Related to Our Intellectual Property

If we are not able to obtain and enforce patent protection for our discoveries, our ability to develop and commercialize microRNA-based diagnostics and therapeutics will be harmed.

Our success depends, in large part, on our ability to protect proprietary methods and technologies that we develop under the patent and other intellectual property laws of the U.S., Israel and other countries, so that we can prevent others from unlawfully using our inventions and proprietary information. As of February 28, 2011, our patent portfolio included a total of 18 issued U.S. patents, one issued Australian patent, one issued Israeli patent, 104 pending patent applications worldwide, consisting of 35 U.S. patent applications, five of which received notice of allowance, five PCT applications, 22 applications that were nationalized in Europe, 19 applications nationalized in Israel, one of which received notice of allowance, seven applications nationalized in Japan and Australia, six nationalized in Canada, two applications nationalized in China and one application that was nationalized in each of Korea and India. There can be no assurance, however, that any of these pending patent applications will result in issued patents. The patent position of pharmaceutical or biotechnology companies, including ours, is generally uncertain and involves complex legal and factual considerations, and, therefore, validity and enforceability cannot be predicted with certainty. Patents may be challenged, deemed unenforceable, invalidated, or circumvented. Furthermore, the standards that the U.S. Patent and Trademark Office, or PTO, and its foreign counterparts use to grant patents are not always applied predictably or uniformly and may change. There is also no uniform, worldwide policy regarding the subject matter and scope of claims granted or allowable in pharmaceutical or biotechnology patents, and a recent court case involving Myriad Genetics, Inc. has created additional uncertainty regarding the ability to patent human genes. Furthermore, the field of microRNAs is new and developing. Accordingly, there is significant uncertainty about what patents will be issued, and what their claims may cover. It is likely that there will be significant litigation and other proceedings, such as interference proceedings and opposition proceedings, in certain patent offices, relating to patent rights in the microRNA field. Others may attempt to invalidate our intellectual property rights. Even if our rights are not directly challenged, disputes among third parties could lead to the weakening or invalidation of our intellectual property rights. Accordingly, we do not know the degree of future protection for our proprietary rights or the breadth of claims that will be allowed in any patents issued to us or to others. Additionally, the mere issuance of a patent does not guarantee that it is valid or enforceable, so even issued patents may not be valid or enforceable against third parties.

In addition, we cannot be certain that we hold the rights to the technology covered by our pending patent applications or to other proprietary technology required for us to commercialize our proposed tests and products. Because certain U.S. patent applications are confidential until patents issue, and because certain applications will not be filed in foreign countries, third parties may have filed patent applications for technology covered by our pending patent applications without our being aware of those applications, and our patent applications may not have priority over those applications. For this and other reasons, we may be unable to secure desired patent rights, thereby losing desired exclusivity. Thus, it is possible that one or more organizations will hold patent rights to which we will need a license. If those organizations refuse to grant us a license to such patent rights on reasonable terms, we will not be able to market our tests and products.

If we become involved in patent litigation or other proceedings related to a determination of rights, we could incur substantial costs and expenses, substantial liability for damages or be required to stop our development and commercialization efforts.

A third party may sue us for infringing its patent rights. Likewise, we may need to resort to litigation to enforce a patent issued or licensed to us or to determine the scope and validity of third-party proprietary rights. In addition, a third party may claim that we have improperly obtained or used its confidential or proprietary information. The cost to us of any litigation or other proceeding relating to intellectual property rights, even if resolved in our favor, could be substantial, and the litigation would divert our management's efforts. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources, and we may not have sufficient resources to adequately enforce our intellectual property rights. Uncertainties resulting from the initiation and continuation of any litigation could limit our ability to continue our operations.

If we are found to infringe upon intellectual property rights of third parties, we could be forced to pay damages, potentially including treble damages, if we are found to have willfully infringed on such parties' patent rights. In addition to any damages we might have to pay, a court could require us to stop the infringing activity or obtain a license. If we fail to obtain a required license and are unable to design around a patent, we may be unable to effectively market some of our technology, tests and products, which could limit our ability to generate revenues or achieve profitability and possibly prevent us from generating revenues sufficient to sustain our operations. Moreover, we expect that a number of our collaborations will provide that royalties payable to us for licenses to our intellectual property may be offset by amounts paid by our collaborators to third parties who have competing or superior intellectual property positions in the relevant fields, which could result in significant reductions in our revenues from tests or products developed through collaborations.

We license patent rights from third-party owners. If such owners do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects will be harmed.

We are a party to license agreements that give us rights to third-party intellectual property that we believe may be necessary or useful for our business, such as our agreements with The Rockefeller University, Max Planck Innovation GmbH, or Max Planck, and Johns Hopkins University. We intend to enter into additional licenses of intellectual property with third parties in the future. Our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications which we have licensed. Even if patents issue in respect of these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical tests or products for sale, which could adversely affect our competitive business position and harm our business prospects. Our current material license agreements contain the following patent enforcement provisions:

- under our license agreements with The Rockefeller University, if Rockefeller University fails to enforce the patents we licensed, we have the right to enforce the patents and pursue litigation against any infringement of such patents;
- under our license agreement with Max Planck for diagnostic purposes, we have the responsibility to assist in the prosecution of any patent infringement actions undertaken by Max Planck;
- under our license agreement with Max Planck for research purposes, Max Planck controls the filing, prosecution, maintenance and abandonment of all patents; and
- under our agreement with Johns Hopkins University, Johns Hopkins is responsible for prosecution and maintenance of patents, and we have the right but not the obligation to enforce the patents against any infringement by third parties.

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.

Our current licenses impose, and any future licenses we enter into are likely to impose, various development, commercialization, funding, royalty, diligence, sublicensing, insurance and other obligations on us. Such obligations may include:

- royalty payments;
- annual maintenance fees;
- payment of fees relating to patent prosecution, maintenance and enforcement;
- maintaining insurance coverage; and
- using commercially reasonable efforts to develop tests and products using the licensed technology.

If we breach any of our obligations under our licenses, the licensor may have the right to terminate the license, which could result in our being unable to develop, manufacture and sell tests or products that are covered by the licensed technology or a competitor's gaining access to the licensed technology.

Confidentiality agreements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information.

We also rely on trade secrets, know-how and technology, which are not protected by patents, to maintain our competitive position. In order to protect our proprietary technology and processes, we also rely in part on confidentiality agreements with our collaborators, employees, consultants, outside scientific collaborators and sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover trade secrets and proprietary information, and in such cases we could not assert any trade secret rights against such party. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Risks Related to Development, Clinical Testing and Regulatory Approval of Diagnostics and Therapeutics

We and others who may develop diagnostic tests applying our microRNA technology are subject to a variety of regulatory frameworks.

We and others who may develop diagnostic tests based on our microRNA technology are subject to a variety of laws enforced by the U.S. federal government and the states in which they, and we conduct, or will conduct, business, including the Clinical Laboratory Improvement Amendments of 1988, or CLIA, and state clinical laboratory licensure laws and regulations, and the Federal Food, Drug, and Cosmetic Act and related regulations. The growth of our business may increase the potential of violating these laws. Any action brought against us, or any business partners, for violation of these laws or regulations, even if we or they successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. If their or our operations are found to be in violation of any of these laws and regulations, they or we may be subject to any applicable penalty associated with the violation, including civil and criminal penalties, damages and fines, and they or we could be required to curtail or cease operations. Any of the foregoing consequences could seriously harm our business and our financial results.

If we do not comply with governmental regulations applicable to our CLIA-certified laboratory, we may not be able to continue our operations.

The operations of our laboratory in Philadelphia are subject to regulation by numerous federal, state and local governmental authorities in the United States. The laboratory holds a CLIA certificate of compliance and is licensed by the Commonwealth of Pennsylvania, which enables us to provide testing services to residents of most other states. We have also obtained licenses from California, Maryland, Rhode Island, Florida and New York, and plan to obtain licenses from other states as required. In addition, we are accredited by the College of American Pathologists, or CAP. The CAP Laboratory Accreditation Program is an internationally recognized program that utilizes teams of practicing laboratory professionals as inspectors, and accreditation by CAP can also be used to meet CLIA and state certification requirements.

CLIA is a federal law that regulates clinical laboratories that perform testing on human specimens for the purpose of providing information for the diagnosis, prevention or treatment of disease. CLIA imposes quality standards for laboratory testing to ensure the accuracy, reliability and timeliness of reporting patient test results. CLIA-certified laboratories are subject to survey and inspection every two years. Moreover, CLIA inspectors may make random inspections of these laboratories. If we were to lose our CLIA certification or our state licenses, or if they are limited in scope, we would no longer be able to continue our testing operations which would have a material adverse effect on our business.

Any diagnostic tests that may be developed by us or others using our microRNA technology may be subject to regulatory approval, which can be lengthy, costly and burdensome.

Although the U.S. Food and Drug Administration, or FDA, has consistently stated that it has the authority to regulate clinical laboratory tests as medical devices, it has generally exercised enforcement discretion in not otherwise regulating most tests developed and validated at the high complexity CLIA-certified laboratory at which the test is performed. These tests are known as laboratory-developed tests, or LDTs. Our currently marketed tests were launched as LDTs by our CLIA–certified clinical laboratory operating in Philadelphia, Pennsylvania. Recently, however, the FDA indicated that it was reviewing the regulatory requirements that will apply to LDTs, and held a two-day public meeting on July 19 and 20, 2010, to obtain input from stakeholders on how it should apply its authority to implement a reasonable risk-based and effective regulatory framework for LDTs. The FDA has not indicated when or how those changes will be implemented, but it left little doubt that changes are forthcoming. We are monitoring this development carefully, and although we intend to continue to launch new clinical tests as LDTs in our CLIA-certified laboratory, we cannot provide any assurance that FDA regulation, including pre-market clearance or approval, will not be required in the future for LDTs applying our microRNA technology. If pre-market clearance or approval is required, our business could be negatively impacted because we would have to obtain the data that will be required by the FDA and because our CLIA-certified laboratory may be required to stop offering our tests until they are cleared or approved by the FDA.

Diagnostic tests based on our microRNA technology may require clinical trial testing, which can be lengthy, costly and burdensome.

If the FDA decides to require pre-market clearance or approval of tests based on our microRNA technology, it may require us to perform clinical trials prior to submitting a marketing application. If we or laboratories licensing our microRNA technology are required to conduct clinical trials, whether using prospectively acquired samples or archival samples, delays in the commencement or completion of clinical testing could significantly increase development costs and delay commercialization. The commencement of clinical trials may be delayed due to our inability to obtain a sufficient number of patient samples, which is a function of many factors, including the size of the patient population and the nature of the disease or condition being studied. It also may be necessary to engage contract research organizations, or CROs, to perform data collection and analysis and other aspects of these clinical trials, which might increase the cost and increase the time to completion.

We may be unable to obtain regulatory approval of any therapeutic product that we or a collaborator may develop.

Any therapeutic product that we or our collaborators may develop will be subject to extensive governmental regulations including those relating to development, clinical trials, manufacturing and commercialization. Rigorous preclinical testing, the performance of clinical trials and an extensive regulatory review process are required to be successfully completed in the United States and in many foreign jurisdictions before a new therapeutic product can be sold. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. The time required to obtain FDA and other approvals for therapeutic products is unpredictable but typically exceeds several years. It is possible that none of the therapeutic products we or our collaborators may develop will obtain the appropriate regulatory approvals necessary for us or our collaborators to begin selling them.

Furthermore, the FDA has not yet established any definitive policies, practices or guidelines in relation to the newly discovered class of therapeutic products we seek to develop. The lack of such policies, practices or guidelines may hinder or slow review by the FDA of any regulatory filings that we or our collaborators may submit. Moreover, the FDA may respond to these submissions by defining requirements we may not have anticipated. Such responses could lead to significant delays in the approval of therapeutic products. Any delay or failure in obtaining required approvals could have a material adverse effect on our ability to generate revenues from a particular therapeutic product.

Furthermore, any regulatory approval to market a therapeutic product may be subject to limitations on the indicated uses. These limitations may limit the size of the market for the therapeutic product. Any therapeutic product that we or our collaborators may develop will also be subject to numerous foreign regulatory requirements governing the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement among other things. The foreign regulatory approval process includes all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Therefore, approval by the FDA of a therapeutic product does not assure approval by regulatory authorities outside the United States or vice versa.

We have no experience in conducting, managing or sponsoring clinical trials for potential therapeutic products.

We have no experience in conducting and managing the clinical trials necessary to obtain regulatory approvals for any therapeutic product, and we intend to rely on third parties such as CROs, medical institutions and clinical investigators to perform these functions. Our reliance on third parties for clinical development activities reduces our control over these activities. Third-party contractors may not complete activities on schedule, or may not conduct clinical trials in accordance with regulatory requirements or our trial design. If these third parties do not successfully carry out their contractual duties or meet required performance standards or expected deadlines, we might be required to replace them or the data that they provide could be rejected, all of, which may result in a delay of the affected trial.

If we or our collaborators, or any third-party manufacturers with which we may enter into agreements in the future, fail to comply with regulatory requirements, we or they could be subject to enforcement actions, which could affect our ability to market and sell microRNA-based diagnostics and therapeutics and may harm our reputation.

If we or our collaborators, or any third-party manufacturers with which we may enter into agreements in the future fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to enforcement actions, which could affect our ability to successfully develop, market and sell diagnostic tests or therapeutic products using our microRNA technology and could harm our reputation and lead to reduced acceptance of such tests or products by the market. These enforcement actions include:

- warning letters;
- recalls, public notification or medical product safety alerts;

- restrictions on, or prohibitions against, marketing such tests or products;
- restrictions on importation of such tests or products;
- suspension of review or refusal to approve new or pending applications;
- withdrawal of product approvals;
- product seizures;
- injunctions;
- civil and criminal penalties and fines; and
- debarment or other exclusions from government programs.

If we are found to have violated laws protecting the confidentiality of patient health information, we could be subject to civil or criminal penalties, which could increase our liabilities and harm our reputation or our business.

There are a number of federal and state laws protecting the confidentiality of individually identifiable patient health information, including patient records, and restricting the use and disclosure of that protected information that we are subject to. In particular, the U.S. Department of Health and Human Services promulgated patient privacy rules under the Health Insurance Portability and Accountability Act of 1996, or HIPAA. These privacy rules protect medical records and other personal health information by limiting their use and disclosure, giving individuals the right to access, amend and seek accounting of their own health information and limiting most use and disclosures of health information to the minimum amount reasonably necessary to accomplish the intended purpose. If we are found to be in violation of the privacy rules under HIPAA, we could be subject to civil or criminal penalties, which could increase our liabilities and harm our reputation or our business. Claims that we have violated individuals' privacy rights, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our research and development activities involve the use of hazardous and chemicals materials, and we maintain quantities of various flammable and toxic chemicals in our facilities in Israel and the United States. We believe our procedures for storing, handling and disposing these materials in our Israel and U.S. facilities comply with the relevant guidelines of the State of Israel and the United States. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of biohazardous materials. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

If we do not comply with laws regulating the use of human tissues, our business could be adversely affected.

We use human tissue samples for the purpose of development and validation of our tests. Our access and use of these samples is subjected to government regulation, in the U.S., Israel and elsewhere and may become subject to further regulation. For example, the Israeli Ministry of Health requires compliance with the principles of the Helsinki Declaration, the Public Health Regulations (Clinical Trials in Human Subjects) 1980, the provisions of the Guidelines for Clinical Trials in Human Subjects and the provisions of the current Harmonized Tripartite Guideline for Good Clinical Practice. Our failure to comply with these or similar regulations could impact our business and results of operations.

Risks Related to Competition and Commercialization

If we are unable to establish U.S. sales and marketing capabilities or enter into agreements with third parties to market and sell our diagnostic tests in the United States, it would have a material adverse effect on our business and financial condition.

We recently reacquired the U.S. commercial rights to our current diagnostic tests. We do not currently have an organization for the sales, marketing and distribution of our tests in the Unites States. In order to market our tests successfully, we must build our sales, marketing and other commercial capabilities or make arrangements with third parties to perform these services. If we are unable to establish adequate sales, marketing and distribution capabilities in the United States, whether independently or with third parties, 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 biopharmaceutical market is intensely competitive and rapidly changing. Many diagnostic, pharmaceutical and biotechnology companies, academic institutions, governmental agencies and other public and private research organizations are pursuing the research of technologies and development of novel diagnostic tests and therapeutic products for the same diseases that we and others who may develop products based on our microRNA technology are targeting or may target. We and they will face intense competition from tests and products that have already been approved and accepted by the medical community for the diseases for which we or they may develop tests or products. We and others who may develop products based on our microRNA technology may also face competition from new tests or products that enter the market. We believe a significant number of tests and products are currently under development, and may become commercially available in the future, for the diseases for which we, our collaborators, or third-party licensees may try to develop tests and products. In addition to the competition we face from existing tests and products in development, we and others who may develop products based on our microRNA technology will also face competition from other companies working to develop novel tests and products using technology that competes more directly with our microRNA technologies. We are aware of several other companies that are working to develop microRNA-based diagnostics and therapeutics, including Combimatrix Corporation, Alnylam Pharmaceuticals, Inc., Asuragen Inc., the Celera Corporation, Exiqon A/S, Life Technologies Corporation, Isis Pharmaceuticals, Merck & Co., Inc., Santaris Pharma A/S, Regulus Therapeutics and others. In addition, we face competition from companies that have developed or are developing diagnostic tests based on other non-microRNA technologies such as Pathwork Diagnostics, Inc. and Biotheranostics, Inc. Any of these companies may develop microRNA-based tests or products more rapidly and more effectively than we or our collaborators will. If we are unable to compete effectively with existing tests and products, new treatment methods and new technologies, we and others who may develop products based on our microRNA technology may be unable to commercialize any diagnostic tests or therapeutic products that we or they develop.

Many of our competitors have:

- much greater financial, technical and human resources than we have at every stage of the discovery, development, manufacture and commercialization process;
- more extensive experience in preclinical testing, conducting clinical trials, obtaining regulatory approvals, and in manufacturing and marketing diagnostics and therapeutics;
- tests or products that have been approved or are in late stages of development; and
- collaborative arrangements in our target markets with leading companies and research institutions.

Our competitors may develop or commercialize tests or products with significant advantages over any diagnostic tests or therapeutic products we, our collaborators or third-party licensees may develop. Our competitors may therefore be more successful in commercializing their tests and products than we, our collaborators, or third party licensees are, which could adversely affect our competitive position and business.

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.

In the United States, private and government payors decide whether to cover a new diagnostic test, the amount that it will pay for a covered test and the specific conditions for reimbursement. Each third-party payor makes its own decision about which tests it will cover and how much it will pay, although many payors will follow the lead of Medicare. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of each of our tests to each payor separately, with no assurance that approval will be obtained. If third-party payors decide not to cover our diagnostic tests or if they offer inadequate payment amounts, our ability to generate revenue from our diagnostic tests could be limited. Even if one or more third-party payors decides to reimburse for our tests, a third-party payor may stop or lower payment at any time, which would reduce revenue. We cannot predict whether third-party payors will cover our tests or offer adequate payments. We also cannot predict the timing of such decisions. In addition, physicians or patients may decide not to order our tests if third-party payments are inadequate, especially if ordering the test could result in financial liability for the patient.

In the United States, the American Medical Association assigns specific Current Procedural Terminology, or CPT, codes, which are a medical nomenclature used to report medical procedures and services under public and private health insurance plans. Once the CPT code is established, the Centers for Medicare and Medicaid Services, or CMS, establishes reimbursement payment levels and coverage rules for Medicare, and private payors establish rates and coverage rules independently. We cannot guarantee that any of our tests will receive its own CPT code and will be approved for reimbursement by Medicare or other third-party payors. Additionally, any or all of our diagnostic tests developed in the future may not be approved for reimbursement or may be approved at a level that limits our commercial success.

In addition, payment for diagnostic tests furnished to Medicare beneficiaries in most instances is made based on a fee schedule set by CMS. In recent years, payments under these fee schedules have decreased and may decrease more, which could jeopardize our commercial prospects. Reimbursement decisions in the European Union and in other jurisdictions outside of the United States vary by country and regions and there can be no assurance that we will be successful obtaining adequate reimbursement.

In addition, reimbursement outside the United States varies by country, and we cannot predict if our products will be reimbursed outside of the United States and the timing of such reimbursement.

Changes in healthcare policy could increase our costs, decrease our revenues and impact sales of and reimbursement for our tests.

In March 2010, the President of the United States signed the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or the Healthcare Reform Act. This law substantially changes the way health care will be financed by both governmental and private insurers, and significantly impacts our industry. The Healthcare Reform Act contains a number of provisions that are expected to impact our business and operations, including those governing enrollment in federal healthcare programs, reimbursement changes and fraud and abuse, which will impact existing government healthcare programs and will result in the development of new programs.

Additional provisions of the Healthcare Reform Act, some of which become effective in 2011, may negatively affect our revenues. For example, the Healthcare Reform Act mandates a reduction in payments for clinical laboratory services paid under the Medicare Clinical Laboratory Fee Schedule of 1.75% for the years 2011 through 2015. This adjustment is in addition to a productivity adjustment to the Clinical Laboratory Fee Schedule. It also imposes an excise tax of 2.3% on the sales of medical devices beginning in 2013.

In addition to the Healthcare Reform Act, there will continue to be proposals by legislators at both the federal and state levels, regulators and third-party payors to keep these costs down while expanding individual healthcare benefits. Certain of these changes could impose additional limitations on the prices we will be able to charge for our tests or the amounts of reimbursement available for our tests from governmental agencies or third-party payors. While in general it is too early to predict specifically what effect the Health Reform Act and its implementation or any future healthcare reform legislation or policies will have on our business, current and future healthcare reform legislation and policies could have a material adverse effect on our business and financial condition.

The market may not be receptive to any diagnostic tests or therapeutic products using our microRNA technology upon their commercial introduction.

Any diagnostic tests or therapeutic products using our microRNA technology that we, our collaborators or third-party licensees have developed or are developing are based upon new technologies or diagnostic or therapeutic approaches. Key participants in pharmaceutical marketplaces, such as physicians, third-party payors and consumers, may not accept a microRNA-based approach. As a result, it may be more difficult for us, our collaborators or third-party licensees to convince the medical community and third-party payors to accept and use such tests and products. Other factors that we believe will materially affect market acceptance of diagnostic tests or therapeutic products using our microRNA technology include:

- the timing of any marketing approvals, the terms of any approvals and the countries in which approvals are obtained;
- the success of physician education programs;
- the availability of alternative diagnostics and therapeutics; and
- the pricing of such tests or products, particularly as compared to alternatives.

Risks Related to Our Dependence on Third Parties

We are largely dependent upon our distributors for the success of commercialization of our current diagnostic tests.

We currently have the following distribution agreements relating to our diagnostic tests:

- with Teva Pharmaceutical Industries Ltd., pursuant to which Teva has the right to distribute these tests in Turkey and Israel;
- with Warnex Medical Laboratories, a division of Warnex, Inc., pursuant to which Warnex has the exclusive right to distribute these tests in Canada;
- with Genekor S.A., pursuant to which Genekor has the exclusive right to distribute these tests in Greece;
- with Super Religare Laboratories Limited (SRL), pursuant to which SRL has the non-exclusive right to distribute these tests in India, Saudi Arabia, Qatar and the United Arab Emirates; and
- with Genetic Technologies Limited (GTL), pursuant to which GTL has the exclusive right to distribute these tests in Australia, New Zealand and Singapore.

We are largely dependent upon these distributors for the commercial success of our tests outside of the United States. The potential revenues from these agreements consist of contingent payments based on the sale of our products. These payments will depend upon our collaborators' ability to devote the necessary resources to successfully commercialize these tests. In addition, if any of our current or potential future distributors were to breach or terminate its agreement with us, the commercialization of these tests could be adversely affected because we may not have sufficient financial resources or capabilities to successfully commercialize these tests on our own or find other partners.

If any of our distributors does not devote sufficient time and resources to the collaboration or if a collaboration is breached or terminated, we may not realize the potential commercial benefits of the arrangement, and our results of operations may be adversely affected.

We may not be able to execute our business strategy if we are unable to enter into additional collaborations with other companies that can provide capabilities and funds for the development and commercialization of our microRNA-based diagnostics and therapeutics.

We have limited capabilities for sales, marketing, distribution and product development, including obtaining regulatory approval of therapeutic products. Accordingly, we may enter into additional collaborations with pharmaceutical, biotechnology or diagnostic companies to jointly develop specific tests or products and to jointly commercialize them if they are approved. In such collaborations, we would expect our collaborators to provide substantial capabilities in clinical development, regulatory affairs, marketing and sales. While such agreements could provide us with an opportunity to develop and commercialize tests and products, they may necessitate a reliance on our collaboration partner in numerous aspects of the research and development, regulation, manufacturing, marketing and sales of these tests and products. We may not be successful in entering into any additional collaborations on favorable terms or maintaining any such collaborations into which we enter. In addition, while such agreements would provide us with opportunities, they would also require us to share the down-stream profits with our collaborators, thereby reducing our ability to fully capitalize on sales.

If any collaborator terminates or fails to perform its obligations under agreements with us, the development and commercialization of our tests and products could be delayed or terminated.

Our expected dependence on collaborators for certain capabilities and funding means that our business would be adversely affected if any collaborator terminates its collaboration agreement with us or fails to perform its obligations under that agreement. Our current or future collaborations, if any, may not be scientifically or commercially successful. Disputes may arise in the future with respect to the ownership of rights to tests or products developed with collaborators, which could have an adverse effect on our ability to develop and commercialize any affected test or product. If a collaborator terminates its collaboration with us, for breach or otherwise, it could be difficult for us to attract new collaborators and it could adversely affect how we are perceived in the business and financial communities. In addition, a collaborator could determine that it is in its financial interest to:

- pursue alternative technologies or develop alternative tests or products, either on its own or jointly with others, that may be competitive with the tests or products on which it is collaborating with us or which could affect its commitment to the collaboration with us;
- pursue higher priority programs or change the focus of their development programs, which could affect the collaborator's commitment to us; or
- if it has marketing rights and obligations, choose to devote fewer resources to the marketing of our tests or products, than they do for tests or products of their own development, or of their co-development with third parties.

If any of these occur, we may not have sufficient financial resources or capabilities to continue the development and commercialization of such test or product on our own.

We rely on third parties for tissue samples and other materials required for our research and development activities and if we are unable to reach agreements with these third parties our research and development activities would be delayed.

We rely on third parties, primarily hospitals, health clinics and academic institutions, for the provision of tissue samples and other materials required in our research and development activities. Obtaining these materials requires various approvals as well as reaching a commercial agreement on acceptable terms with the hospital or other provider of the materials. We may not be able to reach agreements with a sufficient number of suppliers or do so on terms acceptable to us. If we are unable to reach acceptable agreements with a sufficient number of suppliers of research materials, our research and development activities will be delayed and our ability to implement our business plan will be compromised.

We currently have limited sales, marketing or distribution experience and may depend significantly on third parties to commercialize microRNA-based diagnostic tests or therapeutic products we may develop.

We currently have limited sales, marketing or distribution experience. We will need to rely on our collaborators or other third parties to commercialize our current tests and any future tests we may develop, or we will need to internally develop such capabilities. We have limited control over the sales, marketing and distribution activities of our collaborators, and our future revenues will depend on the success of the efforts of our collaborators. To develop internal sales, distribution and marketing capabilities, we will have to invest significant amounts of financial and management resources, and we will face a number of additional risks, including:

- we may not be able to attract and build a significant marketing or sales force;
- the cost of establishing a marketing or sales force may not be justifiable in light of the revenues generated by any particular test or product; and
- our direct sales and marketing efforts may not be successful.

Risks Related to Our Operations

If we are unable to attract and retain qualified key management and scientists, staff consultants and advisors, our ability to implement our business plan may be adversely affected.

We are highly dependent upon certain of our senior management and scientific staff. The loss of the service of these persons may significantly delay or prevent our achievement of product development and other business objectives. Our employment agreements with our key personnel are terminable by the employee at any time with notice. Additionally, although we have generally been successful in our recruiting efforts, we face intense competition for qualified individuals from numerous pharmaceutical and biotechnology companies, universities, governmental entities and other research institutions. We may be unable to attract and retain suitably qualified individuals, and our failure to do so could have an adverse effect on our ability to implement our business plan.

We may have difficulty managing our growth and expanding our operations successfully as we seek to evolve from a company primarily involved in discovery into one that develops and commercializes microRNA-based diagnostic tests and therapeutic products.

We will need to expand our development, regulatory, manufacturing, marketing and sales capabilities or enter into strategic collaborations or contract with other organizations to provide these capabilities for us. As our operations expand, we expect that we will need to manage additional relationships with various collaborators, suppliers and other organizations. Our ability to manage our operations and growth will require us to continue to improve our operational, financial and management controls, reporting systems and procedures in at least two different countries. We may not be able to implement improvements to our management information and control systems in an efficient or timely manner and may discover deficiencies in existing systems and controls.

There is a substantial risk of product liability claims in our business. If we are unable to obtain sufficient insurance, a product liability claim against us could adversely affect our business.

Our business exposes us to significant potential product liability risks that are inherent in the development, manufacturing and marketing of diagnostics and therapeutics. Product liability claims could delay or prevent completion of our clinical development programs. We currently have product liability insurance covering our current commercial tests, and clinical trial insurance for certain trials and cancer programs requiring insurance in an amount up to $5 million in the aggregate. We plan to obtain insurance for all research programs at appropriate levels prior to initiating any required clinical trials and at higher levels prior to marketing approved therapeutic products. Any insurance we obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material adverse effect on our business.

If we are unable to manage the challenges associated with our international operations, the growth of our business could be limited.

In addition to our operations in Rehovot, Israel, our wholly owned subsidiary, Rosetta Genomics Inc., operates our CLIA-and CAP certified laboratory in Philadelphia, Pennsylvania. We are subject to a number of risks and challenges that specifically relate to these international operations. Our international operations may not be successful if we are unable to meet and overcome these challenges, which could limit the growth of our business and may have an adverse effect on our business and operating results. These risks include:

- fluctuations in foreign currency exchange rates that may increase the U.S. dollar cost of our international operations;
- difficulty managing operations in multiple locations, which could adversely affect the progress of our development programs and business prospects;
- local regulations that may restrict or impair our ability to conduct pharmaceutical and biotechnology-based research and development;
- foreign protectionist laws and business practices that favor local competition;
- failure of local laws to provide the same degree of protection against infringement of our intellectual property, which could adversely affect our ability to develop tests or products or reduce future product or royalty revenues, if any, from tests or products we may develop;
- laws and regulations governing U.S. immigration and entry into the United States that may restrict free movement of our employees between Israel and the United States; and
- laws and regulations governing U.S. immigration and entry into the United States that may restrict employment of Israeli citizens in our U.S. facilities.

We are exposed to risks relating to evaluations of controls required by Section 404 of the Sarbanes-Oxley Act of 2002.

Under the current rules of the SEC, we are now required to comply with the management assessment of internal control over financial reporting requirement of Section 404 of the Sarbanes-Oxley Act of 2002. We have evaluated our internal control systems to allow management to report on our internal control over financial reporting. We have not identified any internal control deficiencies that constitute a "material weakness" under applicable SEC and Public Company Accounting Oversight Board rules and regulations or that otherwise would materially affect internal controls over financial reporting. A "material weakness" is a control deficiency, or combination of control deficiencies that results in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected. We cannot guarantee that we will not identify material weaknesses or significant control deficiencies in the future. Any failure to maintain or implement required new or improved controls, or any difficulties we encounter in their implementation, could result in significant deficiencies or material weaknesses and cause us to fail to meet our periodic reporting obligations or result in material misstatements in our financial statements, which in turn could lead to a decline in our stock price. Any such failure could also adversely affect the results of periodic management evaluations regarding the effectiveness of our internal control over financial reporting.

Risks Related to Israeli Law and Our Operations in Israel

For the years ended December 31, 2003, 2006, 2007 and 2010, we were a passive foreign investment company, or PFIC, for U.S. federal income tax purposes, there may be negative tax consequences for holders of our ordinary shares who are U.S. residents and do not make certain timely tax elections.

We are deemed to be a passive foreign investment company, or PFIC, if 75% or more of our gross income in a taxable year, including our pro rata share of the gross income of any company, U.S. or foreign, in which we are considered to own, directly or indirectly, 25% or more of the shares by value, is passive income. We are also deemed to be a PFIC if at least 50% of our assets in a taxable year, averaged over the year and ordinarily determined based on fair market value, including our pro rata share of the assets of any company in which we are considered to own, directly or indirectly, 25% or more of the shares by value, are held for the production of, or produce, passive income. We believe that we were a PFIC in 2003, 2006, 2007 and 2010. We believe that we should not be treated as a PFIC for 2004, 2005, 2008 and 2009. We nevertheless recognize that there are significant areas of uncertainty in the PFIC rules and the IRS may not agree with our belief. Accordingly, for any U.S. shareholders who held our ordinary shares during 2003, 2006, 2007 or 2010, or holds shares in any subsequent year that we are deemed a PFIC that does not make an election to treat us as a "qualified electing fund," or QEF, or make a "mark-to-market" election, then "excess distributions" to a U.S. shareholder, and any gain recognized by a U.S. shareholder on a disposition of our ordinary shares, would be taxed in an unfavorable way. Among other consequences, "excess distributions" and gains on a disposition of our ordinary shares would be taxed at the highest rates applicable to ordinary income, rather than the potential 15% maximum rate applicable to certain dividends received by an individual from a qualified foreign corporation and to long-term capital gains to non-corporate taxpayers. PFIC status is determined annually and cannot be definitively determined until the close of the year in question. In addition, if the IRS determines that we are a PFIC for a year with respect to which we have determined that we were not a PFIC, it might be too late for a U.S. shareholder to make a timely QEF or mark-to-market election. U.S. shareholders who held or hold ordinary shares during a period when we are a PFIC (including 2003, 2006, 2007 and 2010) will be subject to the foregoing rules, even if we cease to be a PFIC in subsequent years, subject to exceptions for U.S. shareholders who made a timely QEF or mark-to-market election.

We are headquartered in Israel and therefore our results may be adversely affected by political, economic and military instability in Israel.

Our principal executive offices and research and development facilities and many of our suppliers are located in Israel. Accordingly, political, economic and military conditions in Israel may directly affect our business. Since the establishment of the State of Israel in 1948, a number of armed conflicts have taken place between Israel and its Arab neighbors, as well as incidents of civil unrest. During the winter of 2008, Israel was engaged in an armed conflict with Hamas in the Gaza Strip. This conflict involved missile strikes against civilian targets in central Israel that resulted in economic losses. Although Israel has entered into various agreements with the Palestinian Authority, Israel has been and is subject to related civil unrest and Palestinian terrorist activity, with varying levels of severity, since September 2000. Tension among the different Palestinian factions may create additional unrest and uncertainty.

In addition, in early 2011, riots and uprisings in several countries in the Middle East have led to severe political instability and to a decline in the regional security situation. Such instability may affect the global economy and marketplace, could negatively affect business conditions and therefore could adversely affect our operations and make it more difficult for us to raise capital.

We can give no assurance that security and political conditions will have no impact on our business in the future. Hostilities involving Israel or the interruption or curtailment of trade between Israel and its present trading partners could adversely affect our operations and could make it more difficult for us to raise capital. Ongoing and revived hostilities or other adverse political or economic developments in Israel or the region could harm our operations and product development and cause sales of any approved products to decrease. In addition, Israel and companies doing business with Israel have, in the past, been subject to economic boycotts. Several countries, principally those in the Middle East, still restrict business with Israel and Israeli companies. These restrictive laws and policies may seriously limit our ability to sell any approved products in these countries.

Our business insurance does not cover losses that may occur as a result of events associated with the security situation in the Middle East. Although the Israeli government currently covers the reinstatement value of direct damages that are caused by terrorist attacks or acts of war, there can be no assurance that this government coverage will be maintained. Any losses or damages incurred by us could have a material adverse effect on our business. Any armed conflicts or political instability in the region would likely negatively affect business conditions and could harm our results of operations.

Our operations could be disrupted as a result of the obligation of management or key personnel to perform military service in Israel.

Many of our male employees in Israel, are obligated to perform military reserve duty annually for extended periods of time through the age of 45 (or older for citizens with certain occupations) and, in the event of a military conflict, could be called to active duty. In response to increases in terrorist activity, there have been periods of significant call-ups of military reservists . It is possible that there will be additional call-ups in the future. Our operations could be disrupted by the absence of a significant number of our employees related to military service or the absence for extended periods of military service of one or more of our key employees.

The government tax benefits that we are currently eligible to receive require us to meet several conditions and may be terminated or reduced in the future, which would increase our costs.

Some of our operations in Israel have been granted “approved enterprise” status by the Investment Center in the Israeli Ministry of Industry, Trade and Labor that resulted in our currently being eligible for tax benefits under the Israeli Law for Encouragement of Capital Investments, 1959, as amended. These benefits will commence in the first year in which we produce taxable income. Pursuant to these benefits, undistributed income that we generate from our “approved enterprise” will be tax exempt for two years and, thereafter, will be subject to a corporate tax at a rate of 10%-25% for an additional five to eight years, depending on the extent of foreign investment in us. The availability of these tax benefits, however, is subject to certain requirements, including, among other things, making specified investments in fixed assets and equipment, financing a percentage of those investments with our capital contributions, compliance with our marketing program which was submitted to the Investment Center, filing of certain reports with the Investment Center and compliance with Israeli intellectual property laws. If we do not meet these requirements in the future, these tax benefits may be cancelled and we may be required to refund the amount of the benefits already received, in whole or in part, with the addition of linkage differentials to the Israeli Consumer Price Index and interest, or other monetary penalty. The tax benefits that we anticipate receiving under our current “approved enterprise” program may not be continued in the future at their current levels or at all.

We participate in a “consortium” that may restrict the transfer of know-how that we develop.

We are currently participating in the consortium “Rimonim,” which is supported by the Office of the Chief Scientist at the Ministry of Industry, Trade and Labor of the State of Israel, or the OCS. The aim of this consortium is to develop technologies for the use of short interfering RNA, or siRNA, and microRNA mimetics for therapeutics. The consortium includes six companies and five academic groups. The transfer of know-how developed in the framework of the consortium or rights to manufacture based on and/or incorporating such know-how to third parties which are not members of the consortium requires the consent of the OCS.

Provisions of Israeli law may delay, prevent or impede an acquisition of us, which could prevent a change of control.

Israeli corporate law regulates mergers, requires tender offers for acquisitions of shares above specified thresholds, requires special approvals for transactions involving directors, officers or significant shareholders and regulates other matters that may be relevant to these types of transactions. For example, a merger may not be completed unless at least 50 days have passed from the date that a merger proposal was filed by each merging company with the Israel Registrar of Companies and at least 30 days from the date that the shareholders of both merging companies approved the merger. In addition, the approval of a majority of each class of securities of the target company is required to approve a merger.

Furthermore, Israeli tax considerations may make potential transactions unappealing to us or to our shareholders whose country of residence does not have a tax treaty with Israel exempting such shareholders from Israeli tax. For example, Israeli tax law does not recognize tax free share exchanges to the same extent as U.S. tax law. With respect to mergers, Israeli tax law allows for tax deferral in certain circumstances but makes the deferral contingent on the fulfillment of numerous conditions, including a holding period of two years from the date of the transaction during which sales and dispositions of shares of the participating companies are restricted. Moreover, with respect to certain share swap transactions, the tax deferral is limited in time, and when the time expires, tax then becomes payable even if no actual disposition of the shares has occurred.

These provisions could delay, prevent or impede an acquisition of us, even if such an acquisition would be considered beneficial by some of our shareholders.

We are exposed to risks relating to our majority-owned Israeli subsidiary.

On February 4, 2010, we established Rosetta Green Ltd,. an Israeli Company, as a subsidiary. Rosetta Green completed its initial public offering in Israel on February 17, 2011 and its shares started trading on the Tel-Aviv Stock Exchange (TASE) on February 23, 2011. We currently hold 50.03% of the issued and outstanding share capital and voting rights of Rosetta Green.

As holders of the majority of the share capital and voting rights in Rosetta Green, we are presumed to be a controlling shareholder under the Israeli Securities Law. As a controlling shareholder of a company that offered shares pursuant to a prospectus, we are exposed to potential liability claims under the Israeli Securities Law and may generally be liable for damages caused to purchasers and/or sellers of securities of Rosetta Green, that are due to (i) the inclusion of a misleading particular in a prospectus, in an immediate, periodic or other report filed by Rosetta Green, or (ii) any violation by Rosetta Green of the Israeli Securities Law or any regulation promulgated thereunder. In addition, subject to certain preliminary requirements, class actions may be filed against us, based on the above mentioned claims. Certain defenses are available under the Israeli Securities Law. However, we cannot be certain that such defenses will be available to us or that we will meet the high standard of conduct required for proving some of these defenses. Although we are presumed to be a controlling shareholder of Rosetta Green, we rely on the information provided to us by Rosetta Green and therefore may be limited in our ability to ensure that no misleading particular is included in any prospectus or report and to ensure compliance by Rosetta Green with the Israeli Securities Law and the regulation promulgated thereunder.

Any litigation relating to the above matters could result in substantial damages awards against us. The cost to us of any litigation or other proceeding relating to the above matters, even if resolved in our favor, could be substantial, and the litigation would divert our management's efforts.

Generally, the Israeli Companies Law and the Israeli Securities Law require special approval procedures and disclosures with respect to transactions between Rosetta Green and us. The Israeli Companies Law also imposes on us, as a controlling shareholder, a duty to act fairly towards Rosetta Green, in addition to the duty to act in good faith and in a customary manner imposed on all shareholders of an Israeli company such as Rosetta Green**.**

It may be difficult to enforce a U.S. judgment against us, our officers and directors or to assert U.S. securities law claims in Israel.

We are incorporated in Israel. Most of our executive officers and directors are not residents of the United States, and a majority of our assets and the assets of these persons are located outside of the United States. Therefore, it may be difficult to enforce a judgment obtained in the United States, against us or any of these persons, in U.S. or Israeli courts based on the civil liability provisions of the U.S. federal securities laws. Additionally, it may be difficult to enforce civil liabilities under U.S. federal securities laws in original actions instituted in Israel.

Being a foreign private issuer exempts us from certain SEC and NASDAQ requirements.

We are a "foreign private issuer" within the meaning of rules promulgated by the SEC. As such, we are exempt from certain provisions applicable to U.S. public companies including:

- the rules under the Securities Exchange Act of 1934, as amended, or Exchange Act, requiring the filing with the SEC of quarterly reports on Form 10-Q and current reports on Form 8-K;
- the sections of the Exchange Act regulating the solicitation of proxies, consents or authorizations in respect of a security registered under the Exchange Act;
- the provisions of Regulation FD aimed at preventing issuers from making selective disclosures of material information; and
- the sections of the Exchange Act requiring insiders to file public reports of their stock ownership and trading activities and establishing insider liability for profits realized from any "short-swing" trading transaction (a purchase and sale, or sale and purchase, of the issuer's equity securities within less than six months).

In addition, under the rules and regulations of The NASDAQ Stock Market, a foreign private issuer may follow its home country practice in lieu of certain NASDAQ listing requirements. For example under NASDAQ's rules, (1) the private placement completed in December 2010 and (2) the concurrent private placement and registered direct offering completed in February 2011 would have required shareholder approval because these offerings represented the issuance (or potential issuance) of more than 20% of our outstanding ordinary shares at a price per share below the greater of book value per share or market value per share. However, we chose to follow our home country practice, which did not require shareholder approval of these offerings. Because of these SEC and NASDAQ exemptions, investors are not afforded the same protections or information generally available to investors holding shares in public companies organized in the United States.

Risks Related to Our Ordinary Shares

Our stock price has been and is likely to continue to be volatile and the market price of our ordinary shares may drop.

Prior to our February 2007 initial public offering, there was not a public market for our ordinary shares. There is a limited history on which to gauge the volatility of our stock price; however, since our ordinary shares began trading on NASDAQ on February 27, 2007 through March 30, 2011, our stock price has fluctuated from a low of $0.50 to a high of $10.33. Furthermore, the stock market has recently experienced significant volatility, particularly with respect to pharmaceutical, biotechnology, and other life sciences company stocks. The volatility of pharmaceutical, biotechnology, and other life sciences company stocks often does not relate to the operating performance of the companies represented by the stock. Some of the factors that may cause the market price of our common stock to fluctuate include:

- failure of any of our diagnostic tests to achieve commercial success;
- introduction of technological innovations or new commercial products by us or our competitors;
- our entry into new, or termination or other developments relating to our existing, collaboration, distribution and licensing agreements;
- developments relating to our efforts to commercialize our tests in the United States;
- regulatory developments in the United States and foreign countries;
- developments or disputes concerning patents or other proprietary rights;
- failure to secure adequate capital to fund our operations, or the issuance of equity securities at prices below fair market price;
- changes in estimates or recommendations by securities analysts, if any cover our securities;

- litigation;
- future sales of our ordinary shares;
- general market conditions;
- changes in the structure of healthcare payment systems;
- economic and other external factors or other disasters or crises;
- period-to-period fluctuations in our financial results; and
- overall fluctuations in U.S. equity markets.

These and other external factors may cause the market price and demand for our ordinary shares to fluctuate substantially, which may limit or prevent investors from readily selling their shares and may otherwise negatively affect the liquidity of our ordinary shares. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. Such a lawsuit could also divert the time and attention of our management.

Our ordinary shares are at risk for delisting from The NASDAQ Capital Market.

Our ordinary shares are currently listed on The NASDAQ Capital Market, having moved from The NASDAQ Global Market on June 30, 2010. NASDAQ has requirements that a company must meet in order to remain listed on The NASDAQ Capital Market, including maintaining stockholders' equity of at least $2.5 million. On December 6, 2010, we received a notification letter from NASDAQ indicating that our stockholders' equity as reported in our Report on Form 6-K as filed with the SEC on November 30, 2010 no longer met the minimum amount of $2,500,000 required for continued inclusion on The NASDAQ Capital Market pursuant to NASDAQ Listing Rule 5550(b)(1). We were granted an opportunity to submit a plan to NASDAQ for regaining compliance with the minimum stockholders' equity requirement. We submitted a plan on January 25, 2011, and on February 7, 2011, we received notice that the Listing Qualifications Staff of NASDAQ had determined to grant our request for an extension to regain compliance with Listing Rule 5550(b)(1). Under the terms of the extension granted by NASDAQ, we were required to achieve certain milestones toward regaining compliance by February 28, 2011 and April 29, 2011, and ultimately demonstrate full compliance with Listing Rule 5550(b)(1) upon the filing of the periodic report that includes results for the quarter ending June 30, 2011, with the Securities and Exchange Commission.

On March 8, 2011, we filed a Form 6-K with the SEC reporting that as a result of the February 2011 private placement and concurrent registered offerings, as well as the successful completion of the initial public offering in Israel of our majority-owned subsidiary Rosetta Green Ltd., we believed that we had regained compliance with the minimum stockholders' equity requirement and that we had successfully addressed the requirements set forth in the February 7, 2011 letter from NASDAQ. Subsequently, on March 8, 2011, we received a letter from NASDAQ noting that based on the Form 6-K filing, the Staff had determined that we were in compliance with NASDAQ Listing Rule 5550(b)(1). NASDAQ also noted, however, that if we fail to evidence compliance with this requirement in our next periodic report, we would be subject to further delisting proceedings.

In addition, on February 7, 2011, we received notice from the Staff indicating that the bid price of our ordinary shares had closed below the minimum $1.00 per share threshold set forth in NASDAQ Listing Rule 5550(a)(2) for the prior 30 consecutive business days and, in accordance with the NASDAQ Listing Rules, the Staff had granted us a 180 calendar day period, through August 8, 2011, to regain compliance with that requirement. We may achieve compliance with NASDAQ's bid price requirement by evidencing a closing bid price of at least $1.00 per share for a minimum of 10 consecutive business days on or before August 8, 2011. In addition, should we satisfy the criteria for initial listing on The NASDAQ Capital Market (except for the $1.00 bid price and $15 million market value of publicly held shares requirements for continued listing) as of August 8, 2011, we will be entitled to a second 180-calendar day period, through February 6, 2012, to regain compliance with the minimum bid price requirement. If we do not regain compliance during the 180-day compliance period and are not eligible for a second 180-day compliance period, the Staff will provide us with written notice that our ordinary shares are subject to delisting. However, in such event, we may appeal the Staff's determination to a Panel. The filing of an appeal would stay any delisting action until the Panel renders a determination following a hearing.

If we fail to meet the continued listing requirements of The NASDAQ Capital Market and our ordinary shares are delisted, we would expect trading in our ordinary shares to be conducted on the OTC Bulletin Board, or OTCBB, as long as we continue to file reports required by the SEC. The OTCBB is generally considered to be a less efficient market than The NASDAQ Capital Market, and our stock price, as well as the liquidity of our ordinary shares, could be adversely affected as a result. Delisting would also negatively impact our ability to sell our ordinary shares and secure additional financing.

ITEM 4. INFORMATION ON THE COMPANY

A. HISTORY AND DEVELOPMENT OF THE COMPANY

History

We were incorporated under the laws of the State of Israel on March 9, 2000 as Rosetta Genomics Ltd., an Israeli company. The principal legislation under which we operate is the Israeli Companies Law, 5759-1999, as amended (the "Companies Law"). Our principal executive office is located at 10 Plaut Street, Science Park, Rehovot 76706 Israel, and our telephone number is + 972-73-222-0700. Our wholly owned subsidiary, Rosetta Genomics Inc., which was incorporated in Delaware on April 21, 2005, is located at 3711 Market Street, Suite 740, Philadelphia, Pennsylvania 19104, and its telephone number is (215) 382-9000. Rosetta Genomics Inc. serves as our agent for service of process in the United States. Our web site address is *www.rosettagenomics.com*. The information on our web site is not incorporated by reference into this Annual Report and should not be considered to be a part of this Annual Report.

On February 4, 2010, we established Rosetta Green Ltd., an Israeli Company, as a controlled subsidiary. As of December 31, 2010, we owned approximately 76.2% of the outstanding ordinary shares of Rosetta Green. In February 2011, Rosetta Green completed an initial public offering in Israel on the Tel Aviv Stock Exchange, or TASE. As of the date of this report, we own approximately 50.03% of the outstanding ordinary shares of Rosetta Green. See also "Item 4.B. Business Overview – Rosetta Green."

On July 22, 2008, through Rosetta Genomics Inc., we purchased all of the shares of Parkway Clinical Laboratories, Inc., a privately held Pennsylvania corporation owning a CLIA-certified laboratory, for an aggregate purchase price of $2,900,000 (not including $207,000 of transaction expenses), consisting of $1,900,000 in cash and $1,000,000 of our ordinary shares, plus an additional $300,000 payable upon the achievement of certain milestones, which were not met. Parkway remained an indirect wholly owned subsidiary until May 18, 2009, when we sold Parkway for up to $2,500,000, to be paid as a fixed percentage from the revenues over six years. With its CLIA certification, Parkway helped us to obtain CLIA certification for our laboratory in Philadelphia, Pennsylvania.

Principal Capital Expenditures

We had net capital expenditures and repayment of capital lease of $579,000 in 2010, $245,000 in 2009 and $421,000 in 2008. Our capital expenditures during 2010, 2009 and 2008 consisted primarily of laboratory equipment, computer equipment and leasehold improvements. We have financed our capital expenditures with cash generated from financing activities.

B. BUSINESS OVERVIEW

Overview

We are seeking to develop and commercialize new diagnostic tests based on a recently discovered group of genes known as microRNAs. MicroRNAs are naturally expressed, or produced, using instructions encoded in DNA and are believed to play an important role in normal function and in various pathologies. We have established a CLIA-certified laboratory in Philadelphia, which enables us to develop, validate and commercialize our own diagnostic tests applying our microRNA technology.

We believe that we were the first commercial enterprise to focus on the emerging microRNA field, and that as a result, we have developed an early and strong intellectual property position related to the development and commercialization of microRNA-based diagnostics. Using our intellectual property, collaborative relationships with leading commercial enterprises and academic and medical institutions, and expertise in the field of microRNAs, we have initiated microRNA-based diagnostic programs for various cancers. In late-2008, we launched our first three diagnostic tests applying our microRNA technology:

1. miRview™ mets - for identification of the origin of the primary tumor of metastases;

2. miRview™ squamous - for differentiating squamous from non squamous non-small cell lung cancer; and

3. miRview™ meso - for differentiating mesothelioma from other carcinomas in the lung and pleura.

In December 2010, we launched our fourth product miRview™ mets2 which expands the utility of our miRview™ mets test.

We currently have distribution agreements with respect to these tests covering Australia, Canada, Greece, India, Israel, New Zealand, Qatar, Saudi Arabia, Singapore, Turkey and the United Arab Emirates. All of these distribution agreements call for samples to be sent to our CLIA-certified laboratory in Philadelphia for analysis. Our goal is through distribution agreements to provide access to our products to up to 1.5 billion people around the globe by the end of this year.

We are in different stages of development of the following four new microRNA-based tests, which are being developed for launch potentially within the next twenty-four months:

- *miRview™ lung*. We are developing another lung cancer diagnostic for potential commercial launch in the second quarter of 2011 to differentiate primary lung cancers into neuroendocrine vs. non-small cell lung cancer and then further subclassify non-small cell lung cancer into squamous vs. non-squamous and neuroendocrine into small cell lung cancer vs. carcinoid using pathology and cytology samples obtained by various procedures. This test is being developed to leverage our newly developed fine needle aspirate, or FNA, platform technology, which we plan to leverage across several types of tests.

- *miRview™ kidney*. This test is being developed to accurately identify four histological types of renal or kidney tumors.

- *miRview™ bladder*. This test is being developed to stratify superficial bladder cancer patients into different risk groups.

- *miRview™ meso prognosis*. This is another mesothelioma test we are developing. This test is being developed to sub-classify mesothelioma patients based on their prognosis.

In addition, we are in the discovery stage of different body fluid-based diagnostic tests for other potential indications as part of our longer-term pipeline. We have recently prioritized three body fluid-based projects for the following indications:

- *Heart Failure (HF)* – We are currently performing a proof of concept (POC) study to identify microRNA signatures for HF syndrome in blood and to assess the feasibility to develop a minimally-invasive microRNA based stratification test for HF.

- *Preeclampsia* - We performed a small POC study on women in their first trimester of their pregnancy, and identified potential microRNA biomarkers in a subset of the women that might indicate the development of preeclampsia in later stages of their pregnancy. We are currently seeking to enlarge the cohort of samples to assess our feasibility to develop a minimally-invasive microRNA based test for early diagnosis of this condition in pregnant woman.

- *Early detection of lung and other cancers* - We are currently performing a POC study to identify potential microRNA biomarkers in blood of lung-cancer patients in order to assess the feasibility to develop a minimally-invasive microRNA based test for early diagnosis of the disease. In addition, we are currently collecting samples through our collaborations to perform POC studies to identify potential microRNA biomarkers in body fluids of several different types of cancer patients in order to assess the feasibility to develop a minimally-invasive microRNA based test for early diagnosis of the applicable disease.

MicroRNAs also represent potential targets for the development of novel drugs. We worked with Regulus Inc. on research for a therapeutic for the treatment of liver cancer based on inhibiting a microRNA. We identified a microRNA target, and have shown in *in-vivo* studies that inhibiting this microRNA significantly reduces tumor growth. We are currently focusing on identifying microRNA targets for the treatment of ovarian cancer.

We are also participating in the Rimonim Consortium, which is supported by the Office of the Chief Scientist at the Ministry of Industry, Trade and Labor of the State of Israel, or the OCS. The aim of this consortium is to develop technologies for the use of short interfering RNA, or siRNA, and microRNA mimetics for therapeutics. In this consortium we will develop novel microRNA mimetic molecules with novel chemical modifications, as well as novel delivery systems for microRNAs and novel analytical methods to detect siRNAs and microRNAs. The consortium includes six companies and five academic groups. The transfer of know-how developed in the framework of the consortium or rights to manufacture based on and/or incorporating such know-how to third parties which are not members of the consortium requires the consent of the OCS. See also "Item 4.B. Business Overview – Rimonim Consortium."

Background

Rosetta Genomics was founded in 2000 with the belief that what was known as "junk DNA" actually contains hundreds, possibly thousands, of tiny RNA genes that encode small RNA molecules, later termed microRNAs, which play an important role in the regulation of protein production, and hence the onset and progression of disease. In the cell, genes are expressed through information carried from our DNA by messenger RNAs, or mRNAs, which is in turn translated into proteins. Proteins are the building blocks of all living cells. The type of cell, its function, and the timing of its death are determined by which proteins are produced in the cell, and at what quantities and time they are produced. However, the proteins are the end product of a complex process which begins with the genetic code present in DNA. Before a protein is expressed, or produced, relevant parts of the DNA are copied into a mRNA. Each mRNA holds a code with instructions on how to build a specific protein using a process called translation. Although one messenger RNA molecule is capable of translating hundreds of thousands of protein molecules, the number it actually produces is regulated by microRNAs. MicroRNAs have been found to regulate the expression of other genes by binding to the mRNA.

MicroRNAs have been shown to have varying expression levels across various pathological conditions, and thus have significant potential as a new class of highly sensitive and tissue specific biomarkers. We have developed a microRNA discovery process and have demonstrated, in a work published by us in *Nature Genetics* that the number of human microRNAs is significantly higher than what was previously believed. We have discovered hundreds of biologically validated human microRNAs and dozens of validated viral microRNAs and filed extensive patent applications with claims potentially covering these microRNAs, some of which have been issued.

To leverage the potential of microRNAs as a novel diagnostic platform, we have developed proprietary methods to extract microRNAs from a wide range of tissue and body fluid samples and to quantify specific microRNA expression signatures, which may be used as diagnostic panels to potentially diagnose cancers, their subtypes, as well as the origin of metastases. We have already developed and launched four diagnostic tests based on our platforms and have published several papers demonstrating how our methods can be used to develop such diagnostics (E.g. Rosenwald et al., *Modern Pathology*, 2010; Benjamin et al., *Journal of Molecular Diagnostics*, 2010). Moreover, we were able to demonstrate the utility of our developed tests in post-market studies with collaborators from leading medical centers in the United States and Europe (Bishop et al. *Clinical Cancer Research*, 2010; Muller et al., *The Oncologist*, 2010).

We believe that microRNAs are stable, sensitive and specific markers, and we are advancing diagnostic development programs in cancer and other areas, to potentially enable accurate diagnosis and improve patient care management worldwide.

Our Strategy

Rosetta's goal is to become a leader in the development and commercialization of microRNA-based diagnostic tests. Our key business strategies to achieve this goal are as follows:

- *Develop up to four new microRNA-based tests in the near term, and body fluid-based diagnostic tests in the long term.* We are in different stages of development of four new microRNA-based tests that we plan to bring to market during the next twenty-four months. We believe all four tests address important unmet medical needs, and combined we believe they have significant commercial potential. Moreover, we have already identified microRNA biomarker candidates for each of these four tests and are in the validation stage for two of them, miRview™ lung and miRview™ kidney. Additionally, we intend to leverage our knowledge and experience to potentially develop body fluid-based diagnostic tests. We have recently prioritized the discovery projects of potential microRNA biomarkers of three new indications and we believe body fluid-based tests have the potential to be an important part of our longer-term pipeline.

- *Maximize sales of our first four commercial tests through geographic partners.* We plan to maximize revenues from our four current commercial tests via corporate relationships and through our own targeted commercial efforts. To date we have entered into distribution agreements with five distributors, pursuant to which these distributors have the right to commercialize these tests in their territory. We intend to support the work of these partners while pursuing other partnerships for additional geographies.

- *Build and maintain a strong intellectual property position.* We believe that we were the first commercial enterprise to focus on the emerging field of microRNAs. We also believe we have an early and strong intellectual property position (both patents we own and those we have exclusively licensed) in the area of developing and commercializing microRNA-based diagnostic tests. Our patent strategy is to seek broad coverage on all of our identified microRNA sequences, followed by the filing of patent applications claiming composition-of-matter on microRNAs of commercial interest. We have also filed, and intend to continue to file, patent applications that claim our technical platforms and method-of-use for specific diagnostic applications.

- *Leverage our intellectual property position and microRNA expertise to continue to establish strategic collaborations.* We intend to continue to establish strategic collaborations with leading clinical diagnostic and pharmaceutical companies to further develop and commercialize microRNA-based diagnostics. We believe that our strong intellectual property position and expertise in the field of microRNAs will be very attractive to additional collaboration partners.

Our Diagnostic Tests

The Role of MicroRNAs in Diagnostic Products

Ideally, diagnostic tests provide physicians and their patients with information relating to one or more of the following:

- the existence or the probability of developing disease;
- the exact type of the disease;
- the severity of the disease;
- the potential efficacy of specific therapies, such as different drugs or therapeutic procedures;
- the monitoring of success of a chosen therapy; or
- the likelihood of disease recurrence.

We believe that using microRNAs as diagnostic biomarkers will enable the development of diagnostic products that can provide more accurate and comprehensive information to doctors and patients. Currently, many diagnostic tests are designed to detect abnormal levels of messenger RNAs or proteins. We believe microRNA-based tests have the potential to be superior to these tests because it is believed that microRNAs are closer to the biological origin of disease and many studies have shown their involvement in disease processes, including the demonstration that microRNAs are both diagnostic and prognostic markers. A change in the expression level of a single microRNA may affect the activity of dozens of messenger RNA genes, which in turn may affect the concentration of hundreds of proteins. In addition, microRNAs are very tissue specific and very stable in body fluids and tissue samples. Thus, we expect that by focusing our efforts on microRNAs, we can develop a less complex biomarker panel, resulting in a more specific and sensitive test. Furthermore, extracting microRNAs from tissue and body fluid samples is more reliable than extracting messenger RNAs because of the greater stability of microRNAs. In addition, amplification technologies, such as PCR, can potentially increase the sensitivity of a microRNA-based diagnostic test by generating millions of copies of a particular microRNA and thereby making it easier for the test to detect the presence of the microRNA. Since amplification technologies cannot be used with proteins, we believe microRNA-based diagnostic tests have the potential to be more sensitive than protein-based diagnostic tests.

Our Diagnostic Product Development Process

Our development process for diagnostic products consists of the following important steps:

- *Access to samples.* As a prerequisite for the development and clinical validation of diagnostic products, evaluation of clinical samples is critical. Accordingly, we have entered into collaborations with several institutions in Israel, Europe and the United States that provide us high quality clinical samples. These relationships provide us the opportunity to study thousands of well-characterized samples relevant to different disease areas such as cancer, cardiovascular indications, women's health and neurodegenerative diseases. The sample collections include solid tumor samples and various body fluids such as blood, urine and saliva, as well as high quality tissue samples from archival pathology banks. Where relevant, samples are accompanied by a database of medical history and clinical information, such as diagnosis, treatment and response to treatment, recurrence and survival, which for the samples from the archival pathology banks can be as long as 20 years.

- *RNA extraction.* We utilize both commercial and our proprietary technologies to extract microRNAs from both tissue and body fluid samples.

- *Expression profiling.* The identification of microRNA biomarkers requires sensitive and specific measurements of the levels of the microRNAs extracted from the tissue or body fluid samples. We have developed proprietary methods to rapidly, robustly and accurately perform these measurements. Our methods allow us to perform simultaneous profiling of multiple samples, and we believe result in more accurate measurements of expression levels for each of the analyzed samples.

- *Analysis.* We analyze expression profiles to identify microRNA signatures which detect the existence of disease and provide information on certain disease parameters, such as tumor subtype, tumor origin, tumor aggressiveness, response to treatment, and risk of recurrence. Identifying microRNA signatures is a complex task, and we believe our analytical expertise is one of our key advantages.

Current Commercial Tests

To date, we have commercially launched the following four tests based on our proprietary microRNA technologies:

- *miRview™ mets* – This test is a microRNA-based diagnostic for the identification of the primary site of metastatic cancer, specifically metastatic cancer of unknown primary (CUP). CUP is a heterogeneous group of cancers that constitutes 3-5% of all cancers with a poor median survival of six to ten months. Each year approximately 70,000 patients in the United States are diagnosed with CUP. A patient is typically diagnosed with CUP only after undergoing a wide range of tests, including various imaging tests such as x-ray, CT, MRI, and PET, which have failed to identify the origin of the cancer. Presently, the choice of treatment for metastatic cancer is largely dependent on the nature of the primary tumor. Patients with CUP pose a therapeutic dilemma and treatment is often empiric with a "one treatment fits all" approach. In the era of rapidly growing effective cytotoxic and targeted therapies for known cancers, quicker and more accurate methods to identify the tissue of origin of CUP cancers would permit the use of these therapies, thereby improving the chances of achieving a response and possibly extending the patient's survival. miRview™ mets offers physicians a fast, accurate and easy-to-interpret diagnosis of the predicted primary origin of 25 cancers.

- *miRview™ mets2* – This test is an expansion of our miRview™ mets test. The improved test is a microarray-based test that is able to identify 42 tumor types that include carcinomas, soft tissue tumors, lymphoma and other malignancies with very high accuracy.

- *miRview™ squamous* – This test differentiates squamous from non-squamous non-small cell lung cancer. Lung cancer is the leading cause of cancer-related death in both men and women worldwide and in the United States. Non-small-cell lung cancer, or NSCLC, is composed mostly from squamous cell carcinoma and adenocarcinoma histological types and accounts for nearly 85% of lung cancer cases. In the past, the only diagnostic branch point in the classification of lung cancers that carried any therapeutic relevance was the distinction between small cell carcinoma and non-small cell carcinoma. The recent emergence of novel biological therapies that effectively target specific cellular alterations now demands the most precise classification possible for non-small cell carcinomas. For example, lung adenocarcinomas are more likely to respond to EGFR tyrosine kinase inhibitors (e.g. erlotinib). Similarly, antibody therapy (bevacizumab) directed against vascular endothelial growth factor (VEGF) is more effective in the treatment of adenocarcinomas. Not only is bevacizumab less effective in treating squamous cell lung cancers, but the squamous phenotype is associated with much higher rates of life-threatening pulmonary hemorrhage. Thus, the distinction of squamous from non-squamous carcinomas is becoming increasingly important. Current methods for differentiating squamous from non-squamous NSCLC are not standardized, are difficult to reproduce and have an unacceptable level of variability between pathologists and laboratories, as indicated in numerous peer review publications. miRview™ squamous produces a single score that clearly indicates whether a sample is squamous or non-squamous NSCLC. It is estimated that about 60,000 lung cancer patients who are candidates for targeted therapy may potentially use this test.

- *miRview™ meso* – This test leverages microRNA's high-specificity as biomarkers to differentiate mesothelioma, a cancer connected to asbestos exposure and other risk factors, from other carcinomas in the lung and pleura, a medically and legally important differential diagnosis. Malignant pleural mesothelioma, or MPM, is a solid, locally aggressive tumor of the lung pleura that covers and later invades the lung parenchyma, which leads to a severe clinically symptomatic disease. The incidence of mesothelioma has clearly grown in recent years in all developed countries of Western Europe and North America, and most probably in developing countries as well. Exposure to asbestos is still a major factor that contributes to the continuing growth in number of cases. As mesothelioma patients require specific treatment regimens, an accurate diagnosis is critical. However, the distinction between mesothelioma and carcinomas that involve the pleura, in particular peripheral pulmonary adenocarcinoma, can be challenging. Because of the inter-observer variations between pathologists, and because of the absence of a single specific and reliable biomarker for the diagnosis of mesothelioma, there is a need for a reliable and objective assay that would help make this distinction with greater confidence. We used microRNA biomarkers we identified to develop miRview™ meso, a molecular assay for the differential diagnosis of mesothelioma. This assay provides a standardized, quantitative alternative to the currently applied methods. The small number of microRNAs needed for classification, the high tissue specificity of these microRNAs and the ease of their determination from archival fixed tissues embedded in paraffin, makes this assay a practical option. The microRNA-based assay that we have developed, uses expression levels of only three microRNAs, and is able to accurately diagnose mesothelioma and distinguish it from lung adenocarcinoma and other malignancies involving the lung and pleura with very high sensitivity and specificity. This assay is simple to perform and highly reliable in its reproducibility.

We currently have the following distribution agreements relating to these tests:

- with Teva Pharmaceutical Industries Ltd., pursuant to which Teva has the right to distribute these tests in Turkey and Israel;
- with Warnex Medical Laboratories, a division of Warnex, Inc., pursuant to which Warnex has the exclusive right to distribute these tests in Canada;
- with Genekor S.A., pursuant to which Genekor has the exclusive right to distribute these tests in Greece;
- with Super Religare Laboratories Limited (SRL), pursuant to which SRL has the non-exclusive right to distribute these tests in India, Saudi Arabia, Qatar and the United Arab Emirates; and
- with Genetic Technologies Limited (GTL), pursuant to which GTL has the exclusive right to distribute these tests in Australia, New Zealand and Singapore.

All of these distribution agreements call for samples to be sent to our CLIA-certified laboratory in Philadelphia for analysis. Our goal is through distribution agreements to provide access to our products to up to 1.5 billion people around the globe by the end of this year.

Our Pipeline

We are focusing in the near-term on the development and commercialization of the following four new diagnostic tests based on microRNAs:

- *miRview™ lung* - We are in the assay validation stages of a microRNA-based lung cancer classification test for cytology samples, mainly FNA samples as well as pathology samples, such as small biopsies and resections. This test would potentially target all newly diagnosed lung cancer patients, estimated to be more than 200,000 people annually in the United States alone. This test is being designed to classify primary lung cancers into Neuroendocrine vs. Non Small Cell Lung Cancer (NSCLC) and then further classify NSCLC into squamous vs. non-squamous and Neuroendocrine into Small Cell Lung Cancer (SCLC) vs. carcinoid. The test will be performed by measuring microRNA biomarkers in a sample from the tumor, where the sample can be either a cytology sample or a pathology sample. To date, we have worked on profiling microRNA expression in hundreds of lung cancer tissue samples (small cell carcinoma, carcinoid, adenocarcinoma, squamous cell carcinoma and large cell carcinoma) and have identified microRNA expression profiles unique to each of the relevant sub-types of lung cancer. Based on these results, we developed a microRNA-based differential diagnosis test for primary lung cancer. We are currently in the process of analyzing an independent blinded validation set of more than 400 samples to measure the test performance.

  Lung cancer is the leading cause of cancer-related death in both men and women worldwide and in the United States. It is estimated that in the United States alone, there were 222,520 new cases of lung cancer diagnosed in 2010 and that approximately 157,300 people will die of the disease this year.

  For patients with lung carcinoma, the accurate determination of tumor type significantly influences treatment decision. In general, SCLC, the main sub-type of Neuroendocrine tumors, is much more responsive to chemotherapy and consequently this comprises the mainstay of treatment. This is in contrast to NSCLC which is relatively chemoresistant and thus primarily treated with surgical resection for local disease.

We expect this test to be commercially launched in the United States through our CLIA-certified lab in the second quarter of 2011. Within this timeframe we also expect to publicly present scientific data on the accuracy of this test.

miRview™ kidney – We are in the final stages of developing a microRNA-based kidney tumor classification test for pathology samples. This test would potentially target all newly diagnosed kidney tumor patients, estimated to be more than 54,000 people annually in the United States alone. Renal cancers account for more than 3% of adult malignancies and cause more than 13,000 deaths per year in the United States alone. This test is being designed to classify primary kidney tumors into one of the four most common types: the malignant renal cell carcinomas clear cell (conventional), papillary and chromophobe as well as the benign oncocytoma. These histological subtypes vary in their clinical course and their prognosis, and different clinical strategies have been developed for their management. In some of the kidney tumor cases it is difficult for the pathologist to distinguish between tumor types on the basis of morphology. The test will be performed by measuring microRNA biomarkers in a sample from the tumor. To date, we have worked on profiling microRNA expression in hundreds of kidney tumor FFPE tissue samples and have identified microRNA expression profiles unique to each of the relevant sub-types of kidney tumors. Based on these results, we are in the final stages of development of a microRNA-based differential diagnosis test for primary kidney tumors. We are currently in the process of collecting an independent blinded validation set of about 200 samples to measure the test performance.

- *miRview™ bladder* - We are developing a new microRNA-based diagnostic test for risk stratification of patients with non-muscle invasive bladder cancer. Bladder cancer is a common urologic cancer. The most common type of bladder cancer in the western world is urothelial carcinoma, formerly known as transitional cell carcinoma (TCC). There are over 70,000 new cases of bladder cancer annually in the United States alone. Twenty to thirty percent of bladder cancer cases are diagnosed as a muscle invasive disease and 70-80% are diagnosed at a superficial stage. The clinical course of bladder cancer carries a broad spectrum of aggressiveness and risk. Low-grade, superficial bladder cancers have minimal risk of progression to death; however, high-grade muscle-invasive cancers are often lethal. To date, we have profiled the expression of microRNAs in over 160 bladder cancer cases to evaluate the correlation of microRNA signature with patient's outcome. MicroRNAs showed differential expression in tumors of different stages. More importantly, the expression of several microRNAs was found to be correlated with patient's prognosis and the progression to tumor invasiveness.

- *miRview™ meso prognosis* - We are developing a new microRNA-based diagnostic test for determining the prognosis of patients with malignant pleural mesothelioma (MPM). MPM is a lethal, asbestos related cancer with numerous genomic abnormalities. There are over 3,000 new cases of MPM annually in the United States alone. The current inability to forecast outcomes for MPM patients prevents clinicians from providing aggressive multimodality therapy to the most appropriate individuals who may benefit from such an approach, and hence compromises their prognosis. To date, we have profiled the expression of microRNAs in over 150 MPM cases to evaluate the correlation of microRNA signature with patient's outcome. We have demonstrated that the expression of several microRNAs was found to be correlated with patient's prognosis and survival.

Long-term pipeline

We believe that body fluid-based tests for early diagnosis and/or stratification of patients in different diseases are the future of the diagnostics industry and that our highly sensitive and specific platforms are suitable for development of such tests. Thus, we expect to continue to search for microRNA biomarkers in order to develop body fluid-based tests for cardiovascular indications, neurodegenerative diseases, women's health and early detection of certain cancer types. For all these indications, we have already found a collaborator and entered into the required contracts with the relevant medical center. We are currently in the process of collecting the relevant samples to study the microRNA expression in the relevant blood compartments.

We have recently prioritized the development of body fluid based tests for the following indications:

- *Heart Failure* - We are seeking to discover blood-based microRNA biomarkers in order to develop a new diagnostic test for early diagnosis and refined risk stratification of patients following Myocardial Infarction (MI). Such a marker has the potential to influence clinical management in a cost effective manner, by improving diagnosis, refining risk stratification and guiding therapy. Heart Failure (HF) is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the ventricles to fill with or eject blood. It is the most prevalent disease in the western world and the only cardiovascular disease whose prevalence continues to rise. It is estimated that 5 million Americans have been diagnosed with HF and each year there are approximately 500,000 new patients. Besides its high prevalence, HF is also the most expensive disease in western countries. All samples defined for this project have been collected and are currently being studied for microRNA expression.

- *Preeclampsia* - We are seeking to discover serum-based microRNA biomarkers in order to develop a new diagnostic test for pregnant woman, in their first trimester, to predict later development of preeclampsia. Preeclampsia, complicating 2-5% of pregnancies, is associated with substantial risks for the mother and the fetus. Fetal risks include growth restriction, placental abruption, and premature delivery, where as maternal complications include seizures, pulmonary edema, stroke, and death. We have performed a preliminary study and have demonstrated that the expression of several microRNAs was found to be elevated in serum of subset of pregnant women prior to the onset of the disease. We plan to enlarge the cohort to verify these results.

- *Early Detection of Lung Cancer* - We are seeking to discover blood-based microRNA biomarkers in order to develop a new diagnostic test for early detection of lung cancer. There are more than 200,000 new lung cancer cases a year in the United States alone and close to 170,000 deaths from the disease. Early detection of lung cancer is critical for improving survival of these patients. Since there are few or no symptoms in the early stages of the disease, the majority of lung cancers are diagnosed in the late stages and currently only 15% of lung cancers are found at localized stages. Current detection methods (e.g. CT) do not have the needed sensitivity and specificity to become a screening method.

Therapeutic Products

MicroRNAs are important regulators of protein production, and as such, they represent potential targets for the development of drugs. Important information about the role of a microRNA in a disease can be deduced by mimicking or inhibiting its activity and examining the impact this has on the phenotype of the cell or organism. If mimicking or inhibiting a microRNA leads to improvement in disease symptoms, this implies that the target microRNA plays an important role in the disease and thus, can serve as potential drug target.

The pharmaceutical industry has traditionally focused on the development of drugs that inhibit specific protein activity because of the difficulties in developing drugs that enhance protein activity or increase protein levels. Even siRNAs, a novel class of drugs, are limited to the inhibition of protein production. In contrast, because microRNAs are natural regulators of protein production, we believe it is possible to develop microRNA-based therapeutic products which can either increase or decrease the levels of proteins. A drug that mimics a microRNA should result in decreased levels of the proteins naturally regulated by that microRNA, while a drug that inhibits the microRNA should result in increased levels of those proteins.

We believe that microRNAs can serve as a basis for a new class of therapeutic products and that we can leverage our microRNA diagnostic capabilities to help develop drugs targeting microRNAs.

Ovarian Cancer

Market opportunity. Ovarian cancer is the eighth most common type of cancer, and the fifth leading cause of cancer death in women. According to the National Cancer Institute new cases and deaths from ovarian cancer in the United States in 2010 are estimated to be 21,880, and 13,850, respectively. More than half of ovarian cancer patients are diagnosed at advanced-stage disease (stage III or IV), and the five-year survival rate is less than 10% for platinum-based therapy.

Current treatment. Therapy can include:

- Surgery - salpingo-oophorectomy to remove the ovaries and fallopian tubes.

- Chemotherapy - In most cases, the chemotherapy is Intra Venous (IV) and includes a platinum-based drug in combination with taxane. Recently, intraperitoneal, or IP, chemotherapy, which is delivered directly into the abdomen, was tried with success in ovarian cancer patients and showed improved survival for combination therapy with a platinum-based drug and a taxane-based drug.

- Radiation therapy - the use of high-energy x-rays or other types of radiation to kill cancer cells.

Our strategy. Our strategy is to develop a microRNA inhibitor (antagomiRs) or microRNA-mimic or mimetic, to potentially be used as an IP treatment for ovarian cancer patients after salpingo-oophorectomy. Such a molecule would be developed to specifically inhibit or increase a microRNA that is involved in proliferation of ovarian cells, and therefore reduce cell proliferation. Targeted cells would be residual ovarian cancer cells in the abdominal cavity where most ovarian cancer metastasis occur. In order to develop a microRNA-based treatment for ovarian cancer, we have first identified candidate microRNA targets for inhibition and induction. We chose microRNAs that were over/under-expressed in ovarian tissue (both tumor and normal) as compared to other normal tissues. We then selected from the list of candidates the ones having a greater potential of being a drug target, using a proliferation assay for cells treated with a specific microRNA inhibitor. We have run this assay for all candidates. The most potent microRNA inhibitors will be tested in a mouse model of ovarian intra-peritoneal metastasis. We are currently at the stage of choosing the most potential microRNA for inhibition. We are also looking for collaborations with companies with abilities to synthesis anti-miR with appropriate chemical modifications. The microRNA-mimic potential target will be tested in in vivo studies after we develop an improved chemistry to the molecules and a better delivery system under the Rimonim Consortium.

Rimonim Consortium

In January 2011, we joined the Rimonim Consortium, which is supported by the Office of the Chief Scientist at the Ministry of Industry, Trade and Labor of the State of Israel, or the OCS. The purpose of the consortium is to develop RNAi-based therapeutics. By joining the consortium, we received an advanced payment of $131,000 on account of a grant from the OCS for our development under the consortium. The vision of the consortium is to develop new advanced technologies that are expected to help in solving some of the key problems and deficiencies that the industry is facing in developing RNAi-based therapeutics and create a significant RNAi-based industry in Israel by using breakthrough technologies and producing RNAi therapeutics and a range of additional products (diagnostics, medical devices, chemical and biological services). Since discovery, the development of RNAi to first, a powerful research tool and, more recently, to a promising therapeutic approach, has occurred very rapidly. The ability to specifically silence virtually every gene including previously non-druggable (non-amenable for development of small molecule inhibitors) targets has made RNAi-based therapeutics a very attractive approach for treating diseases in many therapeutic areas.

The main challenges in the development of siRNA/miRNA therapeutics addressed by the consortium are:

1. siRNA/miRNA drug substance: Only a very limited number of non-toxic chemical modifications to the basic structures that are suitable to make the drug active and with the desirable properties are available.

2. siRNA/miRNA drug delivery to target tissues/cells: This is the major problem in the field. Practically all RNAi drugs in development are currently delivered only locally, and even the local delivery is not optimized. Efficient and productive systemic siRNA delivery has been demonstrated only to the kidney (non-formulated) and to the liver (formulated), whereas systemic delivery is needed for many serious diseases. In addition, most formulations currently available are highly toxic thus, allowing only very narrow therapeutic windows.

3. Analytical methods for detection of siRNA/miRNA therapeutic drugs: only one (hybridization) GLP method is available for testing drug pharmacokinetics in body fluids and for tissue distribution. The sensitivity of available quantification methods is not adequate for the concentrations necessary for RNAi therapies. Further robust quantitative techniques for evaluation of pharmacodynamic effects in situ are highly required.

Members of the consortium, are established representatives of the industry and academia in Israel that will share their expertise and experience in various fields of the technological chalanges: biology, toxicology, physical and structural chemistry, formulation, and others, to establish a meaningful scientific/ technological basis for what has the potential to be one of the most promising technical breakthroughs in biological research in the last decade.

The transfer of know-how developed in the framework of the consortium or rights to manufacture based on and/or incorporating such know-how to third parties which are not members of the consortium requires the consent of the OCS.

Rosetta Green

Rosetta Green Ltd. is an Israeli subsidiary we established to leverage our capabilities into the areas of cleantech and plant biotech by using our proprietary microRNA technologies to develop plants and algae more suitable for various applications such as improved feedstocks for biofuels and advanced agriculture. Prior to the establishment of the Rosetta Green subsidiary, our efforts in this field were through a separate Rosetta Green project within Rosetta Genomics. Research at the Rosetta Green project has been shown to develop algal strains with potentially increased oil content, to discover potential novel microRNAs from commercially-important algae and to identify drought-regulated microRNAs in plants.

On September 24, 2008, we signed a convertible note purchase agreement with certain private investors in order to provide separate funding for our Rosetta Green project, in an amount of up to $2,500,000. The investors invested a total amount of $1,500,000, in two tranches. The notes were convertible upon the establishment of a subsidiary by us for the Rosetta Green project. We established Rosetta Green Ltd. in February 2010, and the outstanding notes were subsequently converted into ordinary shares of Rosetta Green. On February 17, 2011, Rosetta Green completed an initial public offering in Israel, and on February 23, 2011, Rosetta Green's ordinary shares started trading on the TASE under the ticker symbol RSTG.

In the initial public offering, Rosetta Green sold 136,200 units at NIS 160.8 ($44.51 based on a 3.613 NIS/U.S. dollar exchange rate on February 17, 2011) per unit, with each unit comprised of 25 ordinary shares, 25 Warrants 1 and 25 Warrants 2, and a total of 3,405,000 ordinary shares, 3,405,000 Warrants 1 and 3,405,000 Warrants 2. The Warrants 1 are exercisable at NIS 8.04 ($2.23) until February 8, 2013 and the Warrants 2 are exercisable at NIS 9.65 ($2.67) until February 8, 2015. The underwriters of the offering purchased 37,983 units for a total of NIS 6,107,666 ($1.69 million). As of the date of this report, Rosetta Green has 9,905,000 ordinary shares outstanding, and we own 4,955,000 shares, or 50.03% of the outstanding shares.

In connection with the initial public offering, we entered into an agreement with a minority shareholder of Rosetta Green, pursuant to which we have agreed to not sell any Rosetta Green shares for a period of 12 months following consummation of the initial public offering and thereafter until 24 months following consummation of the initial public offering, we will be entitled to sell up to 1% of the shares of Rosetta Green owned or controlled by us as of November 2010 ("Green Shares") per month (which may be carried over for up to three months). We further granted the minority shareholder certain co-sale rights with respect to the sale of the Green Shares in an off-market transaction. In addition, according to the agreement, the number of members of the board of directors of Rosetta Green will be not more than seven and at least one third of the directors but not less than three directors (including the external directors required to be appointed pursuant to the Companies Law which in any case will not be less than two) will qualify as independent directors as such term is defined in the Companies Law. We also agreed to vote the Green Shares in favor of the election to the board of directors of one nominee proposed by the minority shareholder as long as such shareholder continues to hold 50% or more of shares of Rosetta Green owned or controlled by it as of November 2010.

On January 14, 2010, we applied for the Rosetta Green division to participate in a consortium funded by the European Union which is part of the Seventh Framework Programme (“FP7”). The subject matter of the program is the development of microalgae for industrial purposes. In addition to us there are an additional 10 participants in FP7. On December 14, 2010, we entered into the consortium agreement with the other participants in the consortium and the European Union in relation to the funding of the FP7. The expected funding under this program will be 499,000 Euros and we must contribute up to 150,000 Euros for the project. Our intention is to assign the consortium agreement and the FP7 program to Rosetta Green. All members of the consortium have agreed to the assignment of the consortium agreement to Rosetta Green, and we intend to assign the agreement upon the receipt of the approval of the European Union.

In order to assure that we have the required resources and necessary intellectual property to perform the FP7, until the FP7 and consortium agreement is assigned to Rosetta Green, Rosetta Green signed a letter on November 8, 2010, pursuant to which it undertook to provide us with:

- a royalty free license to use any and all intellectual property rights owned or licensed by Rosetta Green required in order to perform the FP7 program activities; and
- any and all resources (such as employees, cash amounts, materials and equipment) required in order to perform the FP7 activities.

In addition, Rosetta Green agreed to indemnify us for any losses and expenses incurred or imposed by us in connection with the performance of the FP7 activities, except for losses incurred due to our deliberate act or omission.

Academic Collaborations

Our strategy is to collaborate with leading academic and medical institutions to provide us with additional research capabilities in the field of microRNAs. For example, we have signed an agreement with the CBR Institute for Biomedical Research, an academic affiliate of the Harvard Medical Center, to study the role of microRNAs in hematopoeisis. This collaboration resulted in an invention detailed in a paper in a leading journal (see Navarro, F. et al. miR-34a contributes to megakaryocytic differentiation of K562 cells independently of p53. Blood (2009)). This invention is protected by a joint patent application. We have also signed an agreement with Yeda Research and Development Company, Ltd., the technology transfer company of the Weizmann Institute of Science, to investigate at the Weizmann Institute the role of microRNAs in a variety of cancers. We have the exclusive right to commercialize the results of this research, and this collaboration resulted in an invention detailed in a paper in a leading journal (see Raver-Shapira, N. et al. Transcriptional Activation of miR-34a Contributes to p53-Mediated Apoptosis. Mol Cell (2007)). This invention is protected by a joint patent application.

Our Intellectual Property Strategy and Position

Our success will depend significantly on our ability to:

- obtain and maintain patent and other proprietary protection for the technology, inventions and improvements we consider important to our business;
- defend our patents;
- preserve the confidentiality of our trade secrets; and

- operate without infringing the patents and proprietary rights of third parties.

We believe that we were the first commercial enterprise to focus on the emerging microRNA field, and as a result, we have developed an early and strong intellectual property position related to the development and commercialization of research, diagnostic and therapeutic products and other applications based on microRNAs. Our patent strategy is to seek broad coverage on all of our identified microRNA sequences and then later file patent applications claiming composition-of-matter on individual microRNAs of commercial interest. We also filed applications which claim groups of microRNAs which are grouped for example by chromosomal locations of the microRNA genes. We have filed, and will continue to file, patent applications that claim method-of-use for specific diagnostic and therapeutic applications as we or our collaborators develop them. We believe this approach will provide strong and broad patent protection for a large number of microRNAs that we have discovered and may provide us with a competitive advantage over new entrants to the field.

As of February 28, 2011, our patent portfolio included a total of 18 issued U.S. patents, one issued Australian patent, one issued Israeli patent, 104 pending patent applications worldwide, consisting of 35 U.S. patent applications, five of which received notice of allowance, five PCT applications, 22 applications that were nationalized in Europe, 19 applications nationalized in Israel ,one of which received notice of allowance, seven applications nationalized in Japan and Australia, six nationalized in Canada, two applications nationalized in China and one application that was nationalized in Korea and India. Of these patent applications, 91claim human microRNAs, five claim viral microRNAs, eight contain claims related to our discovery process. Forty-six applications contain claims directed to Cancer of Unknown Origin (CUP), lung, liver, bladder, small intestine, breast, colon, ovarian, thyroid, melanoma, lymphoma, kidney, urothelial, adrenal, gastric, mesothelioma, prostate, testicular, stomach and pancreas cancer diagnostic applications; and 14 contain claims directed to lung cancer, liver cancer and hematopoietic malignancies therapeutic applications. The issued patents expire between 2022 and 2025.

Nucleic acids related to genes are patentable under U.S. patent laws, and are generally patentable under foreign patent laws as well. To date, patent protection related to numerous human genes has been obtained in the United States and elsewhere. MicroRNAs are derived from naturally occurring genes, and as such, we believe, are similarly patentable under U.S. and foreign patent laws.

In order to obtain maximum patent protection for microRNAs in the U.S. and foreign jurisdictions, our patent applications:

- provide for utility, function and disease targets for each microRNA sequence;
- claim specific microRNA sequences as opposed to general mechanism or concept; and
- identify the functional fragment of each microRNA sequence.

We believe this approach avoids common mistakes made by others in the past with respect to attempts to patent genes and, if patents are issued, will make it more difficult for competitors to design around our patents.

Our intellectual property strategy is closely coordinated with our research and development plan and we have an ongoing three-tier approach to obtaining patent protection, which is illustrated and described below:

First Tier: Composition-of-Matter Patent applications on Biologically Validated MicroRNAs

We have filed a first tier of patent applications claiming patent coverage for the composition-of-matter of microRNAs that we have either detected by microarray or biologically validated by sequencing or qRT-PCR. In addition to the function and utility based on informatically calculated targets, microRNAs claimed in these patent applications are further described as potential markers of a disease, as supported by differential expression of these microRNAs in healthy versus diseased tissue. We have filed 36 patent applications with composition-of-matter claims related to validated microRNAs and we expect to file additional first tier applications in the future.

Second Tier: Technologies to detect MicroRNAs

We have filed a second tier of patent applications claiming patent coverage for our proprietary discovery process technologies for microRNA detection, including qRT-PCR methods, microarray, in situ hybridization and extraction methods from all body fluids. We have filed eight patent applications related to discovery process technologies and we expect to file additional second tier applications in the future.

Third Tier: Method-of-Use Patents

We have filed a third tier of patent applications claiming patent coverage for the method-of-use of microRNAs, including diagnostic and therapeutic uses for specific diseases. This tier of patent applications includes applications which we have filed ourselves and those that we have filed jointly with academic, medical and commercial partners with whom we collaborate. We have filed 60 patent applications with method of use claims related to diagnostic and therapeutic uses of microRNAs and we expect to file additional third tier applications in the future.

Individual patents extend for varying periods depending on the effective date of filing of the patent application or the date of patent issuance, and the legal term of the patents in the countries in which they are obtained. Generally, patents issued in the United States are effective for:

- the longer of 17 years from the issue date or 20 years from the earliest effective filing date, if the patent application was filed prior to June 8, 1995; and
- 20 years from the earliest effective filing date, if the patent application was filed on or after June 8, 1995.

All of our current patent applications were filed after June 8, 1995.

The term of foreign patents varies in accordance with provisions of applicable local law, but typically is 20 years from the earliest effective filing date. In addition, in some instances, a patent term in the United States and outside of the United States can be extended to recapture a portion of the term effectively lost as a result of the health authority regulatory review period. These extensions, which may be as long as five years, are directed to the approved product and its approved indications. We intend to seek such extensions as appropriate. Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that a patent may remain in force for a short period following commercialization, thereby reducing the advantage of the patent to our business and products.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. Our ability to maintain and solidify our proprietary position for our technology will depend on our success in obtaining effective claims and enforcing those claims once granted. We do not know whether any of our patent applications will result in the issuance of any patents or if issued will assist our business. Any patents that may issue in the future may be challenged, invalidated or circumvented. This could limit our ability to stop competitors from marketing related products and reduce the length of term of patent protection that we may have for any products. In addition, the rights granted under any patents which may issue may not provide us with proprietary protection or competitive advantages against competitors with similar technology. Our competitors may develop similar technologies, duplicate any technology developed by us, or use their patent rights to block us from taking full advantage of the market.

In addition to patents, we may rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets are difficult to protect. We seek to protect the trade secrets in our proprietary technology and processes, in part, by entering into confidentiality agreements with commercial partners, collaborators, employees, consultants, scientific advisors and other contractors and into invention assignment agreements with our employees and some of our commercial partners and consultants. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of the technologies that are developed. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

In-Licensed Intellectual Property

License Agreement with The Rockefeller University (Diagnostics)

In May 2006, we signed a royalty-bearing, co-exclusive, worldwide license agreement with The Rockefeller University. Under this agreement, we were granted the right to make, use and sell Rockefeller's proprietary microRNAs for diagnostic purposes including a limited right to sublicense. Our right to sublicense is limited to sublicenses we grant as part of a license that includes other technology or patent rights of ours. The agreement covers microRNAs and microRNA candidates, including approximately 80 biologically validated human microRNAs and approximately 30 biologically validated viral microRNAs discovered by researchers at The Rockefeller University and for which it has filed patent applications. These microRNAs can be licensed by Rockefeller in the diagnostics field to three additional parties. In consideration for this license, we paid an initiation fee and will pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of our revenues from any sublicenses. Rockefeller is obligated to notify us of any license it grants to a third party at a lower royalty rate and we will have the right to modify the terms of our license to adopt all of the material terms and conditions of that license.

Rockefeller controls prosecution, maintenance and enforcement of all the licensed patent rights; however, we are responsible for a pro rata share of associated costs. Also, if Rockefeller elects not to take action against a claim of infringement of the licensed patent rights, we may undertake such action at our own expense. We are obligated to indemnify Rockefeller against any liabilities arising from our development and use of the licensed microRNAs and any actions brought by third parties or related to clinical trials or studies. We are also required to maintain comprehensive insurance coverage.

The agreement will terminate upon the later of the expiration or abandonment of the last patent to expire or become abandoned. If no patent ever issues, the agreement will terminate ten years after the first commercial sale of the first licensed product. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $960,000 in aggregate annual license maintenance fees over the term of this agreement. Rockefeller has the right to terminate the agreement if we are more than 30 days late in meeting our payment obligations and do not pay in full within ten days of Rockefeller's written demand; or upon our uncured material breach. We can terminate the agreement by providing sixty days written notice to Rockefeller, ceasing all use of the licensed products, terminating any sublicenses granted under the agreement and paying all amounts owed to Rockefeller through the date of termination.

License Agreement with The Rockefeller University (Therapeutics)

In May 2007, we signed a royalty-bearing, co-exclusive, worldwide license agreement with The Rockefeller University. Under this agreement, we were granted the right to make, use and sell Rockefeller's proprietary microRNAs for therapeutic purposes, including a limited right to sublicense. Our right to sublicense is limited to sublicenses that are for research and development of products and that are granted as part of a license that includes other technology or patent rights of ours. The agreement covers microRNAs and microRNA candidates, including approximately 80 biologically validated human microRNAs and approximately 30 biologically validated viral microRNAs discovered by researchers at The Rockefeller University for which it has filed patent applications. These microRNAs can be licensed by Rockefeller in the therapeutics field to three additional parties. In consideration for this license, we paid an initiation fee and are required to pay a fixed annual license maintenance fee, milestone payments and royalties based on net sales and a percentage of our revenues from any sublicenses. Rockefeller is obligated to notify us of any license it grants to a third party at a lower royalty rate, and we will have the right to modify the terms of our license to adopt all of the material terms and conditions of that license.

Rockefeller controls prosecution, maintenance and enforcement of all the licensed patent rights; however, we are responsible for a pro rata share of associated costs. Also, if Rockefeller elects not to take action against a claim of infringement of the licensed patent rights, we may undertake such action at our own expense. We are obligated to indemnify Rockefeller against any liabilities arising from our development and use of the licensed microRNAs and any actions brought by third parties or related to clinical trials or studies. We are also required to maintain comprehensive insurance coverage.

The agreement will terminate upon the later of the expiration or abandonment of the last patent to expire or become abandoned. If no patent ever issues, the agreement will terminate ten years after the first commercial sale of the first licensed product. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $690,000 in aggregate annual license maintenance fees over the term of this agreement. Rockefeller has the right to terminate the agreement if we are more than 30 days late in meeting our payment obligations and do not pay in full within ten days of Rockefeller's written demand; or upon our uncured material breach. We can terminate the agreement by providing 60 days written notice to Rockefeller, ceasing all use of the licensed products, terminating any sublicenses granted under the agreement and paying all amounts owed to Rockefeller through the date of termination.

License Agreement with The Rockefeller University (Research)

In January 2008, we signed a royalty-bearing, nonexclusive, worldwide license agreement with The Rockefeller University. Under this agreement, we were granted the right to make, use, import, sell and offer for sale Rockefeller's proprietary microRNAs for research purposes including a limited right to sublicense. Our right to sublicense is limited to sublicenses we grant as part of a license that includes other technology or patent rights of ours. The agreement covers microRNAs and microRNA candidates, including approximately 80 biologically validated human microRNAs and approximately 30 biologically validated viral microRNAs discovered by researchers at The Rockefeller University and for which it has filed patent applications. In consideration for this license, we paid an initiation fee and will pay a minimum annual royalty, based on net sales and a percentage of our revenues from any sublicenses. Rockefeller is obligated to notify us of any license it grants to a third party at a lower royalty rate and we will have the right to modify the terms of our license to adopt all of the material terms and conditions of that license.

Rockefeller controls preparation, prosecution and maintenance of the licensed patent rights and the selection of patent council with our input; however, we are responsible for a pro rata share of associated costs. Also, if Rockefeller elects not to take action against a claim of infringement of the licensed patent rights, we may undertake such action at our own expense. We are obligated to indemnify Rockefeller against any liabilities arising from our development, testing, use, manufacture, promotion, sale of other disposition of the licensed microRNAs and any actions brought by third parties. We are also required to maintain comprehensive insurance coverage.

The agreement will terminate upon the later of the expiration or abandonment of the last patent to expire or become abandoned. If no patent ever issues, the agreement will terminate ten years after the first commercial sale of the first licensed product. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $440,000 in aggregate minimum annual royalty over the term of this agreement. Rockefeller has the right to terminate the agreement if we are more than 30 days late in meeting our payment obligations and do not pay in full within ten days of Rockefeller's written demand; or upon our uncured material breach. We can terminate the agreement by providing 60 days written notice to Rockefeller, ceasing all use of the licensed products, terminating any sublicenses granted under the agreement and paying all amounts owed to Rockefeller through the date of termination.

License Agreement with Max Planck Innovation GmbH (Diagnostics)

In June 2006, we entered into a royalty-bearing, co-exclusive, worldwide license agreement with Max Planck Innovation GmbH, or Max Planck, the technology transfer agency of the Max Planck Society. This agreement was amended and restated in March 2009. Under this agreement, we licensed from Max Planck the rights to its proprietary microRNAs for diagnostics purposes. The agreement covers microRNAs and microRNA candidates, including approximately 110 biologically validated human microRNAs, discovered by the researchers of the Max-Planck-Institute for Biophysical Chemistry in Goettingen. In consideration for this license, we paid an initiation fee, and are required to pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of our revenues from any sublicenses.

These microRNAs can be licensed by Max Planck for diagnostics purposes to three other parties. Max Planck is obligated to notify us of any more favorable license in the diagnostics field it grants for these microRNAs, in which event we shall have the right to adopt all material terms of such license. We have the right to enter into sublicense agreements, only in the event that the granted sublicense includes a license to microRNAs owned by us as well, is reasonably necessary for us in order to further develop and/or commercialize a specific product, and Max Planck has given its prior consent to such sublicense.

Max Planck is responsible, in its sole discretion, to apply for, seek issuance of, maintain and prosecute the licensed patent rights, and we have the right to comment on the documents to be filed by the patent office. We are required, however, to pay a pro rata share of associated costs. We are obligated to indemnify Max Planck against any liabilities arising from any use by us, our affiliates, sublicensees and sales partners of the patent rights, the development and use of any product, process or service under the agreement, and the use by third parties of any products, processes or services sold by us. We are also required to maintain comprehensive insurance coverage.

The agreement terminates upon the expiration or abandonment of all issued and filed licensed patents. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $520,000 in aggregate annual license maintenance fees over the term of this agreement. We have the right to terminate the agreement with three months' prior written notice. We have the obligation to use commercially reasonable efforts to develop and commercialize the products and services based on the licensed patents in the field of diagnostics. In the event we cease carrying out our business related to the agreement we must notify Max Planck and then both parties have the right to terminate the agreement with three months' prior notice. Max Planck also has the right to terminate the agreement if we challenge one of the licensed patents; if we fail to cure a breach within 60 days of receiving notice of such breach; or if we fail to pay within 30 days of a notice requiring a payment. The agreement will terminate automatically upon filing of bankruptcy or insolvency proceedings by or against us, or upon the assignment of all or a substantial portion of our assets for the benefit of creditors.

License Agreement with Max Planck Innovation GmbH (Research)

In December 2006, we entered into a royalty-bearing, non-exclusive, worldwide license agreement with Max Planck. Under this agreement, we licensed from Max Planck the rights to its proprietary microRNAs for research purposes. The agreement covers microRNAs and microRNA candidates, including approximately 110 biologically validated human microRNAs, discovered by the researchers of the Max-Planck-Institute for Biophysical Chemistry in Goettingen. In consideration for this license, we will pay an initiation fee, and are required to pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of our revenues from any sublicenses.

Max Planck is obligated to notify us of any more favorable license in the research field it grants for these microRNAs, in which event we shall have the right to adopt all material terms of such license. We have the right to enter into sublicense agreement, but only if the granted sublicense includes a license to microRNAs owned by us as well.

Max Planck is responsible, in its sole discretion, to apply for, seek issuance of, maintain and prosecute the licensed patent rights, and we have the right to comment on the documents to be filed with the patent office. We are obligated to indemnify Max Planck against any liabilities arising from any use by us, our affiliates, sublicensees and sales partners of the patent rights, the development and use of any product, process or service under the agreement, and the use by third parties of any products, processes or services sold by us. We are also required to maintain comprehensive insurance coverage.

The agreement terminates upon the later of the expiration or abandonment of the last patent to expire or become abandoned of the patent rights contemplated under the agreement, or, if no patent ever issues from the patent rights, ten years after the first commercial sale of the first licensed product, as contemplated under the agreement. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $320,000 in aggregate annual license maintenance fees over the term of this agreement. We have the right to terminate the agreement with 60 days prior written notice. Max Planck also has the right to terminate the agreement if we fail to cure a breach within 60 days of receiving notice of such breach; or if we fail to pay within 30 days of a notice requiring a payment.

License Agreement with Johns Hopkins University

In August 2006, we signed a royalty-bearing, exclusive, worldwide license agreement with Johns Hopkins University. Under this agreement, we have exclusively licensed from Johns Hopkins the rights to its proprietary microRNAs for all fields and applications. The agreement covers approximately 130 biologically validated microRNAs. We also have the right to further sublicense these rights, provided that such sublicense is consistent with the terms of our license agreement. In consideration for this license we paid an initiation fee, and are required to pay minimum annual royalties, royalties based on net sales and a percentage of our revenues from any sublicense.

We are obligated to perform commercially reasonable diligent efforts in the development of products, including or using the licensed microRNAs. In the event that Johns Hopkins has clinical evidence demonstrating the feasibility of a certain use of the microRNAs, and a commercially reasonable offer from a third party for a license for such use, then upon notice from Johns Hopkins, we are obligated to either initiate development of such use, or sublicense such use to a third party. If within six months of the notice, we have neither initiated development nor sublicensed or been working diligently to sublicense such use, Johns Hopkins may terminate the license for such use.

Johns Hopkins is responsible for filing, prosecuting and maintaining the licensed patent rights, and we have the right to comment on and advise Johns Hopkins with respect to such matters. We are required to pay all expenses related to filing, prosecution and maintenance of the licensed patent rights; unless we provide Johns Hopkins notice that we elect not to do so. If we so elect, Johns Hopkins may file, prosecute or maintain such patent rights at its own expense and any license we have with respect to such patent rights shall terminate. We have the right but not the obligation to enforce the patent rights against infringement. No patent applications covering these microRNAs have been filed yet.

We are obligated to indemnify Johns Hopkins against any liabilities arising out of use by us, our affiliates or sublicensees of the licensed microRNAs. We are also obligated to establish and maintain product liability or other appropriate insurance prior to initial human testing or first commercial sale of any product incorporating the licensed microRNAs.

The agreement terminates with respect to each country in which a patent has issued upon the expiration of the last to expire patent covered by the terms of the agreement in such country. If no patents ever issue in a country but patent applications are filed in such country, the agreement will expire with respect to such country upon the cancellation, abandonment, withdrawal or disallowance of all claims under all patent applications in that country or at such time as there is no claim that has been pending in such country for less than six years from the date such claim was filed in a non-provisional patent application in that country. Based on an estimate of the date of expiration of the last patent to expire, we estimate that we will pay a minimum of approximately $2,275,000 in aggregate annual royalties over the term of the agreement. In addition, either party may terminate the agreement (1) upon the filing of bankruptcy or insolvency proceedings with respect to the other party or (2) if the other party is in material breach of the agreement and such breach is not cured within 30 days of notice. We also have the right to terminate the agreement for any reason upon 90 days notice.

Competition

Our industry is highly competitive and subject to rapid and significant technological change. All of the tests and products we are developing or may develop in the future, if approved, will compete against existing non-microRNA-based diagnostic tests and therapies. In addition, we believe a significant number of non-microRNA-based diagnostic tests and drug candidates are currently under development and may become available for the diseases we are targeting or may target. In addition to the competition we face from non-microRNA-based competing tests and products from companies such as Pathwork Diagnostics, Inc. and Biotheranostics, Inc. that have developed or are developing diagnostic tests based on other non-microRNA technologies, we also face competition from other companies working to develop novel tests and products using technology that competes more directly with our microRNAs. We are aware of several other companies that are working to develop microRNA diagnostics and therapeutics, including Combimatrix Corporation, Alnylam Pharmaceuticals, Inc., Asuragen Inc., the Celera Corporation, Exiqon A/S, Life Technologies Corporation, Isis Pharmaceuticals, Merck & Co., Inc., Santaris Pharma A/S, Regulus Therapeutics and others. We believe the key competitive factors affecting the commercial success of our potential tests and products will be:

- the safety and effectiveness of our products;
- the timing and scope of regulatory approvals, if required, for these tests and products;

- the availability and cost of manufacturing, marketing and sales capabilities;
- reimbursement coverage; and
- patent position.

Many of our potential competitors, either alone or with their collaborative partners, have substantially greater financial, technical and human resources than we do and significantly greater experience in the discovery and development of diagnostics and therapeutics, obtaining FDA and other regulatory approvals of tests and products and the commercialization of those tests and products. Accordingly, our competitors may be more successful than we may be in obtaining FDA approval and achieving widespread market acceptance. Our competitors' tests or products may be more effective, or more effectively marketed and sold, than any test or product we may commercialize and may render our tests and products obsolete or non competitive before we can recover the expenses of developing and commercializing them. We anticipate that we will face intense and increasing competition as advanced technologies become available.

Manufacturing

We currently intend to rely on contract manufacturers or our collaborative partners to produce materials for diagnostic tests and drug substances and drug products required for preclinical studies and clinical trials. We plan to continue to rely upon contract manufacturers and collaboration partners to manufacture commercial quantities of these materials for any marketed diagnostic or therapeutic.

Regulatory

Diagnostics

CLIA and Other Laboratory Licensure

Laboratories that perform testing on human specimens for the purpose of providing information for diagnosis, prevention or treatment of disease or assessment of health are subject to the Clinical Laboratory Improvement Amendments of 1988, or CLIA. This law imposes quality standards for laboratory testing to ensure the accuracy, reliability and timeliness of patient test results. The FDA is responsible for the categorization of commercially marketed IVD tests under CLIA into one of three categories based upon the potential risk to public health in reporting erroneous results. The categories were devised on the basis of the complexity of the test and include waived tests, tests of moderate complexity, and tests of high complexity. Laboratories performing moderate- or high-complexity testing must meet the FDA requirements for proficiency testing, patient test management, quality control, quality assurance and personnel.

Under CLIA, certified laboratories are required to hold a certificate applicable to the type of work they perform and to comply with standards covering personnel, facilities administration, quality systems and proficiency testing. CLIA-certified laboratories are typically subject to survey and inspection every two years to assess compliance with program standards.
In addition to CLIA certification, laboratories offering clinical testing services are required to hold certain federal, state and local licenses, certifications and permits. Clinical laboratories are licensed by the states in which they are located. In addition, some states require any clinical laboratory that analyzes samples from residents of that state to also be licensed by it. Many CLIA-certified laboratories also seek accreditation by the College of American Pathologists, or CAP, and licensure by states that require that state specific licensure for a laboratory that intends to test clinical samples from residents of that state. The CAP Laboratory Accreditation Program is an internationally recognized program that utilizes teams of practicing laboratory professionals as inspectors, and accreditation by CAP can often be used to meet CLIA and state certification requirements.

Food and Drug Administration

Laboratory Developed Tests

Although the FDA has consistently stated that it has the authority to regulate clinical laboratory tests as medical devices, it has generally exercised enforcement discretion in not otherwise regulating most tests developed and validated at the high complexity CLIA-certified laboratory at which the test is performed. These tests are known as LDTs. Recently, the FDA has indicated that it is reviewing the regulatory requirements that will apply to LDTs, and held a two-day public meeting on July 19 and 20, 2010, to obtain input from stakeholders on how it should apply its authority to implement a reasonable risk-based and effective regulatory framework for LDTs. The FDA has not indicated when or how those changes will be implemented, but it left little doubt that changes are forthcoming.

In Vitro Diagnostics

The type of regulation to which our tests and diagnostics may be subject will depend in large part on how we intend to commercialize them. Diagnostics that will be commercialized through direct product sales as *in vitro* diagnostic kits are subject to review by the FDA and must be cleared or approved before they can be marketed. Most tests that are offered as LDTs by a CLIA-certified laboratory have generally not been subject to regulation by the FDA, however, this may change after the FDA announces the new requirements that will apply to LDTs.

The FDA regulates the sale or distribution of medical devices, including *in vitro* diagnostic test kits and some *in vitro* diagnostic tests. The information that must be submitted to the FDA in order to obtain clearance or approval to market a new medical device varies depending on how the medical device is classified by the FDA. Medical devices are classified into one of three classes on the basis of the controls deemed by the FDA to be necessary to reasonably ensure their safety and effectiveness. Class I devices are subject to general controls, including labeling, pre-market notification and adherence to FDA's quality system regulation, which are device-specific good manufacturing practices. Class II devices are subject to general controls and special controls, including performance standards and post-market surveillance. Class III devices are subject to most of the previously identified requirements as well as to pre-market approval. All Class I devices are exempt from premarket review; most Class II devices require 510(k) clearance and all Class II devices must receive premarket approval before they can be sold in the United States.

510(k) Premarket Notification. A 510(k) notification requires the sponsor to demonstrate that a medical device is substantially equivalent to another marketed device, termed a "predicate device", that is legally marketed in the United States and for which a PMA was not required. A device is substantially equivalent to a predicate device if it has the same intended use and technological characteristics as the predicate; or has the same intended use but different technological characteristics, where the information submitted to the FDA does not raise new questions of safety and effectiveness and demonstrates that the device is at least as safe and effective as the legally marketed device.

The FDA is supposed to issue a decision letter within 90 days of receipt of the 510(k) if it has no additional questions or send a first action letter requesting additional information within 75 days. Most 510(k)s do not require clinical data for clearance, but a minority will. Requests for additional data, including clinical data, will increase the time necessary to review the notice. If the FDA believes that the device is not substantially equivalent to a predicate device, it will issue a "Not Substantially Equivalent" letter and designate the device as a Class III device, which will require the submission and approval of a PMA before the new device may be marketed. Under certain circumstances, the sponsor may petition the FDA to make a risk-based determination of the new device and reclassify the new device as a Class I or Class II device.

Premarket Approval. The PMA process is more complex, costly and time consuming than the 510(k) process. A PMA must be supported by more detailed and comprehensive scientific evidence, including clinical data, to demonstrate the safety and efficacy of the medical device for its intended purpose. If the device is determined to present a "significant risk," the sponsor may not begin a clinical trial until it submits an investigational device exemption, or IDE, to the FDA and obtains approval from the FDA to begin the trial.

After the PMA is submitted, the FDA has 45 days to make a threshold determination that the PMA is sufficiently complete to permit a substantive review. If the PMA is complete, the FDA will file the PMA. The FDA is subject to a performance goal review time for a PMA that is 180 days from the date of filing, although in practice this review time is longer. Questions from the FDA, requests for additional data and referrals to advisory committees may delay the process considerably. The total process may take several years and there is no guarantee that the PMA will ever be approved. Even if approved, the FDA may limit the indications for which the device may be marketed. The FDA may also request additional clinical data as a condition of approval or after the PMA is approved. Any changes to the medical device may require a supplemental PMA to be submitted and approved.

Any products sold by us pursuant to FDA clearances or approvals will be subject to pervasive and continuing regulation by the FDA, including record keeping requirements, reporting of adverse experiences with the use of the device and restrictions on the advertising and promotion of our products. Device manufacturers are required to register their establishments and list their devices with the FDA and are subject to periodic inspections by the FDA and certain state agencies. Noncompliance with applicable FDA requirements can result in, among other things, warning letters, fines, injunctions, civil penalties, recalls or seizures of products, total or partial suspension of production, refusal of the FDA grant 510(k) clearance or PMA approval for devices, withdrawal of 510(k) clearances and/or PMA approvals and criminal prosecution.

European Regulations

In the European Union, IVD medical devices are regulated under EU-Directive 98/79/EC, or the IVD Directive, and corresponding national provisions. The IVD Directive requires that medical devices meet the essential requirements set out in an annex of the directive. These requirements include the safety and efficacy of the devices. According to the IVD Directive, the Member States presume compliance with these essential requirements in respect of devices which are in conformity with the relevant national standards transposing the harmonized standards of which the reference numbers have been published in the Official Journal of the European Communities. These harmonized standards include ISO 13485:2003, the quality standard for medical device manufacturers.

IVD medical devices, other than devices for performance evaluation, must bear the CE marking of conformity when they are placed on the market. The CE mark is a declaration by the manufacturer that the product meets all the appropriate provisions of the relevant legislation implementing the relevant European Directive. As a general rule, the manufacturer must follow the procedure of the EC Declaration of conformity to obtain this CE marking.

Each European country must adopt its own laws, regulations and administrative provisions necessary to comply with the IVD Directive. Member States may not create any obstacle to the placing on the market or the putting into service within their territory of devices bearing the CE marking according to the conformity assessment procedures.

Therapeutics

In the United States, the process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state and local statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable United States requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests, animal studies and formulation studies in compliance with the FDA's Good Laboratory Practices or other applicable regulations;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before human clinical trials may begin;
- approval by an institutional review board, or IRB, at each institution participating in a clinical trial, which must review and approve the plan for any clinical trial before it commences at that institution;
- performance of adequate and well-controlled human clinical trials in accordance with Good Clinical Practices, or GCPs, to establish the safety and efficacy of the proposed drug for its intended use;
- submission to the FDA of a new drug application, or NDA, if the drug is a small molecule, or a biologics license application, or BLA, if the drug is a biologic;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug is produced to assess compliance with current Good Manufacturing Practice, or cGMP, to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity; and
- FDA review and approval of the NDA or BLA.

Once a pharmaceutical candidate is identified for development it enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information and analytical data, and applicable clinical data or literature, among other things, to the FDA as part of the IND. The sponsor will also include a protocol detailing, among other things, the objectives of the first phase of the clinical trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated, if the first phase lends itself to an efficacy evaluation. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. Clinical holds also may be imposed by the FDA at any time before or during studies due to, among other things, safety concerns or non-compliance.

All clinical trials must be conducted under the supervision of one or more qualified investigators in accordance with GCP regulations. An IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution. An IRB considers, among other things, whether the risks to individuals participating in the trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the information regarding the trial and the consent form that must be provided to each trial subject or his or her legal representative and must monitor the study until completed.

Each new clinical protocol must be submitted for FDA review, and to the IRBs for approval. Protocols detail, among other things, the objectives of the study, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1:* The drug is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.

- *Phase 2:* Involves studies in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

- *Phase 3:* Involves studies undertaken to further evaluate dosage, clinical efficacy and safety in an expanded patient population at geographically dispersed clinical study sites. These studies are intended to establish the overall risk-benefit ratio of the product and provide an adequate basis for product labeling.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and safety reports must be submitted to the FDA and the investigators for serious and unexpected adverse events. The FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients.

Concurrent with clinical trials, companies usually complete additional nonclinical studies and must also finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the drug within required specifications and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final drug. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the drug does not undergo unacceptable deterioration over its shelf life.

United States Review and Approval Processes

The results of product development, preclinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling, and other relevant information are submitted to the FDA as part of an NDA or BLA requesting approval to market the product for one or more indications. The FDA initially reviews all NDAs and BLAs submitted to ensure that they are sufficiently complete for substantive review before it accepts them for filing. The FDA may request additional information rather than accept an NDA or BLA for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA may refer the NDA or BLA to an advisory committee for review, evaluation and recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendation of an advisory committee.

The review process is lengthy and the FDA may refuse to approve an NDA or BLA if the applicable regulatory criteria are not satisfied or may require additional clinical or other data and information. Even if such data and information are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval.

If a product receives regulatory approval, the approval may be limited to specific diseases and dosages or the approved indications for use may otherwise be limited, which could restrict the commercial value of the product. In addition, the FDA may require a company to conduct post-approval testing, including Phase 4 clinical trials, to further assess a drug's safety and effectiveness after NDA or BLA approval, and may require testing and surveillance programs to monitor the safety of approved products which have been commercialized.

Post-approval Requirements

Approved drugs are subject to extensive and continuing regulation by the FDA, including, among other things, cGMP compliance, record-keeping requirements, reporting of adverse experiences with the drug, providing the FDA with updated safety and efficacy information, and complying with FDA promotion and advertising requirements. Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory standards is not maintained or if problems occur after the product reaches the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

Non-U.S. Regulations

In addition to regulations in the United States, we are subject to a variety of foreign regulations governing clinical trials and commercial sales and distribution of our tests and products outside the United States. Whether or not we obtain FDA approval for a product, we must obtain the necessary approvals by the comparable regulatory authorities of foreign countries before we can commence clinical trials or marketing of the product in those countries. The approval process varies from country to country and the time may be longer or shorter than that required for FDA approval. The requirements governing the conduct of clinical trials, the approval process, product licensing, pricing and reimbursement vary greatly from country to country.

HIPAA and Other Privacy and Security Laws

The Health Insurance Portability and Accountability Act of 1996, or HIPAA, established for the first time comprehensive United States protection for the privacy and security of health information. The HIPAA standards apply to three types of organizations, or "Covered Entities": health plans, healthcare clearing houses, and healthcare providers which conduct certain healthcare transactions electronically. Covered Entities must have in place administrative, physical, and technical safeguards to guard against the misuse of protected health information. Specifically, Title II of HIPAA, the administrative Simplification Act, contains four provisions that address the privacy of health data, the security of health data, the standardization of identifying numbers used in the healthcare system and the standardization of data content, codes and formats used in healthcare transactions. The privacy regulations protect medical records and other personal health information by limiting their use and release and giving patients the right to access their medical records. The HIPAA security standards require the adoption of administrative, physical and technical safeguards and the adoption of written security policies and procedures. Additionally, some state laws impose privacy protections more stringent than HIPAA and many impose security standards and breach notification requirements that apply in addition to HIPAA. Most of the institutions and physicians from which we obtain biological specimens that we use in our research and validation work are Covered Entities and must obtain proper authorization from their patients for the subsequent use of those samples and associated clinical information. We are a Covered Entity to the extent that our U.S. operations involve standard transactions conducted electronically (such as billing) in connection with clinical testing. Accordingly, we have implemented privacy and security policies and procedures consistent with HIPAA standards and taken other steps to comply.

On February 17, 2009, Congress enacted Subtitle D of the Health Information Technology for Economic and Clinical Health Act, or HITECH, provisions of the American Recovery and Reinvestment Act of 2009. HITECH amends HIPAA and, among other things, creates significant new regulatory compliance obligations for "business associates" or organizations that provide services to Covered Entities involving the use or disclosure of protected health information. Additionally, HITECH expands and strengthens HIPAA enforcement, imposes new penalties for noncompliance and establishes new breach notification requirements for Covered Entities and business associates. Under HITECT's new breach notification requirements, Covered Entities must, within 60 days of discovery, notify each individual whose information has been or is reasonably believed to have been, accessed, acquired or disclosed as a result of a breach. Covered Entities must also report breaches to the U.S. Department of Health and Human Services, or HHS, and in some cases, publish information about the breach in local or prominent media outlets. Consequently, it is important that breaches of PHI are promptly detected and reported within the company, so that we can make all required notifications.

We are currently subject to the HIPAA regulations and maintain an active program designed to address regulatory compliance issues. We are subject to prosecution or administrative enforcement and increased civil and criminal penalties for non-compliance, including monetary penalties. We are also subject to enforcement by state attorneys general who were given authority to enforce HIPAA under HITECH and who also enforce state data security laws.

Our activities must also comply with other applicable privacy laws. For example, there are international privacy laws that impose restrictions on the access, use, and disclosure of health and other personal information. All of these laws may impact our business. Our failure to comply with these privacy laws or significant changes in the laws restricting our ability to obtain tissue samples and associated patient information or to conduct clinical testing could significantly impact our business and our future business plans.

Compliance with Fraud and Abuse Laws

We have to comply with various U.S. federal and state laws, rules and regulations pertaining to healthcare fraud and abuse, including anti-kickback laws and physician self-referral laws, rules and regulations. Violations of the fraud and abuse laws are punishable by criminal and civil sanctions, including, in some instances, exclusion from participation in federal and state healthcare programs, including Medicare and Medicaid.

Anti-Kickback Statute

The federal Anti-Kickback Statute prohibits persons from knowingly or willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce:

- the referral of an individual for a service or product for which payment may be made by Medicare, Medicaid or other government-sponsored healthcare program; or
- purchasing, ordering, arranging for, or recommending the ordering of, any service or product for which payment may be made by a government-sponsored healthcare program.

The definition of “remuneration” has been broadly interpreted to include anything of value, including such items as gifts, certain discounts, waiver of payments, and providing anything at less than its fair market value. In addition, several courts have interpreted the law to mean that if “one purpose” of an arrangement is intended to induce referrals, the statute is violated.

The Anti-Kickback Statue is broad and prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements, the Office of Inspector General of the Department of Health and Human Services, or OIG, has issued regulations, commonly known as "safe harbors." These safe harbors set forth certain requirements that, if fully met, will assure healthcare providers, including medical device manufacturers, that they will not be prosecuted under the Anti-Kickback Statute. Although full compliance with these safe harbor provisions ensures against prosecution under the Anti-Kickback Statute, full compliance is often difficult and the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the Anti-Kickback Statute will be pursued. However, conduct and business arrangements that do not fully satisfy each applicable safe harbor may result in increased scrutiny by government enforcement authorities such as the OIG. The statutory penalties for violating the Anti-Kickback Statute include imprisonment for up to five years and criminal fines of up to $25,000 per violation. In addition, through application of other laws, conduct that violates the Anti-Kickback Statute can also give rise to False Claims Act lawsuits, civil monetary penalties and possible exclusion from Medicare and Medicaid and other federal healthcare programs. In addition to the Federal Anti-Kickback Statute, many states have their own kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states, these anti-kickback laws apply not only to payment made by a government health care program but also with respect to other payors, including commercial insurance companies.

Physician Self-Referral Laws

The federal ban on physician self-referrals, commonly known as the "Stark Law," prohibits, subject to certain exceptions, physician referrals of Medicare and Medicaid patients to an entity providing certain "designated health services" if the physician or an immediate family member of the physician has any financial relationship with the entity. The Stark Law also prohibits the entity receiving the referral from billing for any good or service furnished pursuant to an unlawful referral, and any person collecting any amounts in connection with an unlawful referral is obligated to refund such amounts. A person who engages in a scheme to circumvent the Stark Law's referral prohibition may be fined up to $100,000 for each such arrangement or scheme. The penalties for violating the Stark Law also include civil monetary penalties of up to $15,000 per service and possible exclusion from federal healthcare programs. In addition to the Stark Law, many states have their own self-referral laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states these anti-referral laws apply not only to payment made by a federal health care program but also with respect to other payors, including commercial insurance companies. In addition, some state laws require physicians to disclose any financial interest they may have with a healthcare provider to their patients when referring patients to that provider even if the referral itself is not prohibited.

Other Fraud and Abuse Laws

The federal False Claims Act, or FCA prohibits any person from knowingly presenting, or causing to be presented, a false claim or knowingly making, or causing to made, a false statement to obtain payment from the federal government. Those found in violation of the FCA can be subject to fines and penalties of three times the damages sustained by the government, plus mandatory civil penalties of between $5,500 and $11,000 for each separate false claim. Actions filed under the FCA can be brought by any individual on behalf of the government, a "qui tam" action, and such individual, known as a "relator" or, more commonly, as a "whistleblower," who may share in any amounts paid by the entity to the government in damages and penalties or by way of settlement. In addition, certain states have enacted laws modeled after the FCA, and this legislative activity is expected to increase. Qui tam actions have increased significantly in recent years, causing greater numbers of healthcare companies, including medical device manufacturers, to defend false claim actions, pay damages and penalties or be excluded from Medicare, Medicaid or other federal or state healthcare programs as a result of investigations arising out of such actions.

The OIG also has authority to bring administrative actions against entities for alleged violations of a number of prohibitions, including the Anti-Kickback Statute and the Stark Law. The OIG may seek to impose civil monetary penalties or exclusion from the Medicare, Medicaid and other federal healthcare programs. Civil monetary penalties can range from $2,000 to $50,000 for each violation or failure plus, in certain circumstances, three times the amounts claimed in reimbursement or illegal remuneration. Typically, exclusions last for five years.

In addition, we must comply with a variety of other laws, such as laws prohibiting false claims for reimbursement under Medicare and Medicaid. all of which can also be triggered by violations of federal anti-kickback laws; the Health Insurance Portability and Accounting Act of 1996, which makes it a federal crime to commit healthcare fraud and make false statements; and the Federal Trade Commission Act and similar laws regulating advertisement and consumer protections.

Reimbursement

United States

In the United States, payments for diagnostic tests come from several sources, including third party payors such as insurance companies and health maintenance organizations; government health programs such as Medicare and Medicaid; and patients; and, in certain circumstances, hospitals or referring laboratories (who then bill health third-party payors for testing).

Code Assignment. In the United States, a third-party payor's decisions regarding coverage and payment are driven, in large part, by the specific Current Procedural Terminology, or CPT, code used to identify a test. The American Medical Association, or AMA, publishes the CPT, which is a listing of descriptive terms and identifying codes for reporting medical services and procedures. The purpose of the CPT is to provide a uniform language that accurately describes medical, surgical, and diagnostic services and therefore to ensure reliable nationwide communication among healthcare providers, patients, and third-party payors.

A manufacturer of in vitro diagnostic kits or a provider of laboratory services may request establishment of a Category I CPT code for a new product. Assignment of a specific CPT code ensures routine processing and payment for a diagnostic test by both private and government third-party payors.

The AMA has specific procedures for establishing a new CPT code and, if appropriate, for modifying existing nomenclature to incorporate a new test into an existing code. If the AMA concludes that a new code or modification of nomenclature is unnecessary, the AMA will inform the requestor how to use one or more existing codes to report the test.

While the AMA's decision is pending, billing and collection may be sought under an existing, non-specific CPT code. A manufacturer or provider may decide not to request assignment of a CPT code and instead use an existing, non-specific code for reimbursement purposes. However, use of such codes may result in more frequent denials and/or requests for supporting clinical documentation from the third-party payor and in lower reimbursement rates, which may vary based on geographical location.

Coverage Decisions. When deciding whether to cover a particular diagnostic test, private and government third-party payors generally consider whether the test is a covered benefit and, if so, whether it is reasonable and necessary for the diagnosis or treatment of illness and injury. Most third-party payors do not cover experimental services. Coverage determinations often are influenced by current standards of practice and clinical data, particularly at the local level. The Centers for Medicare & Medicaid Services, or CMS, which is the government agency responsible for overseeing the Medicare program, has the authority to make coverage determinations on a national basis, but most Medicare coverage decisions are made at the local level by contractors that administer the Medicare program in specified geographic areas. Private and government third-party payors have separate processes for making coverage determinations, and private third-party payors may or may not follow Medicare's coverage decisions. If a third-party payor has a coverage determination in place for a particular diagnostic test, billing for that test must comply with the established policy. Otherwise, the third-party payor makes reimbursement decisions on a case-by-case basis.

Payment. Payment for covered diagnostic tests is determined based on various methodologies, including prospective payment systems and fee schedules. In addition, private third-party payors may negotiate contractual rates with participating providers or set rates as a percentage of the billed charge. Diagnostic tests furnished to Medicare inpatients generally are included in the bundled payment made to the hospital under Medicare's Inpatient Prospective Payment System. Payment for diagnostic tests furnished to Medicare beneficiaries in most other circumstances is made based on the Clinical Laboratory Fee Schedule, under which a payment amount is assigned to each covered CPT code. The law technically requires fee schedule amounts to be adjusted annually by the percentage increase in the consumer price index, or CPI, for the prior year, but Congress has frozen payment rates in certain years. For the 2010 calendar year the Clinical Laboratory Fee Schedule, or CLFS, was reduced across all listed tests by 1.9%. Currently, the ceiling for established tests is set at 74% of the median of all contractor fee schedule amounts for a particular test and 100% of the median for diagnostic tests for which no limitation amount was established prior to 2001. Medicaid programs generally pay for diagnostic tests based on a fee schedule, but reimbursement varies by state.

European Union

In the European Union the reimbursement mechanisms used by private and public health insurers vary by country. For the public systems reimbursement is determined by guidelines established by the legislator or responsible national authority. As elsewhere, inclusion in reimbursement catalogues focuses on the medical usefulness, need, quality and economic benefits to patients and the healthcare system. Acceptance for reimbursement comes with cost, use and often volume restrictions, which again can vary by country.

Scientific Advisors

We seek advice from our scientific advisory board, which consists of a number of leading scientists and physicians, on scientific and medical matters. Our scientific advisory board assesses:

- our research and development programs;
- our patent and publication strategies;
- new technologies relevant to our research and development programs; and
- specific scientific and technical issues relevant to our business.

The current members of our scientific advisory board are:

Name	Position/Institutional Affiliation
Prof. J. Aaron Ciechanover, M.D., D.Sc., Chairman	Professor Ciechanover is a Nobel Prize laureate in Chemistry (2004) and a recipient of the prestigious Lasker Award (2000) for the discovery and recognition of the significance of the ubiquitin system of regulated protein degradation. Professor Ciechanover is a Distinguished University Professor in the Technion-Israel Institute of Technology in Haifa, Israel, and an active researcher in the Cancer and Vascular Biology Research Center in the Faculty of Medicine of the Technion.
Prof. Zvi Bentwich, M.D., Deputy Chairman	Professor Bentwich served as our Chief Scientist from June 2002 until April 2009, and has served as Chairman and Deputy Chairman of our Scientific Advisory Board since 2003. He is a world-renowned authority in AIDS research and is considered one of the leaders and founders of the discipline of Clinical Immunology. Professor Bentwich founded and headed Israel's largest AIDS center. He is the author of more than 250 scientific publications and has been a member of leading editorial boards and professional bodies, including Chair of the Clinical Immunology Committee of the International Union of Immunological Societies, President of the Israeli Society of Clinical Immunology and Allergy and of the Israel Society of STD. He has been a professor of medicine at the Hebrew University since 1981, and a professor of virology and head of a new center for Infectious Diseases and AIDS at Ben-Gurion University of the Negev since 2004. Professor Bentwich is the father of our founder and board member, Dr. Isaac Bentwich.

Prof. Michael Sela, Ph.D.	Professor Sela, an Israel Prize laureate, was the President of the Weizmann Institute of Science from 1975 to 1985 and served as Deputy Chairman of the Board of Governors of the Weizmann Institute from 1985 to 2004. Prof Sela led the development efforts for Copaxone, Teva's multiple sclerosis drug. He is an Institute Professor of Immunology at the Weizmann Institute of Science and is the author of 19 patents. He has published more than 450 articles in leading scientific journals, including abstracts and book reviews.
Prof. Yinon Ben-Neriah, M.D., Ph.D.	Professor Ben-Neriah serves as Professor and Chair in the Department of Immunology, Hebrew University, Hadassah Medical School. He is an elected member of the European Molecular Biology Organization (EMBO) and member of the European Cancer Forum.
Prof. Gideon Rechavi M.D., Ph.D.	Professor Rechavi is one of Israel's most honored cancer researchers and an internationally known scientist. He is the head of the Sheba Cancer Research Center in Israel. Professor Rechavi is the author of numerous papers that have been published in the most distinguished scientific journals such as *Nature Medicine*, *Nature Genetics*, *Nature Biotechnology*, *Nature Cell Biology* and the *Proceedings of the National Academy of Science*.

Medical Advisors

We have assembled clinicians in the fields of oncology and women's health to advise the company on our microRNA-based programs to develop laboratory tests to address the issues facing oncologists and pathologists.

The current members of our medical advisory board are:

Name	Position/Institutional Affiliation
Prof. Harvey I. Pass, M.D.,	Dr. Pass is Professor of Cardiothoracic Surgery and Surgery, Director of Surgical Research, and Division Chief for Thoracic Surgery and Thoracic Oncology for the New York University School of Medicine. Professor Pass is a graduate of Johns Hopkins University and Duke University Medical School. He trained in cardiothoracic surgery at the Medical University of South Carolina in Charleston. He was a senior staff fellow in the Thoracic Oncology Section at the National Cancer Institute (NCI) in Bethesda, Maryland from 1983 to 1986 and became Head of Thoracic Oncology at NCI from 1986 to 1996. Before moving to New York, he was Professor of Surgery and Oncology at the Karmanos Cancer Institute of Wayne State University. He is internationally recognized as an expert in the multidisciplinary management of lung cancer, mesothelioma, esophageal cancer, and the management of pulmonary metastases. He is known for his development of novel clinical trials for the treatment of thoracic malignancies as well as building a strong translational component to his programs with benchwork investigations. Dr. Pass has received the NIH Directors Award, the Presidents Award for Clinical Research at Karmanos Cancer Institute, and the Wagner Medal from the International Mesothelioma Interest Group. He is presently a Board Member of the International Association for the Study of Lung Cancer, the International Mesothelioma Interest Group, the Mesothelioma Foundation, and the Lung Cancer Alliance. Dr. Pass has been recognized as an America's Top Doctor and Best Cancer Doctor by Castle Connoly's Guide for the last seven years.

David Sidransky, M.D.	Dr. Sidransky is a renowned oncologist and research scientist named and profiled by TIME magazine in 2001 as one of the top physicians and scientists in America, recognized for his work with early detection of cancer. He serves as Executive Officer of Biomerk, Inc. and as Director of the Head and Neck Cancer Research Program at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University. He is a Professor of Oncology, Otolaryngology, Cellular & Molecular Medicine, Urology, Genetics, and Pathology at John Hopkins University and Hospital. Dr. Sidransky has written over 400 peer-reviewed publications, and has contributed to more than 50 cancer reviews and chapters. Dr. Sidransky is a founder of a number of biotechnology companies and holds numerous biotechnology patents. He has been the recipient of many awards and honors, including the 1997 Sarstedt International prize from the German Society of Clinical Chemistry, 1998 Alton Ochsner Award Relating Smoking and Health by the American College of Chest Physicians and the 2004 Hinda Rosenthal Award presented by the American Association of Cancer Research. Dr. Sidransky has served as Vice Chairman of the Board of Directors, and presently is a director of ImClone. He is Chairman of Tamir Biotechnology, Inc.(also known as Alfacell Corp.) and serves on the board of directors of KV Pharmaceutical Co., Champions Biotechnology, Inc. and Morria Biopharmaceuticals Plc. He is serving and has served on scientific advisory boards of corporations and institutions, including Amgen, MedImmune, Roche, and Veridex, LLC (a Johnson & Johnson diagnostic company), among others. In Addition, Dr. Sidransky served as Director of American Association for Cancer Research (AACR) from 2005 to 2008. Dr. Sidransky received his B.A. and B.S. from Brandeis University and his M.D. from the Baylor College of Medicine.
David Kelsen M.D.	Dr. David Kelsen is the incumbent of the Edward S. Gordon Chair in Medical Oncology, Chief of Gastrointestinal Oncology, and Member at Memorial Sloan-Kettering Cancer Institute, New York. He is also Professor of Medicine at Weil School of Medicine of Cornell University. Dr. David Kelsen is one of the pre-eminent names in gastrointestinal cancer, and has served on the FDA Oncologic Drugs Advisory Committee among other national committees. His team of researchers is generally regarded as one of the leading teams performing clinical and translational research in gastrointestinal cancers, and he has been the head of numerous cancer clinical trials. He has published over 230 papers in peer-reviewed medical and scientific journals. Dr. Kelsen received his M.D. from Hahnemann University School of Medicine.
Prof. Jack Baniel, M.D.	Dr. Baniel is an internationally renowned authority on testicular and bladder cancer. Currently, he is Professor of Urology and Acting Chief of the Urological Section at Rabin Medical Center and Deputy-Head of the Davidoff Comprehensive Cancer Center in Israel. Dr. Baniel is the author of numerous peer-reviewed papers in the field of Urological Oncology. As a member of the EORTC – GU Group, he is involved in clinical studies and the development of new medical technologies. Dr. Baniel trained in Urology at the Rabin Medical Center and Witwatersrand University in Johannesburg, South Africa. He was a Graduate Fellow in Urological Oncology at Indiana University.

Prof. Raphael Catane, M.D.	Dr. Catane is Professor and Chairman of the Division of Oncology at The Chaim Sheba Medical Center, Tel Hashomer, Israel. He is the author of more than 120 scholarly articles dealing with such matters as the central action of regitine on blood pressure and MR-guided focused surgery for the palliation of pain in patients with bone cancer. In addition, Dr. Catane has written dozens of review articles, case reports and book chapters and is a member of the American Society of Clinical Oncology, European Society of Medical Oncology and other leading professional societies involving oncology, radiotherapy and immunology. Previously, Dr. Catane was Director of Clinical Cancer Research at Bristol-Myers Squibb's Pharmaceutical Research Institute, and Acting Head of the Sharett Institute of Oncology at the Hadassah University Hospital in Jerusalem, Israel. He was educated at Hadassah Medical School in Hebrew University.
Isaac Yaniv, M.D.	Dr. Yaniv is the chairman of the Pediatric Hematology Oncology Division at the Schneider Children's Medical Center of Israel. He established the first dedicated pediatric bone marrow transplantation unit in Israel and played a leading role as a member of the EUROCORD Group in promoting the field of umbilical cord blood transplantation. Dr. Yaniv is a founding member of the European Neuroblastoma Study Group (SIOPEN) and is a member of the executive committee. Furthermore, Dr. Yaniv established a stem cell research center focusing on homing and seeding as well as pluripotency of stem cells. Dr. Yaniv is Senior Lecturer at the Sackler Faculty of Medicine at the Tel Aviv University and medical director of the Ezer Mizion bone marrow donor registry. Dr. Yaniv has published more than 120 articles in peer-reviewed journals and conducts clinical and molecular research in the field of pediatric malignancies.
Maya Gottfried, M.D.	Dr. Gottfried has earned distinction for her extensive clinical and academic experience. A specialist in medical oncology and radiotherapy, she is currently Head of the Lung Oncology Unit at the Meir Medical Center in Kfar-Saba, Israel. Dr. Gottfried is a member of the Israel Society of Clinical Oncology & Radiotherapy, the European Association for Cancer Research, a faculty member of the European Society of Medical Oncology (ESMO) and a member of the International Association for the Study of Lung Cancer. She has been a valued participant in many clinical trials, several as principal investigator, and has made presentations in major scientific meetings, including the 21st ESMO Congress in Vienna, the ASCO meeting in New Orleans, the 11th World Conference on Lung Cancer in Barcelona, the 1st Congress of Lung Cancer Experts in Hamburg and the Global Cancer Group in Lisbon.
Chaim Putterman, M.D.	Dr. Putterman is Professor of Medicine and Microbiology & Immunology, and Chief of the Division of Rheumatology at the Albert Einstein College of Medicine and Montefiore Medical Center (Bronx, New York). After graduating with an MD degree from the Technion Faculty of Medicine (Haifa, Israel), Dr. Putterman did his internship at Rambam Medical Center, and completed his residency and chief residency at Hadassah University Hospital in Jerusalem. Following a Rheumatology fellowship and post-doctoral training Dr. Putterman has remained on the faculty of the Albert Einstein College of Medicine, where he also is Director of the Rheumatology Fellowship Program, Co-Director of the Musculoskeletal Disease Course, and Director of the Einstein Federation of Clinical Immunology Societies Center of Excellence. Dr. Putterman's major research interests are in the field of immunology and autoimmune diseases, and specifically the identification and characterization of novel mechanisms, biomarkers, and treatment approaches to inflammatory arthritis and systemic lupus erythematosus.

C. ORGANIZATIONAL STRUCTURE

Rosetta Genomics Ltd. is organized under the laws of the State of Israel and has a wholly owned subsidiary, Rosetta Genomics Inc., which is a Delaware corporation, and a controlled subsidiary Rosetta Green Ltd. which is a public Israeli Company whose shares are traded on the TASE.

D. PROPERTY, PLANTS AND EQUIPMENT

We currently rent approximately 11,550 square feet of office and laboratory space in Rehovot, Israel, under a lease that expires in December 2013. Our wholly owned subsidiary, Rosetta Genomics Inc., rents approximately 3,649 square feet of office space in Jersey City, New Jersey under a lease that expires in March 2013, we sublet the entire property under a sublease that expires in February 2013. In addition, Rosetta Genomics Inc. rents approximately 6,233 square feet of laboratory space in Philadelphia, Pennsylvania under a lease that expires in December 2013. We believe that we will require additional space as our business grows, but expect that alternate facilities will be available on reasonable terms as and when needed.

ITEM 4.A UNRESOLVED STAFF COMMENTS

None.

ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with "Item 3. Key Information • A. Selected Consolidated Financial Data" and our consolidated financial statements and the related notes to those statements included elsewhere in this Annual Report. In addition to historical consolidated financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed under "Forward-Looking Statements," "Item 3. Key Information • D. Risk Factors" and elsewhere in this Annual Report.

Overview

We are seeking to develop and commercialize new diagnostic products based on a recently discovered group of genes known as microRNAs. MicroRNAs are naturally expressed, or produced, using instructions encoded in DNA and are believed to play an important role in regulating protein production. Proteins control most biological processes and thus we believe that microRNAs as their regulators have the potential to form the basis of a novel class of diagnostic tests and therapies for many serious illnesses.

Since our inception in March 2000, we have generated significant losses. As of December 31, 2010, we had an accumulated deficit of $76.2 million. We funded our operations through December 31, 2010 primarily through proceeds received from the sale of equity securities to investors in the aggregate amount of approximately $76 million, including the following:

- $30.2 million in gross proceeds from the sale of an aggregate of 4,312,500 ordinary shares at $7.00 per share in our initial public offering in March 2007. Net proceeds from the initial public offering, after deducting underwriters' discounts and expenses, were approximately $26 million.

- In January 2010, we completed a registered direct offering (referred to herein as the "2010 registered offering"). The investors in the 2010 registered offering purchased an aggregate of 2,530,000 units for $2.00 per unit, consisting of an aggregate of 2,530,000 ordinary shares and warrants to purchase up to an aggregate of 1,265,000 ordinary shares. The warrants are exercisable at $2.50 per share and expire on January 15, 2015. Net proceeds to us from the 2010 registered offering, after fees and expenses, were approximately $4.65 million.

- On December 1, 2010, we completed a private placement (referred to herein as the "2010 PIPE"). In the 2010 PIPE, we sold 2,500,000 units for $1.00 per unit, consisting of an aggregate of 2,500,000 ordinary shares, warrants to purchase up to an aggregate of 1,250,000 ordinary shares (the "Series A Warrants") and warrants to purchase up to an aggregate of 625,000 ordinary shares (the "Series B Warrants"). The Series A Warrants expire on December 1, 2015 and were initially exercisable at $1.30 per share. Pursuant to the anti-dilution provisions of the Series A Warrants, following the private placement and concurrent registered direct offering consummated on February 23, 2011, the exercise price of the Series A Warrants was adjusted to $1.00 per share. The Series B warrants were exercisable for $0.01 per share, and were automatically exercised on a cashless basis on February 9, 2011, and an aggregate of 618,444 ordinary shares were issued to the 2010 PIPE investors. Net proceeds to us from the 2010 PIPE, after fees and expenses, were approximately $2.2 million.

- On February 23, 2011, we completed a private placement (referred to herein as the "2011 PIPE") and a concurrent registered direct offering (referred to herein as the "2011 registered offering"). In the 2011 PIPE, we sold 4,541,668 units for $0.60 per unit, consisting of an aggregate of 4,541,668 ordinary shares and warrants to purchase up to an aggregate of 3,406,251 ordinary shares. The warrants issued in the 2011 PIPE have an exercise price of $0.80 per share and expire on February 23, 2016. In the 2011 registered offering, we sold 5,458,671 units for $0.60 per unit, consisting of an aggregate of 5,458,671 ordinary shares and warrants to purchase up to an aggregate of 2,729,335 ordinary shares. The warrants issued in the 2011 registered offering have an exercise price of $0.80 per share and expire on February 23, 2016. Aggregate net proceeds to us from these concurrent offerings, after fees and expenses, were approximately $5.5 million.

We have focused our efforts since inception primarily on research and development, building and maintaining our intellectual property, business planning and raising capital. We have not achieved profitability and we expect to incur significant additional losses over the next several years. We expect our net losses to increase primarily due to research and development activities relating to our internal product development, collaborations, business development and other general corporate activities. We anticipate that our operating results will fluctuate for the foreseeable future. Therefore, period-to-period comparisons should not be relied upon as predictive of the results in future periods. Our sources of potential funding for the next several years are expected to include our existing cash, cash equivalents, short term bank deposits and marketable securities of $3.3 million as of December 31, 2010, additional equity and/or debt financings, royalties, license and other fees, funded research and development payments, and milestone payments under existing and future collaborative arrangements.

Research and development expenses represented 42%, 45% and 62% of our total operating expenses for the years ended December 31, 2010, 2009 and 2008, respectively. We have not tracked our historical research and development costs on a project-by-project basis because the majority of our efforts have been focused on the development of capabilities associated with our microRNA discovery process rather than on specific projects. Major components of the $6.5 million in research and development expenses for the year ended December 31, 2010 included payroll and related expenses, research materials and related expenses, costs associated with license fees and intellectual property-related costs.

On July 2008, through our wholly owned subsidiary Rosetta Genomics Inc., we purchased all of the shares of Parkway Clinical Laboratories, Inc., a privately held Pennsylvania corporation owning a CLIA-certified laboratory, for an aggregate purchase price of $2,900,000 (not including $207,000 of transaction expenses), consisting of $1,900,000 in cash and $1,000,000 of our ordinary shares, plus an additional $300,000 payable upon the achievement of certain milestones, which were not met. Parkway remained an indirect wholly owned subsidiary until May 2009, when we sold Parkway for a purchase price of up to $2,500,000, to be paid as a fixed percentage of revenues over six years. During the years ended December 31, 2010 and December 31, 2009, we received an amount of $148,000 and $48,000, respectively, in respect of this consideration. These payments are lower than the amounts due to us under Parkway's sale agreement and we have been experiencing collection problems with Parkway's buyer since the sale. Operating results for Parkway have been classified as discontinued operations for all presented periods.

On February 4, 2010, we established Rosetta Green Ltd., an Israeli Company, as a controlled subsidiary. As of December 31, 2010, we owned approximately 76.2% of the outstanding ordinary shares of Rosetta Green. In February 2011, Rosetta Green completed an initial public offering in Israel on the TASE. As of the date of this report, we own approximately 50.03% of the outstanding ordinary shares of Rosetta Green. See also "Item 4.B. Business Overview – Rosetta Green."

On November 22, 2010, we and Prometheus Laboratories Inc. entered into a Settlement Agreement and Mutual Release (the "Settlement Agreement") to resolve the various disputes between the parties relating to the License Agreement, the Laboratory Services Agreement, and the Stock Purchase Agreement, each dated April 10, 2009, including all claims relating to the arbitration proceeding. See "Item 8. Financial Information • A. Consolidated Statements and Other Information • Legal Proceedings."

In October 2010, we implemented a cost reduction plan. This plan reduced our monthly burn rate by 32%, we eliminated 14 positions or nearly 20% of our global workforce, primarily in research and development and general and administrative positions. In addition, all Company employees were moved to a four-day work week with an attendant 20% reduction in salary. We recently moved back 21 of our employees (representing nearly 40% of our global workforce) to a five-day work week and increased their salary by 25% back to their original salary.

Based on our current operations, we expect that our existing funds, including the net proceeds from the 2011 PIPE and 2011 registered offering, will only be sufficient to fund operations until mid-November 2011. We are, however, implementing initiatives to cover any 2011 budget deficit, as further described in "Item 5. Operating and Financial Review and Prospects • B. Liquidity and Capital Resources," and expect to be able to fund operations into 2012.

Financial Operations Overview

Revenues

Revenues from continuing operations consist of revenues from royalties and revenues from diagnostic tests performed in our laboratory in Philadelphia. Our first diagnostic products applying our microRNA technology that were launched in late 2008 began generating revenues in 2009.We have generated revenues from continuing operations in the year ended December 31, 2009 in an amount of $150,000 and in the year ended December 31, 2010 in the amount of $279,000.

Our ability to continue to operate is dependent on the completion of the development of our products, the ability to market and sell our products and additional financing until profitability is achieved.

Cost of Revenues

Cost of revenues referring to services consists primarily of the operational costs of our subsidiary, Rosetta Genomics Inc., which mainly include salaries and employee benefits, consulting, costs related to rent and maintenance. Cost of revenues referring to products includes expenses related to the cost of purchasing or manufacturing our products.

Research and Development Expenses, net

We expense research and development costs as incurred. Our research and development expenses currently include costs of salaries and related expenses, activities related to intellectual property and licensing, tissue samples and other research materials, supplies, equipment depreciation, outsourced clinical and other research activities, consultants, utilities expenses and an allocation of corporate administrative costs.

We are currently conducting a number of studies analyzing microRNA expression profiles in healthy and diseased samples and expect we will continue to initiate such studies in 2011. As a result, we expect that our expenses related to the purchase of tissue and body fluid samples, as well as other research consumables, will increase in the future. We have entered into several license agreements for rights to utilize certain technologies. The terms of the licenses provide for up-front payments, annual maintenance payments and royalties on product sales. Costs to acquire and maintain licensed technology are expensed as incurred. Due to the restructuring done in October 2010, we expect these expenses to decrease in 2011.

Marketing and Business Development Expenses

Marketing and business development expenses consist primarily of salaries and related expenses, costs of post marketing validation studies, and expenses related to travel, legal and general business development activities. As we continue to explore new collaborations to develop and commercialize diagnostic and therapeutic products based on microRNAs, we anticipate that these expenses will increase.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and related expenses, professional fees and expenses related to general corporate activities. We anticipate that general and administrative expenses will decrease in 2011 due to the restructuring done in October 2010.

Financial Expenses (Income)

Financial expenses consist of bank and interest expenses and changes in the fair value of our future payments pursuant to our settlement agreement with Prometheus Laboratories Inc. See “Item 8. Financial Information • A. Consolidated Statements and Other Information • Legal Proceedings.” Financial income includes interest income, which interest is earned on deposits and marketable securities we maintain with banks, realized gains on marketable securities and revaluation of warrants related to share purchase agreements. In addition, financial expenses and income include expenses and income related to the impact of fluctuations in the exchange rate between the NIS and the U.S. dollar.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in conformity with U.S. generally accepted accounting principles, or U.S. GAAP. The preparation of our consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. On an ongoing basis, we evaluate our estimates and judgments. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions and could have a material impact on our reported results.

While our significant accounting policies are more fully described in the notes to our consolidated financial statements included in this prospectus, we believe the following accounting policies to be the most critical in understanding our consolidated financial statements and the assumptions management used.

Fair Value Measurements and Disclosures

The fair value of the liability for each class of warrants issued in connection with our 2010 financing transactions was calculated using either the Black Scholes Model or Monte Carlo Simulation, depending on the terms and rights of each class of warrants. We accounted for these warrants according to the provisions of ASC 815, "Derivatives and Hedging - Contracts in Entity's Own Equity" and based on certain terms of the warrants classified them as liabilities, measured at fair value each reporting period until they are exercised or expire, with changes in the fair values being recognized in the Company's statement of operations as financial income or expense.

We determine the fair value of certain warrants using Monte Carlo simulation paths of our stock prices. The Monte Carlo Model was chosen following the need to calculate the market price of the shares on NASDAQ over warrants lifespan and under different scenarios.

The above approach to valuation uses estimates, which are consistent with the plans, and estimates that we use to manage our business. There is inherent uncertainty in making these estimates.

Revenue Recognition

Revenues from sales of our products are recognized in accordance with Staff Accounting Bulletin No. 104, "Revenue Recognition in Financial Statements" ("SAB No. 104"), when delivery has occurred, persuasive evidence of an agreement exists, the vendor's fee is fixed or determinable, no further obligation exists and collectability is probable.

Revenues from collaborative agreements consist primarily of royalty payments, payments for research and developmental services, up-front fees and milestone payments. If an arrangement requires the delivery or performance of multiple deliverables or service elements, we determine whether the individual elements represent "separate units of accounting" under the requirements of ASC 605-25 "Multiple-Element Arrangements".

If the separate elements meet the requirements of ASC 605-25, we recognize the revenue associated with each element separately and revenue is allocated among elements based on relative fair value. If the elements within a multiple deliverable arrangement are not considered separate units of accounting, the delivery of an individual element is considered not to have occurred if there are undelivered elements that are considered essential to the arrangement. Revenue resulting from the achievement of contingent milestone events stipulated in the agreements is recognized when the milestone is achieved. Milestones are based upon the occurrence of a substantive element specified in the contract.

In the year ended December 31, 2010, we had recognized $279,000 as revenues from continuing operations.

Accounting for Stock-Based Compensation

We account for stock-based compensation in accordance with ASC 718 “Compensation- Stock Compensation” **(**formerly Statement of Financial Accounting Standard No. 123 (revised 2004), "Share-Based Payment" ("SFAS No. 123(R)")). ASC 718 requires companies to estimate the fair value of equity-based payment awards on the date of grant using an option-pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as an expense over the requisite service periods in our consolidated income statements.

We recognize compensation expenses for the value of awards granted based on the straight line method over the requisite service period of each of the awards, net of estimated forfeitures. ASC 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Estimated forfeitures are based on actual historical pre-vesting forfeitures. The term “forfeitures” is distinct from “cancellations” or “expirations” and represents only the unvested portion of the surrendered option. We currently expect, based on an analysis of our historical forfeitures, that approximately 92.87% of our options will actually vest, and therefore have applied an annual forfeiture rate of 7.13% to all options that are not vested as of December 31, 2010. Ultimately, the actual expenses recognized over the vesting period will only be for those shares that vest.

We selected the Black-Scholes option pricing model as the most appropriate fair value method for stock-option awards and value restricted stock based on the market value of the underlying shares at the date of grant. The option-pricing model requires a number of assumptions, of which the most significant are the expected stock price volatility and the expected option term. The computation of expected volatility is based on realized historical stock price volatility of peer data as well as historical volatility of our stock starting from the IPO date. As a result of the above-mentioned calculations, the volatility used for the twelve months ended December 31, 2010 and 2009 was between 61%-67% and between 61%-75%, respectively. The risk-free interest rate assumption is the implied yield currently available on United States treasury zero-coupon issues with a remaining term equal to the expected life term of our options. We determined the expected life of the options according to the simplified method, average of vesting and the contractual term of the options.

Our net loss includes stock-based compensation costs in the amount of $757,000, $1.3 million and $1.0 million for the years ended December 31, 2010, 2009 and 2008, respectively, excluding Rosetta Green. As of December 31, 2010, the total amount of unrecognized stock-based compensation expense was $894,000, which will be recognized over a weighted average period of 2.57 years.

The total stock-based compensation expense resulting from stock options granted to Rosetta Green's employees for Rosetta Green's shares is $ 939,000.

We apply ASC 718 and ASC 505-50 "Equity-Based Payments to Non-Employees" (formerly EITF No. 96-18 "Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring or in Conjunction with Selling, Goods or Services"), with respect to options and warrants issued to non-employees. ASC 718 requires the use of option valuation models to measure the fair value of the options and warrants at the measurement date.

In connection with options granted to non-employees for services during the years ended December 31, 2010, 2009 and 2008 and our determination of the fair value of our ordinary shares, we have recorded stock-based compensation expense of approximately $19,000, $52,000 and $70,000, respectively, which represents the fair value of non-employee grants excluding Rosetta Green. At the end of each financial reporting period prior to vesting, the value of these options, as calculated using the Black-Scholes option pricing model, was re-measured using the then current fair value of our ordinary shares. Since the fair market value of the ordinary shares to non-employees is subject to change in the future, the compensation expense recognized during the years ended December 31, 2010, 2009 and 2008 may not be indicative of future compensation charges.

Impairment of Long-Lived Assets

The long-lived assets of us and of our subsidiaries and all identifiable intangible assets that are subject to amortization are reviewed for impairment in accordance with ASC 360, "Property, plant and equipment"/ ASC 250 "presentation of financial statement" (Formerly Statement of Financial Accounting Standard No. 144 "Accounting for the Impairment or Disposal of Long-Lived Assets"), whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted cash flows expected to be generated by the assets. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. As of December 31, 2010, 2009 and 2008, no impairment losses have been identified.

Discounted Future Cash Flow Method (DCF) - Future consideration from Parkway

To determine the fair value of the receivable that is related to Parkway's sale as of December 31, 2009, and December 31, 2010 we performed a valuation using DCF methodology at each valuation date. Under the DCF method, the fair value of receivable asset is estimated based on the stream of benefits the Company expects to receive, the timing of such benefits and the risk borne by Parkway.

Convertible Notes

Convertible notes are accounted for in accordance with the provisions of ASC 815, "Derivatives and Hedging" and ASC 470-20, "Debt with Conversion and Other Options". Where applicable, we recorded an embedded derivative instrument classified as a liability.

Recently Issued Accounting Standards

In September 2009, the FASB amended the ASC as summarized in Accounting Standard Update ("ASU") 2009-14, Software (Topic 985): Certain Revenue Arrangements That Include Software Elements, and ASU 2009-13, Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements. As summarized in ASU 2009-14, ASC Topic 985 has been amended to remove from the scope of industry specific revenue accounting guidance for software and software related transactions, tangible products containing software components and non-software components that function together to deliver the product’s essential functionality. As summarized in ASU 2009-13, ASC Topic 605 has been amended (1) to provide updated guidance on whether multiple deliverables exist, how the deliverables in an arrangement should be separated, and the consideration allocated; (2) to require an entity to allocate revenue in an arrangement using estimated selling prices of deliverables if a vendor does not have vendor-specific objective evidence ("VSOE") or third-party evidence of selling price; and (3) to eliminate the use of the residual method and require an entity to allocate revenue using the relative selling price method. The accounting changes summarized in ASU 2009-14 and ASU 2009-13 are both effective for fiscal years beginning on or after June 15, 2010, with early adoption permitted. Adoption may either be on a prospective basis or by retrospective application. We believe that the adoption of this guidance will not have a material impact on our financial condition, results of operations or cash flows.

In April 2010, the FASB issued guidance ASC Topic 605 to amend the accounting and disclosure for revenue recognition - milestone method. This amendment, effective for fiscal years beginning on or after June 15, 2010 (early adoption is permitted), provides guidance on defining a milestone and determining when it may be appropriate to apply the milestone method of revenue recognition for research and development transactions. We believe that the adoption of the amendment will not have a material impact on our consolidated financial statements.

In January 2010, the FASB updated the guidance ASC Topic 820 related to "Fair Value Measurements Disclosures". More specifically, this update requires (a) an entity to disclose separately the amounts of significant transfers in and out of Levels 1 and 2 fair value measurements and to describe the reasons for the transfers; and (b) information about purchases, sales, issuances and settlements to be presented separately (i.e. present the activity on a gross basis rather than net) in the reconciliation for fair value measurements using significant unobservable inputs (Level 3 inputs). This update clarifies existing disclosure requirements for the level of disaggregation used for classes of assets and liabilities measured at fair value, and requires disclosures about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements using Level 2 and Level 3 inputs. The adoption of this new guidance did not have a material impact on our financial statements.

A. OPERATING RESULTS

Years Ended December 31, 2010 and 2009 - Continuing Operations

Revenues. In the years ended December 31, 2010 and December 31, 2009, we recognized $279,000 and $150,000, respectively, as revenues from continuing operations. This increase resulted primarily from sales to our former distributor in the United States. See "Item 8. Financial Information • A. Consolidated Statements and Other Information • Legal Proceedings."

Cost of revenues. Cost of revenues were $628,000 for the year ended December 31, 2010, including $11,000 of non-cash stock-based compensation, as compared to $339,000 for the year ended December 31, 2009, including $0 of non-cash stock-based compensation. This increase resulted primarily from an increase in the activities of our CLIA-certified laboratory.

Research and development expense, net. Research and development expenses were $6.5 million for the year ended December 31, 2010, including $470,000 of non-cash stock-based compensation, as compared to $6.6 million for the year ended December 31, 2009, including $321,000 of non-cash stock-based compensation. Research and development expenses for the year ended December 31, 2010 have not changed significantly compared to 2009.

Marketing and business development expenses. Marketing and business development expenses were $5.4 million for the year ended December 31, 2010, including $730,000 of non-cash stock-based compensation, as compared to $4.5 million for the year ended December 31, 2009, including $584,000 of non-cash stock-based compensation. This increase resulted primarily from an increase in legal expenses related to certain commercial agreements.

General and administrative expenses. General and administrative expenses were $2.9 million for the year ended December 31, 2010, including $485,000 of non-cash stock-based compensation, as compared to $3.6 million for the year ended December 31, 2009, including $519,000 of non-cash stock-based compensation. This decrease resulted primarily from a decrease in expenses related to professional fees.

Other operating expenses related to the settlement with Prometheus. Other operating expenses related to the settlement with Prometheus were $554,000 for the year ended December 31, 2010, as compared to $0 for the year ended December 31, 2009. These expenses reflect the fair value of certain payments due to Prometheus pursuant to the settlement agreement, net of the $1,700,000 deferred revenues and the development fund recognized.

Financial expenses (income), net. Net financial income was $1.1 million for the year ended December 31, 2010, as compared to net financial income of $45,000 for the year ended December 31, 2009. Financial income in 2010 included $1.1 million related to the revaluation of warrants related to share purchase agreements that are accounted for and presented as liability set off by $244,000 expenses related to legal and accounting in connection with the 2010 registered offering and the 2010 PIPE.

Years Ended December 31, 2009 and 2008 - Continuing Operations

Revenues. In the year ended December 31, 2009, we recognized $150,000 as revenues from continuing operations. In the year ended December 31, 2008, we had no revenues from continuing operations.

Research and development expense, net. Research and development expenses were $6.6 million for the year ended December 31, 2009, including $321,000 of non-cash stock-based compensation, as compared to $8.7 million for the year ended December 31, 2008, which included $288,000 of non-cash deferred stock-based compensation. Research and development expenses for the year ended December 31, 2009 decreased due to lower costs related to salaries as a result of a decrease in employees, and in 2008 research and development efforts were more focused on the three new products.

Marketing and business development expenses. Marketing and business development expenses were $4.5 million for the year ended December 31, 2009, including $584,000 of non-cash stock-based compensation, as compared to $2.2 million for the year ended December 31, 2008, including $239,000 of non-cash stock-based compensation. This increase resulted primarily from marketing expenses related to the launch of the new products at the end of 2008 and additional headcount.

General and administrative expenses. General and administrative expenses were $3.6 million for the year ended December 31, 2009, including $519,000 of non-cash stock-based compensation, as compared to $3.2 million for the year ended December 31, 2008, which included $481,000 of non-cash stock-based compensation. This increase resulted primarily from costs associated with expenses related to salaries, an increase in legal fees, and expenses related to registration statements.

Financial expenses (income), net. Net financial income was $45,000 for the year ended December 31, 2009, as compared to net financial income of $5.5 million for the year ended December 31, 2008. Financial income in 2008 included $5.6 million related to the reversal of impairment of marketable securities.

B. LIQUIDITY AND CAPITAL RESOURCES

Since our inception, we have generated significant losses and expect to continue to generate losses for the foreseeable future. We are addressing liquidity issues by implementing initiatives to allow our anticipated budget deficit for 2011 to be covered. In the event that we do not raise sufficient funds to support our current operations in the next few months, we intend to take cost reduction measures that may reduce our research and development activities and potentially our manpower until additional funding can be raised. Such initiatives may also include monetizing certain assets (such as our shares in Rosetta Green, subject to certain limitations and restrictions imposed upon us). As a result of such measures, we believe we will have sufficient resources to continue as a going concern beyond December 31, 2011.

As of December 31, 2010, we had an accumulated deficit of $76.2 million. We have funded our operations primarily through the proceeds from the sales of our equity securities. Through December 31, 2010, we had received aggregate gross proceeds of approximately $76 million from the sales of our equity securities. As of December 31, 2010, we had cash, cash equivalents, short-term bank deposit and marketable securities of $3.3 million, compared to $10.3 million (out of which approximately $1.1 million was classified as restricted cash) as of December 31, 2009. In addition, in February 2011, we received aggregate net proceeds of approximately $5.5 million from the 2011 PIPE and 2011 registered offering. See "Item 5. Operating and Financial Review and Prospects • Overview" for a description of the 2011 PIPE and 2011 registered offering.

Cash Flows

Net cash used in operating activities. Net cash used in operating activities was $13.7 million in 2010, compared to $11.8 million in 2009 and $11.9 million in 2008. These amounts were used to fund our net losses for these periods, adjusted for non-cash expenses and changes in operating assets and liabilities. In 2008, the net cash used in operating activities included the reversal of impairment of the ARS securities of $5.6 million. Net cash used in operating activities from discontinued operations in 2010 was $0 compared to net cash provided by operating activities from discontinued operations in 2009 of $458,000 and compared to net cash used in operating activities from discontinued operations of $26,000 in 2008.

Net cash provided by investing activities. Net cash provided by investing activities was $6.1 million in 2010, compared to net cash used in investing activities of $5.2 million in 2009 and net cash provided by investing activities of $11.4 million in 2008. Net cash provided by investing activities in 2010 is primarily from the decrease in bank deposits and restricted cash and sales net of purchases of marketable securities, net of purchase of property and equipment. Net cash used in investing activities in 2009 is primarily from the purchase of marketable securities. Net cash provided by investing activities in 2008 is primarily from sales net of purchases of marketable securities, including the ARS. Net cash used in investing activities from discontinued operations in 2010 was $0 compared to $12,000 in 2009 and $2.1 million in 2008.

Net cash provided by financing activities. Net cash provided by financing activities was $7.0 million in 2010, compared to $6.4 million in 2009 and $804,000 in 2008. In 2010, net cash provided from financing activities consisted primarily from proceeds from the issuance of shares and warrants. In 2009, net cash provided from financing activities consisted primarily from proceeds from the issuance of shares and the issuance of convertible loan. In 2008, net cash provided from financing activities consisted primarily from proceeds from the issuance of convertible loan. Net cash provided by financing activities from discontinued operations in 2010 was $0 compared to $24,000 in 2009 and $25,000 in 2008.

Funding Requirements

We expect to incur continuing and increasing losses from operations for at least the next several years. In particular, we expect to incur significant research and development expenses, marketing and business development expenses and general and administrative expenses in the future as we expand our operations and product development efforts and continue operating as a public company. Based on our current operations, our existing cash, cash equivalents (including the net proceeds we received in February 2011 from the 2011 PIPE and 2011 registered offering), short term bank deposits and marketable securities, and funding we expect to receive under our current collaboration and license agreements will be sufficient to fund our operations until mid-November, 2011. We are, however, implementing initiatives to allow the anticipated budget deficit for 2011 to be covered, but will require significant additional funding to continue operations after 2011. Our funding requirements may change and will depend upon numerous factors, including but not limited to:

- progress in our research and development programs;
- the resources, time and costs required to initiate and complete development and any required preclinical studies and clinical trials, and obtain regulatory approvals for our products;
- the timing, receipt, and amount of milestone, royalty and other payments from present and future collaborators, if any;
- costs necessary to protect our intellectual property; and
- the timing, receipt and amount of sales, if any, by us of any approved products.

We will require substantial additional funding and expect to augment our cash balance through financing transactions, including the issuance of debt or equity securities and further strategic collaborations. On November 12, 2009, we filed a shelf registration statement on Form F-3 with the SEC for the issuance of ordinary shares, various series of debt securities and/or warrants to purchase any of such securities, either individually or in units, with a total value of up to $75 million, from time to time at prices and on terms to be determined at the time of such offerings. The filing was declared effective on November 24, 2009. After taking into account the 2,530,000 ordinary shares and warrants to purchase up to 1,265,000 ordinary shares we issued in the 2010 registered offering and the 5,458,671 ordinary shares and warrants to purchase up to 2,729,335 ordinary shares we issued in the 2011 registered offering, we have approximately $61.3 million of securities remaining available for sale under our effective shelf registration statement, although we may be limited by the rules and regulations of the SEC and the NASDAQ Stock Market in the amount of securities we may offer under this registration statement. Furthermore, the terms of the February 2011 private placement restrict us from conducting an equity financing until April 22, 2011, and the terms of the February 2011 concurrent registered offering restrict us from conducting an equity financing until April 24, 2011 (60 days following the closing date of such offering). No arrangements have been entered into for any future financing, and there can be no assurance that we will be able to obtain adequate levels of additional funding on favorable terms, if at all. If adequate funds are not available, we may be required to:

- delay, reduce the scope of or eliminate certain research and development programs;
- obtain funds through arrangements with collaborators or others on terms unfavorable to us or that may require us to relinquish rights to certain technologies or products that we might otherwise seek to develop or commercialize independently;
- monetizing certain of our assets; or
- pursue merger or acquisition strategies.

C. RESEARCH AND DEVELOPMENT, PATENTS AND LICENSES, ETC.

Our research and development expenditures were $6.5 million, $6.6 million and $8.7 million, in the years ended December 31, 2010, 2009 and 2008, respectively. See also “Item 5. Operating and Financial Review and Prospects - Financial Operations Overview - Research and Development Expenses.”

D. TREND INFORMATION

See “Item 5. Operating and Financial Review and Prospects.”

E. OFF-BALANCE SHEET ARRANGEMENTS

We are not party to any material off-balance-sheet arrangements.

F. TABULAR DISCLOSURE OF CONTRACTUAL OBLIGATIONS

Set forth below is a description of our contractual cash obligations as of December 31, 2010. Operating and capital lease obligations consist of rent payable under our existing facility leases and lease payments for company automobiles and equipment. Other long-term obligations consist of cash obligations under various license agreements.

(In thousands)	Total	2011	2012	2013	2014	2015	Thereafter
Operating and capital lease obligations	$ 1,835	$ 703	$ 596	$ 536	$ -	$ -	$ -
Other long-term liabilities	$ 4,606	$ 225	$ 250	$ 250	$ 250	$ 250	$ 3,381

Under our license agreements as of December 31, 2010, we are obligated to pay an aggregate amount of approximately $250,000 annually after 2016 and until 2022, $190,000 annually after 2022 and until 2029 and $100,000 annually after 2029 and until 2032. Each of these agreements terminates upon the expiration of all patents relating to such agreement, including patents to be filed and potentially issued at an indeterminable date in the future, and, thus, such termination dates cannot be determined at this time. Accordingly, we are also unable to determine the aggregate amount of such payments due after 2013 at this time. However, based on current facts and circumstances, we estimate that our obligations under these agreements will be through at least 2032. See “Item 4. Information on the Company” for more information on our contractual obligations.

The above table does not include obligations for accrued severance pay, which as of December 31, 2010 was $169,000, of which $128,000 was funded through deposits into severance pay funds, leaving a net obligation of $41,000.

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

A. DIRECTORS AND SENIOR MANAGEMENT

The following table sets forth information regarding our corporate and executive officers and directors:

Name	Age	Position
Kenneth A. Berlin	46	Chief Executive Officer and President
Ranit Aharonov, Ph.D.	41	Executive Vice President, R&D, Head of Computational Biology
Ayelet Chajut, Ph.D .	48	Executive Vice President, R&D, Head of Molecular Biology
Keren Givli	32	Interim Vice President, Finance
Tami Fishman Jutkowitz	35	General Counsel
Tina Edmonston, M.D.	45	Medical Director, Director of Clinical Laboratory
Tzipora Shoshani Kupitz, Ph.D.	46	Senior Director, Intellectual Property
Racheli Vizman	30	Senior Director of Regulatory Affairs and Quality Assurance
Yoav Chelouche(2)(3)	57	Chairman of the Board
Isaac Bentwich, M.D.	49	Director
Prof. Moshe Many, M.D.(1)	82	Director
Dr. David Sidransky M.D.	50	Director
Joshua Rosensweig, Ph.D.	58	Director
Brian Markison	51	Director
Gerald Dogon(1)(2)(3)	71	External Director
Tali Yaron-Eldar(1)(2)	47	External Director

(1) Member of our Audit Committee

(2) Member of our Compensation Committee

(3) Member of our Nominating and Corporate Governance Committee

Kenneth A. Berlin joined us in November 2009 as our President and Chief Executive Officer. He was later appointed by our shareholders in December 2009 as a member of our board of directors, and resigned as a director in March 2011. Prior to joining us, Mr. Berlin, served as Worldwide General Manager at cellular and molecular cancer diagnostics developer Veridex, LLC, a Johnson & Johnson company. Under his leadership the organization grew to over 100 employees, and he spearheaded the launch of three cancer diagnostic products, the acquisition of its cellular diagnostics partner, and delivered significant growth in sales as Veridex transitioned from a research and development entity to a commercial provider of oncology diagnostic products and services. During Mr. Berlin's tenure, Veridex received numerous awards including recognition from the Cleveland Clinic and Prix Galien for the use of its innovative CellSearch® technology in the fight against cancer. Mr. Berlin joined Johnson & Johnson in 1994 and served as corporate counsel for six years. He then held positions of increasing responsibility within Johnson & Johnson and a number of its subsidiary companies. From 2001 until 2004, he served as Vice President, licensing and new business development in the pharmaceuticals group, and from 2004 until 2007 was Worldwide Vice President, franchise development, Ortho-Clinical Diagnostics. Mr. Berlin holds an A.B. degree from Princeton University and a J.D. from the University of California Los Angeles School of Law.

Ranit Aharonov, Ph.D. has served as our Executive Vice President, R&D, Head of Computational Biology since February 2008. Dr. Aharonov joined us in March 2003 and previously held other positions, including Executive Vice President of Intellectual Property and Computational Biology, Vice President of Research and Product Strategy, Vice President, Research and Director, Algorithms. Prior to joining us, from October 1998 until September 2002, Dr. Aharonov taught Neural Computation-related courses at the Hebrew University of Jerusalem. She is the author of 13 papers published in peer reviewed journals and the co-author of seven patents and 37 patent applications, and was an adjunct lecturer in Neural Network Theory and Applications at the Brain Science Institute of Bar-Ilan University. Dr. Aharonov earned her Ph.D. in Neural Computation from the Hebrew University in Jerusalem.

Ayelet Chajut, Ph.D. has served as our Executive Vice President, R&D, Head of Molecular Biology since February 2008. Dr. Chajut joined us on June 2006 and previously held several positions including Vice President of Genomics and Vice President of Therapeutics. Prior to joining us, from February 1999 until May 2005, Dr. Chajut held different positions at Quark Biotech, Inc., including Vice President of Research from March 2003 until May 2005. Dr. Chajut continued to serve as a general consultant to Quark Biotech, Inc. from May 2005 until December 2005. From May 2005 until April 2006, Dr. Chajut was the Director of Research and Development at Quantomix. She is the author of a number of papers published in peer reviewed journals and the co-author of four patent applications. Dr. Chajut earned her Ph.D. in Molecular Biology of Lenti-viruses from the Department of Human Microbiology, Tel-Aviv University and did her Post Doctoral studies from 1994 through 1997 in the Department of Cell Research and Immunology, Faculty of Life Sciences, Tel-Aviv University.

Keren Givli has served as our Interim Vice President Finance since October 2010. Prior to that, Ms. Givli served as our Controller since January 2007. From December 2001 until January 2007, Ms. Givli was an associate in the accounting firm PriceWaterhouseCoopers. Ms. Givli received a B.A. in accounting and economics from the Hebrew University and is a Certified Public Accountant.

Tami Fishman Jutkowitz has served as our General Counsel since February 2006. Previous to joining us, she served as legal counsel to Applied Materials Ltd., the Israeli subsidiary of Applied Materials Inc. from December 2004 until February 2006. From August 2000 until December 2004, Ms. Jutkowitz was an associate in the law firm Tulchinsky Stern and Co. Ms. Jutkowitz has an LLB in law studies from the Bar Ilan University and an M.B.A. in finance from the Bar Ilan University.

Tina Edmonston M.D. joined Rosetta Genomics in July 2009 as our Medical Director, Director of Clinical Laboratory to direct the CLIA-certified Diagnostics Laboratory in Philadelphia, PA. Previously, she was the Director of Molecular Pathology at Thomas Jefferson University in Philadelphia, PA, from 2004 to 2009. She did residency training in Anatomic Pathology at the University of Regensburg, Germany, was a post-doctoral fellow at Thomas Jefferson University from 1996 to 1999, and is certified in Anatomic and Clinical Pathology by the American Board of Pathology, as well as in Molecular Genetic Pathology by the American Board of Pathology and the American Board of Medical Genetics after completing residency training at Thomas Jefferson University and fellowship training at the University of Pennsylvania. Dr. Edmonston is the author of more than 40 peer-reviewed publications. She holds an M.D. and a Dr. med. degree from Ludwig Maximilian University, Munich, Germany.

Tzipora Shoshani Kupitz, Ph.D. has served as our Senior Director, Intellectual Property, since September 2007. She is an Israeli licensed patent attorney. Prior to joining us, from January 2005 until October 2006, Dr. Shoshani Kupitz was a scientific advisor in Webb & Associates patents attorneys. From March 1999 until January 2004, Dr. Shoshani Kupitz was a project leader at Quark Biotech, Inc. She is the author of 18 papers published in peer reviewed journals. Dr. Shoshani Kupitz earned her Ph.D. in Genetics from the Department of Genetics, The Hebrew University in Jerusalem and did her Post Doctoral studies from 1995 to 1998 in the Laboratory of Cell Biology, National Cancer Institutes, National Institutes of Health, Maryland.

Racheli Vizman has served as our Senior Director of Regulatory Affairs & Quality Assurance since January 2008. Mrs. Vizman joined us in June 2007 and held the position of Quality Assurance Manager until January 2008. Prior to joining us, she was Quality Assurance Manager for Patho-Lab Diagnostics Ltd. from August 2004 to May 2007. Ms. Vizman holds a B.Sc. in Chemistry and Biotechnology Engineering from Ariel University Center of Samaria.

Yoav Chelouche has served as Chairman of our board of directors since April 2006, and as a member of our board of directors since 2003. Mr. Chelouche has over 20 years of experience in leadership and management within the high technology sector. Since 2001, Mr. Chelouche has been a managing partner of Aviv Venture, an Israel-based technology venture capital fund. From 1995 to 2001, he served as President and Chief Executive Officer of Scitex Corp., a leader in digital imaging and printing systems. From 1980 to 1995, he held several management positions at Scitex, including Vice President, Strategy and Business Development, Vice President Marketing and Vice President, Finance - Europe. Mr. Chelouche holds an M.B.A. from INSEAD, Fontainebleau, France and a B.A. in Economics and Statistics from Tel Aviv University, Israel.

Isaac Bentwich, M.D., our founder, has been a member of our board of directors since our inception in 2000. He also served as our Chief Executive Officer from inception to May 2005, as the Chairman of our board of directors from inception to April 2006 and as our Chief Architect from May 2005 to May 2009. Dr. Bentwich is a physician by training and an entrepreneur. Prior to founding Rosetta Genomics, Dr. Bentwich was Executive Vice President of Physician's Solutions at HBOC, now a part of McKesson Corporation, a healthcare services company. Dr. Bentwich joined HBOC in 1995, when it acquired Pegasus Medical Ltd., an Israeli medical-informatics company he founded and led. He is the co-author of 45 patent applications. Dr. Bentwich holds an M.D. from Ben-Gurion University of the Negev.

Professor Moshe Many, M.D., Ph.D. has served as a member of our board of directors since December 2003. A surgeon by training, Professor Many is the vice chairman of Teva Pharmaceutical Industries Board of Directors and has served as Chairman of the Research and Development Committee of Teva's board of directors since 1991. He formerly served as Chairman of Surgery and Chief of Urology at the Sheba Medical Center, after which he was appointed to serve as President of Tel Aviv University from 1983 through 1991. He now serves as President of Ashkelon Academic College. Professor Many holds an M.D. from the Geneva University, and a Ph.D. from Tufts University.

David Sidransky, M.D., has served as a member of our board of directors since December 22, 2009. Dr. Sidransky is a renowned oncologist and research scientist named and profiled by TIME magazine in 2001 as one of the top physicians and scientists in America, recognized for his work with early detection of cancer. He serves as Executive Officer of Biomerk, Inc. and as Director of the Head and Neck Cancer Research Program at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University. He is a Professor of Oncology, Otolaryngology, Cellular & Molecular Medicine, Urology, Genetics, and Pathology at John Hopkins University and Hospital. Dr. Sidransky has written over 400 peer-reviewed publications, and has contributed to more than 50 cancer reviews and chapters. Dr. Sidransky is a founder of a number of biotechnology companies and holds numerous biotechnology patents. He has been the recipient of many awards and honors, including the 1997 Sarstedt International prize from the German Society of Clinical Chemistry, 1998 Alton Ochsner Award Relating Smoking and Health by the American College of Chest Physicians and the 2004 Hinda Rosenthal Award presented by the American Association of Cancer Research. Dr. Sidransky has served as Vice Chairman of the Board of Directors, and presently is a director of ImClone. He serves on the board of directors of KV Pharmaceutical Co., Champions Biotechnology, Inc. and Morria Biopharmaceuticals Plc. and is Chairman of Tamir Biotechnology, Inc. (also known as Alfacell Corp.). He is serving and has served on scientific advisory boards of corporations and institutions, including Amgen, MedImmune, Roche and Veridex, LLC (a Johnson & Johnson diagnostic company), among others. In Addition, Dr. Sidransky served as Director of American Association for Cancer Research from 2005 to 2008. Dr. Sidransky received his B.A. from Brandeis University and his M.D. from the Baylor College of Medicine.

Joshua Rosensweig has served as a member of our board of directors since May 2004. Since November 2010, he has served as a member of the board of directors of *Bezeq Israel Telecommunication Corp. Ltd.* (Israel's leading communications group) and of *Alrov Real Estate and Hotels Ltd.*, a publicly-traded property development company. From September 2003 to September 2006, Dr. Rosensweig served as the Chairman of the Board of Directors of the First International Bank of Israel. From 1998 to July 2005, Dr. Rosensweig was a senior partner at Gornitzky and Co., a law firm where he specialized in international transactions and taxation. Dr. Rosensweig lectured at Bar-Ilan University, Law School from 1980 to 1995 and at Tel Aviv University, School of Business from 1983 to 1995. Dr. Rosensweig received his J.S.D. (International Taxation), and LL.M. (Taxation) from New York University Law School.

Brian Markison has served as a member of our board of directors since March 2011. Mr. Markison was appointed by our board of directors to fill the vacancy created by the resignation of Mr. Berlin. Mr. Markison's appointment is temporary and will be in effect until the next annual general meeting. Mr. Markison has been with King Pharmaceuticals since 2004 and led the company through its recently announced acquisition by Pfizer for $3.6 billion. Previously Mr. Markison was with Bristol-Myers Squibb from 1982 to 2004, where he served in various commercial and executive positions rising from an oncology sales representative to become President, BMS Oncology/Virology and Oncology Therapeutics Network. Mr. Markison serves on the board of directors of Immunomedics, Inc., where he is Lead Director and Compensation Committee Chair. He also serves on the board of directors for the Komen Foundation and on the Board of Trustees for the Pennington School. Mr. Markison received a B.S. from Iona College in New Rochelle, New York.

Gerald Dogon has served as a member of our board of directors since February 2007. From December 2004 to December 2006, Mr. Dogon served as a director and a member of the audit, investment and nomination committees of Scailex Corporation (previously Scitex Corporation). From October 2005 until it was acquired by PMC-Sierra, Inc. in May 2006, he served as a member of the board of directors of Passave, Inc., a semiconductor company. From 1999 to 2000, he served as a director and as chairman of the audit committee of Nogatech, Inc. Mr. Dogon also serves as a member of the board of directors of Fundtech Ltd. and has been a member of its audit and nominating committees since December 2007. From 1994 to 1998, Mr. Dogon served as Executive Vice President and Chief Financial Officer of DSPC Inc., and in addition, from November 1997 until December 1999, as a member of its board of directors. Mr. Dogon holds a B.A. in Economics from the University of Cape Town.

Tali Yaron-Eldar has served as a member of our board of directors since February 2007. Since March 2007, Ms. Yaron-Eldar has been a partner with the law firm of Tadmor & Co. From January 2004 to March 2007, she was a partner at the law firm of Cohen, Yaron-Eldar & Co. From January 2004 to January 2008, Ms. Yaron-Eldar served as the Chief Executive Officer of Arazim Investment Company She has also served in a variety of public positions, including as the Chief Legal Advisor of the Customs and V.A.T department of the Finance Ministry of the State of Israel from 1998 to 2001 and as the Commissioner of Income Tax and Real Property Tax Authority of the State of Israel from 2002 to 2004. Ms. Yaron-Eldar holds an M.B.A. specializing in finance and an LL.M. from Tel Aviv University and is a member of the Israeli Bar Association.

B. COMPENSATION

Executive Officers' Remuneration

The aggregate direct compensation we paid to our corporate and executive officers as a group (twelve persons) for the year ended December 31, 2010 was approximately $1,752,000 of which approximately $138,000 was set aside or accrued to provide for pension, retirement, severance or similar benefits. These amounts do not include expenses we incurred for other payments, including dues for professional and business associations, business travel and other expenses, and other benefits commonly reimbursed or paid by companies in Israel. In 2010, we paid bonuses to seven of our executive officer in an aggregate amount of $243,000 for performance during 2009 and in 2010 we paid a bonus to one of our executive officers in the amount of $250,000 for performance during 2010. As of the filing of this Annual Report on Form 20-F bonuses for 2010 had been paid to only the one employee. Other employee's bonuses had not yet been determined or awarded. During 2010, we granted to several of our executive officers:

- options to purchase an aggregate amount of 104,500 ordinary shares, at an exercise price of $1.4 per share with an expiration date of October 25, 2020, of which none were vested as of December 31, 2010; and

- options to purchase 25,000 ordinary shares, at an exercise price of $2.12 per share with an expiration date of March 23, 2020, of which none were vested as of December 31, 2010.

Directors' Remuneration

Under the directors' compensation package approved by our board of directors and shareholders (at its meeting held on July 12, 2006), as of our initial public offering, (i) each member of the board of directors, apart from our Chairman, Yoav Chelouche, is entitled to receive an annual fee of $10,000, payable in equal quarterly installments (ii) each member of our board of directors, other than the external directors, who serve on board committees receives an additional annual fee of $10,000, payable in equal quarterly installments.

At the annual shareholders meeting held on December 22, 2009, our shareholders resolved to amend our agreement with Mr. Chelouche pursuant to which he serves as Chairman of our board of directors, to denominate Mr. Chelouche’s monthly compensation in new Israeli Shekels, and to set the amount at NIS 32,600, (which is equal to $7,000 times 4.66, which was the NIS/dollar exchange rate on July 12, 2006, the day of the initial shareholder approval of the chairmanship agreement).

The Companies Law and the regulations promulgated pursuant thereto governing the terms of compensation payable to external directors require that external directors receive annual payment as well as payment for participation in meetings as set forth in the regulations, and further provides that such remuneration may generally be determined relative to that of "other directors" (as such term is defined in the Companies Law). Due to a clerical error, the above-mentioned company approval excluded external directors from receiving the participation fee, which should have been identical to the compensation payable to the other directors.

In compliance with the Companies Law and the regulations promulgated thereunder, our audit committee, our board of directors and our shareholders (at its meeting held on July 14, 2010) resolved to (i) ratify and approve the payments made by us to the external directors over the three years prior to such meeting as participation remuneration in an amount of $10,000 annually and (ii) amend the remuneration and benefits of the external directors so that each external director shall be entitled to an annual fee of NIS 40,000 and to an additional participation fee of NIS 2,800 per meeting. According to the Companies Law, an external director shall be entitled to 60% of the participation fee in the event that such external director participates in a meeting by means of communication and to 50% of the participation fee in the event a resolution is adopted by the board of directors or a board committee on which such external director serves as a member, without a meeting.

In addition, it was resolved that, in the event that during their term as external directors we increase the remuneration payable, whether by way of annual compensation or on a per meeting basis, to any "other directors", each external director will be entitled, to receive additional remuneration, if necessary, so that his or her annual compensation and/or compensation for participation in meetings, as the case may be, will be equivalent to the average compensation payable to such "other directors" as annual compensation or as compensation for participation in meetings, respectively.

We paid an aggregate of $88,000 in direct compensation to our directors other than our Chairman, Yoav Chelouche, for their services as directors for the year ended December 31, 2010. We paid $99,000 to Mr. Chelouche in 2010 for services rendered in 2010 as the Chairman of our board of directors.

As of December 31, 2010, there were outstanding options to purchase 1,654,158 ordinary shares that were granted to our 17 directors and officers, at a weighted average exercise price of $2.71 per share.

C. BOARD PRACTICES

We are incorporated in Israel, and, therefore, subject to various corporate governance practices under Israeli law relating to such matters as external directors, independent directors, the audit committee and the internal auditor. These matters are in addition to the requirements of The NASDAQ Capital Market and other relevant provisions of U.S. securities laws. Under The NASDAQ Capital Market rules, a foreign private issuer may generally follow its home country rules of corporate governance in lieu of the comparable NASDAQ Captial Market requirements, except for certain matters such as composition and responsibilities of the audit committee and the independence of its members. For U.S. domestic companies, NASDAQ Captial Market rules specify that the board of directors must contain a majority of independent directors within 12 months of its initial public offering. We currently comply with this requirement as well as the committee composition and responsibility requirements with respect to our audit committee and our other committees. In addition, under the Companies Law, we are required to appoint at least two external directors. Gerald Dogon and Tali Yaron-Eldar were appointed as our external directors, each of whom is also independent under the rules of The NASDAQ Capital Market. The initial appointment of Mr. Dogon and Ms. Yaron-Eldar was approved by our shareholders at an extraordinary general meeting held on May 30, 2007 which term expired on May 29, 2010.They were then re-elected on July 14, 2010, and their terms expire on July 13, 2013.

Board of Directors

Our board of directors currently consists of eight directors, including two external directors. Our directors, apart from the external directors, are elected by a vote of the holders of a majority of the voting power represented at a meeting of our shareholders and voting on the election of directors. Our Articles of Association (the "Articles") provide that we may have no less than two and up to 11 directors.

In accordance with our Articles, our board of directors, apart from our external directors, is divided into three classes of directors, with one class being elected each year for a term of approximately three years. At each annual general meeting of shareholders, the successors to directors whose term then expires will be elected to serve from the time of election and qualification until the third annual meeting of shareholders following election. Our directors are divided among the three classes as follows:

- the Class I director is Yoav Chelouche and his term expires at the annual general meeting of shareholders to be held in 2011;
- the Class II directors are Dr. David Sidransky and Dr. Joshua Rosensweig, and their terms expire at the annual general meeting of shareholders to be held in 2012; and
- the Class III directors are Prof. Moshe Many and Dr. Isaac Bentwich, and their terms expire at the annual general meeting of shareholders to be held in 2013.

The approval of at least 75% of the voting rights represented at a general meeting is generally required to remove any of our directors from office, elect directors in their stead or fill any vacancy created in our board of directors. In addition, vacancies on the board of directors, other than vacancies created by an external director, may be filled by a vote of a majority of the directors then in office. Our board of directors may also appoint additional directors up to the maximum number permitted under our Articles. See "• External Directors" below for a description of the procedure for election of external directors.

In addition, our two external directors, Gerald Dogon and Tali Yaron-Eldar, were initially appointed by our shareholders on May 30, 2007 and were then re-elected on July 14, 2010 for three-year terms, and their terms expire on July 13, 2013. See "External Directors" below.

Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors.

Our Articles provide, as allowed by Israeli law, that any director may, by written notice to us, appoint another person to serve as an alternate director (subject to the consent of the board of directors) and may cancel such appointment. Unless the appointing director limits such appointment to a specified period of time or restricts it to a specified meeting or action of the board of directors, or otherwise restricts its scope, the appointment shall be for all purposes and for a period of time concurrent with the term of the appointing director. Currently, no alternative directors have been appointed. The Companies Law stipulates that a person not qualified to be appointed as a director, shall not be appointed and shall not serve as alternate director. In addition, a person who serves as a director shall not be appointed and shall not serve as an alternate director except under very limited circumstances. An alternate director has the same responsibilities as a director. Under the Companies Law, external directors cannot generally appoint alternate directors and a person who is not qualified to be appointed as an independent director may not be appointed as an alternate to an independent director.

External Directors

Qualifications of External Directors

Companies incorporated under the laws of the State of Israel whose shares are listed on a stock exchange, including The NASDAQ Capital Market, are required to appoint at least two external directors. We have appointed Gerald Dogon and Tali Yaron-Eldar, who qualify as external directors under the Companies Law. The initial appointment of our external directors was approved by our shareholders at an extraordinary general meeting held on May 30, 2007 , which term has expired on May 29, 2010. Our external directors were then re-elected on July 14, 2010. The Companies Law provides that a person may not be appointed as an external director if the person, or the person's relative, partner, employer or anyone to whom such person is directly or indirectly subordinate, or any entity under the person's control, has or had during or within the two years preceding the date of such person's appointment as an external director, any affiliation with the company to whose board of directors the external director is proposed to be appointed or with any entity controlling, or controlled by such company or by the entity controlling such company.

Under a recent amendment to the Companies Law (the "2011 Amendment"), effective as of May 6, 2011, in addition to the above qualifications, a person may not be appointed as an external director, (1) if such person is a relative of a controlling shareholder, or (2) if such person , or such person's relative, partner, employer, supervisor, or any entity such person controls, has or had, during or within the two years preceding the date of such person's appointment, any affiliation, to a relative of a controlling shareholder, or, if the company has no controlling shareholder or a shareholder holding more than 25% of the company's voting rights, any affiliation , at the time of the appointment, to the chairman of the board of directors, the chief executive officer, the most senior financial officer of the company, or to a shareholder holding 5% or more of the outstanding share capital of the company. Additionally, under the 2011 Amendment, a person may not generally serve as an external director if (a) such person or such person's relative, partner, employer or anyone to whom such person is directly or indirectly subordinate, or any entity under such person's control, has other than negligible business or professional relations, with any person or entity he or she should not be affiliated with, as aforesaid, or (b) such person received compensation, directly or indirectly, in connection with such person's services as an external director, other than as permitted under the Companies Law and the Regulations promulgated thereunder. The above additional qualifications shall apply to any new appointment or re-appointment of an external director.

The term "affiliation" includes:

- an employment relationship;
- a business or professional relationship maintained on a regular basis;
- control; as well as
- service as an office holder, excluding service as a director in a private company prior to the first offering of its shares to the public if such director was appointed as a director of the private company in order to serve as an external director following the public offering.

The term "office holder" is defined in the Companies Law as a director, managing director, chief executive officer, executive vice president, vice president, or any other person fulfilling or assuming any of the foregoing positions, without regard to such person's title and any other manager directly subordinate to the managing director.

No person can serve as an external director if the person's position or other business creates, or may create, a conflict of interest with the person's responsibilities as a director, or may otherwise interfere with the person's ability to serve as a director. If at the time an external director is appointed all current members of the board of directors are of the same gender, then that external director must be of the other gender. According to the 2011 Amendment, as of May 6, 2011, if at the time an external director is appointed all current members of the board of directors, who are not a controlling shareholder of such company or are not related to a controlling shareholder, are of the same gender, then that external director must be of the other gender.

Under the Companies Law, a person may only be appointed as an external director if he or she has professional qualifications or if he or she has accounting and financial expertise, provided that at least one of the external directors must have accounting and financial expertise. In addition, the board of directors of publicly traded companies, such as us, are required to make a determination as to the minimum number of directors who must have financial and accounting expertise in addition to the external director, based among other things, on the type and size of the company and the scope and complexity of its operations, and subject to the number of directors that may be appointed by the company as set forth in its articles of associations.

The conditions and criteria for possessing accounting and financial expertise or professional qualifications were determined in regulations promulgated by the Israeli Minister of Justice in consultation with the Israeli Securities Authority. The regulations mandate that a person is deemed to have "expertise in finance and accounting" if his or her education, experience and qualifications provide him or her with expertise and understanding in business matters – accounting and financial statements, in a way that allows him or her to understand, in depth, the company's financial statements and to encourage discussion about the manner in which the financial data is presented.

The company's board of directors must evaluate the proposed external director's expertise in finance and accounting, by considering, among other things, his or her education, experience and knowledge in the following: (i) accounting and auditing issues typical to the field in which the company operates and to companies of a size and complexity similar to such company; (ii) a company's external public accountant's duties and obligations; (iii) preparing company financial statements and their approval in accordance with the Companies Law and the Israeli Securities Law.

A director is deemed to be "professionally qualified" if he or she meets any of the following criteria: (i) has an academic degree in any of the following professions: economics, business administration, accounting, law or public administration; (ii) has a different academic degree or has completed higher education in a field that is the company's main field of operations, or a field relevant to his or her position; or (iii) has at least five years experience in any of the following, or has a total of five years experience in at least two of the following: (A) a senior position in the business management of a corporation with significant operations, (B) a senior public position or a senior position in public service, or (C) a senior position in the company's main field of operations. The board of directors here too must evaluate the proposed external director's "professional qualification" in accordance with the criteria set forth above. In addition, a person cannot serve as an external director if at the time such person serves as a non-external director of another company on whose board of directors a director of the reciprocal company serves as an external director; or if the person is an employee of the Israel Securities Authority or of an Israeli stock exchange.

The board of directors has determined that other than one external director no other directors are required to have financial and accounting expertise. Our board of directors further determined that our external director, Mr. Dogon, possesses the requisite financial and accounting expertise and that both of our external directors possess the requisite professional qualifications.

Until the lapse of two years from termination of office, a company may not appoint an external director as an office holder and cannot employ or receive services from that person for pay, either directly or indirectly, including through a corporation controlled by that person. Pursuant to the 2011 Amendment, as of May 6, 2011, a public company, its controlling shareholder and an entity controlled by such controlling shareholder, shall not grant any benefit, directly or indirectly, to any person who served as such public company's external director, his or her spouse or child, including, not appointing such person, his or her spouse or child, as an office holder in a public company or in an entity controlled by a controlling shareholder of such public company, and not employing or receiving professional services for pay, either directly or indirectly, including through a corporation controlled by such persons, from an external director or his or her spouse or child, all until the lapse of two years from termination of office with respect to the external director.

Election of External Directors

External directors are elected by a majority vote at a shareholders' meeting, provided that either:

- the majority includes at least one-third of the shares of non-controlling shareholders who are present, and voted on the matter of the election of the external director (disregarding abstentions); or
- the total number of shares of non-controlling shareholders that voted against the election of the external director does not exceed one percent of the aggregate voting rights in the company.

Pursuant to the 2011 Amendment, as of May 6, 2011, the majority vote required to appoint an external director needs to comply with one of the following:

- the majority includes at least a majority of the shares of shareholders who do not have a personal interest in the matter or of non-controlling shareholders, present and voting on the matter of the election of the external director (disregarding abstentions); or
- the total number of shares of shareholders who do not have a personal interest in the matter or are non-controlling shareholders, present and voting against the election of the external director does not exceed two percent of the aggregate voting rights in the company.

The initial term of an external director is three years and he or she may be reelected to one additional term of three years. Pursuant to the 2011 Amendment, as of May 6, 2011, an external director may be reelected (after his or her first tenure) to two additional terms of three years each, provided that with respect to the appointment for each such additional three-year tenure one of the following has occurred: (A) the reappointment of the external director has been proposed by one or more shareholders holding together one percent or more of the aggregate voting rights in the company and the appointment was approved at the general meeting of the shareholders by a simple majority, provided that: (i) in calculating the majority, votes of controlling shareholders or shareholders having a personal interest in the appointment (other than a personal interest which is not the result of an affiliation with the controlling shareholder) and abstentions are disregarded, and (ii) the total number of shares of shareholders who do not have a personal interest in the appointment (other than a personal interest which is not the result of an affiliation with the controlling shareholder) and/or who are not controlling shareholders, present and voting in favor of the appointment exceed two percent of the aggregate voting rights in the company, or (B) the reappointment of the external director has been proposed by the board of directors and the appointment was approved by the required majority for the initial appointment of an external director.

Under the regulations promulgated pursuant to the Companies Law, companies whose shares are listed for trading on specified exchanges outside of Israel, including the Nasdaq Global Market and the Nasdaq Global Select Market, but not including The NASDAQ Capital Market, may re-elect external directors, by the required majority, for additional periods of up to three years each, in each case provided that the audit committee and the board of directors confirm that, in light of the external director's expertise and special contribution to the work of the board of directors and its committees, the reelection for such additional period is beneficial to the company, and further provided that the period during which such external director has served as an external director and the reasons stated by the audit committee and the board of directors for reelection are disclosed to the shareholders at the shareholder's meeting prior to the vote on such reelection.

An external director cannot be removed from office unless: (i) the board of directors determines that the external director no longer meets the statutory requirements for holding the office, or that the external director is in breach of his or her duty of loyalty to the company, and the shareholders vote, by the same majority of shareholders as is required for his or her appointment, to remove the external director after the external director has been given the opportunity to present his or her position; (ii) a court determines, upon a request of a director or a shareholder, that the external director ceases to meet the statutory requirements for his or her appointment or that the external director is in breach of his or her fiduciary duties to the company; or (iii) a court determines, upon a request of the company or a director, shareholder or creditor of the company, that the external director is unable to fulfill his or her duty, or has been convicted of specified crimes. If an external directorship becomes vacant and the number of external directors serving in the company is less than two, then a company's board of directors is required under the Companies Law to call a shareholders' meeting immediately to appoint a new external director.

Each committee of a company's board of directors that has the right to exercise a power delegated by the board of directors is required to include at least one external director and the audit committee is required to include all of the external directors.

Pursuant to the Companies Law, a public company, such as us, may include in its articles of association a standard provision providing that a majority of its directors be independent directors or, if there is a controlling shareholder or a 25% or more shareholder, that at least one-third of its directors be independent directors. Although we did not include such a provision in its Articles, we believe that five of our current eight directors would qualify as independent directors under the Companies Law.

An external director is entitled to compensation only as provided in regulations adopted under the Companies Law and is otherwise prohibited from receiving any other compensation, directly or indirectly, in connection with services provided as an external director. For this matter, the term "compensation" shall not include the grant of an exemption, an undertaking to indemnify, indemnification or insurance.

Board Committees

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee.

Audit Committee

Under the listing requirements of The NASDAQ Capital Market, a foreign private issuer is required to maintain an audit committee that operates under a formal written charter and has certain responsibilities and authority, including being directly responsible for the appointment, compensation, retention and oversight of the work of the issuer's independent auditors. The members of the audit committee are required to meet the independence requirements established by the SEC in accordance with the requirements of the Sarbanes-Oxley Act. The rules of The NASDAQ Capital Market also require that at least one member of the audit committee be a financial expert. Our audit committee is comprised of three members and meets the listing requirements of The NASDAQ Capital Market and the SEC.

Under the Companies Law, the board of directors of a public company must establish an audit committee. The audit committee must consist of at least three directors and must include all of the company's external directors. The audit committee may not include the chairman of the board, any director employed by the company or providing services to the company on an ongoing basis, a controlling shareholder or any of a controlling shareholder's relatives.

Pursuant to the 2011 Amendment, as of September 7, 2011, the majority members of the audit committee must be independent directors. According to the 2011 Amendment, in order to qualify as an independent director the director must either be an external director or a director appointed or classified as such, who meets the same non-affiliation criteria as an external director, as such shall be determined by the audit committee and who has not served as a director of the company for more than nine consecutive years. For these purposes, ceasing to serve as a director for a period of two years or less would not be deemed to sever the consecutive nature of such director's service. An independent director may be removed from office in the same manner that an external director may be removed.

Pursuant to the 2011 Amendment, as of September 7, 2011, in addition to the above, a majority of the members of the audit committee must be independent directors. Additionally, the following may not be members of the audit committee (a) a director employed by or providing services on an ongoing basis to, a controlling shareholder or an entity controlled by such controlling shareholder, and (b) a director whose livelihood depends on the controlling shareholder. The 2011 Amendment further requires that as of September 7, 2011, (i) the chairperson of the audit committee be an external director, (ii) generally, any person who is not entitled to be a member of the audit committee may not attend the audit committees meetings, and (iii) that the quorum required for the convening of meetings of the audit committee and for adopting resolutions by the audit committee be a majority of the members of the audit committee provided that the majority of the members present are independent directors and at least one of them is an external director.

Our audit committee provides assistance to the board of directors in fulfilling its responsibility to our shareholders relating to our accounting, financial reporting practices, and the quality and integrity of our financial reports. The audit committee also oversees consultants and experts providing the company with consulting services concerning risk management and internal control structure, pre-approves the services performed by our independent accountants and oversees that management has established and maintains processes to assure compliance by the Company with all applicable laws, regulations and corporate policies. The audit committee also oversees and ensures the independence of our accountants . Under the Companies Law, the audit committee is also required to identify deficiencies in the administration of the company's business, including by consulting with the internal auditor or with the independent accountant, and recommending remedial actions with respect to such deficiencies, and is responsible for reviewing and deciding whether to approve certain related party transactions and certain transactions involving conflicts of interest. An audit committee may not approve such actions or transactions unless at the time of approval the two external directors were serving as members of the audit committee and at least one of them was present at the meeting at which the approval was granted.

Pursuant to the 2011 Amendment, as of May 6, 2011, the responsibilities of the audit committee shall also include, in general (i) with respect to certain actions involving conflicts of interest and with respect to certain related party transactions, to decide whether such actions are material actions and whether such transactions are extraordinary transactions, respectively, all for the purpose of approving such actions or transactions, (ii) the review of the internal auditor's work program, (iii) to examine the company's internal control structure and processes, the performance of the internal auditor and if the internal auditor has at his or her disposal the tools and resources required to perform his or her duties, considering, *inter alia*, the special needs of the company and its size; (iv) to examine the independent auditor's scope of work as well as the independent auditor's fees and to provide the corporate organ responsible for determining the independent auditor's fees with its recommendations. In addition, as of September 7, 2011, the audit committee shall also be responsible to provide for arrangements as to the manner in which the company shall deal with employee complaints with respect to deficiencies in the administration of the company's business and the protection to be provided to such employees.

Our written audit committee charter, a copy of which is available on the "Corporate Governance" section of our website, states that in fulfilling its role, the committee is entitled to meet with our management, our internal auditor and our independent public accountant.

Our audit committee consists of Gerald Dogon (Chairman), Prof. Moshe Many and Tali Yaron-Eldar. Our board of directors has determined that Mr. Dogon qualifies as an "audit committee financial expert" as defined under the rules and regulations of the SEC, applicable NASDAQ Capital Market rules and the Companies Regulations (Conditions and Criteria for Directors with Accounting and Financial Expertise and with Professional Qualifications) - 2005.

Compensation Committee

Our compensation committee reviews and provides our board of directors with recommendations relating to compensation and benefits of our officers and key employees and assists the board of directors with establishing, overseeing and/or administering incentive compensation and equity based plans. The compensation committee reviews corporate goals and objectives set by our board that are relevant to compensation of the Chief Executive Officer, evaluates the performance of the Chief Executive Officer in light of those goals and objectives, and recommends to the board of directors the Chief Executive Officer's compensation based on such evaluations, subject to additional approvals, to the extent required pursuant to the Companies Law. The compensation committee also reviews and make recommendations for approvals to the board of directors, subject to additional approvals, to the extent required pursuant to the Companies Law, with respect to the compensation of directors, executive officers other than the Chief Executive Officer and key employees. The compensation committee operates under a written compensation committee charter, a copy of which is available on the "Corporate Governance" section of our website. The members of our compensation committee are Yoav Chelouche (Chairman) Tali Yaron Eldar and Gerald Dogon. See Item 10.B – "Memorandum and Articles of Association • Directors and Officers Compensation" regarding a recent amendment to the Companies Law authorizing the Compensation Committee, under certain conditions, to approve certain compensation related transactions between a company and an office holder who is not a director in place of the audit committee.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee is responsible for making recommendations to the board of directors regarding candidates for directorships and the composition of our board of directors and its committees as well as to evaluate and consider matters relating to the qualifications of directors. In addition, the nominating and corporate governance committee is responsible for reviewing and reassessing our corporate governance guidelines and making recommendations to the board concerning governance matters. The nominating and corporate governance committee operates under a written charter, a copy of which is available on the "Corporate Governance" section of our website. The members of our nominating and corporate governance committee are Yoav Chelouche (Chairman) and Gerald Dogon. Our board of directors has determined that both members of our nominating and corporate governance committee are independent under the applicable NASDAQ Capital Market rules.

Pursuant to our Articles, nominations for the election of directors may be made by the board of directors or a committee appointed by the board of directors or by any shareholder holding at least 1% of the outstanding voting power in the Company. However, any such shareholder may nominate one or more persons for election as directors at a general meeting only if a written notice of such shareholder's intent to make such nomination or nominations has been delivered to us as required under our Articles.

Internal Auditor

Under the Companies Law, the board of directors must appoint an internal auditor recommended by the audit committee. On May, 7, 2007, we appointed Yardeni Gelfend as our internal auditor. The role of the internal auditor is to examine, among other things, whether a company's actions comply with applicable law and orderly business procedure. Under the Companies Law, the internal auditor may not be an interested party or an office holder, or a relative of an interested party or an office holder, nor may the internal auditor be the company's independent accountant or anyone on his behalf. An interested party is defined in the Companies Law as a holder of 5% or more of the Company's outstanding shares or voting rights, any person or entity who has the right to designate one director or more or the chief executive officer of the company or any person who serves as a director or as a chief executive officer. The internal auditor's tenure cannot be terminated without his or her consent, nor can he or she be suspended from such position unless the board of directors has so resolved after hearing the opinion of the audit committee and after giving him or her the opportunity to present his or her case to the board and to the audit committee.

Approval of Specified Related Party Transactions Under Israeli Law

See Item 10.B – "Memorandum and Articles of Association • Fiduciary Duties of Office Holders", "– Disclosure of Personal Interests of an Office Holder" and "•Transactions Requiring Special Approval" for a discussion of the requirements of Israeli law regarding the fiduciary duties of the office holders of the company, including directors and executive officers, and their duties to disclose any personal interest that such person may have and all related material information known to him or her relating to any existing or proposed transaction by the company, as well as transactions that require special approval.

D. EMPLOYEES

As of December 31, 2010, we had 54 employees who worked a four-day work week. We recently moved 21 of our employees back to a five-day work week. As of December 31, 2009 and 2008, we had 72 and 74 full-time employees, respectively. Of the 54 employees as of December 31, 2010, 42 were engaged in research and development and in our CLIA lab activities, and 12 were engaged in management, administration, business development, marketing and finance. Eight employees were located in the United States and 46 were located in Israel.

The Israeli labor laws govern the employment of employees located in Israel. These statutes cover a wide range of subjects and provide certain minimum employment standards including the length of the workday, minimum wage, hiring and dismissal procedures, determination of severance pay, annual leave, sick days and other terms of employment.

We contribute (usually following a trial period of three months) monthly amounts for the benefit and on behalf of all our employees located in Israel to a Managers Insurance plan and/or a Pension Plan. The severance pay liability of the company to its Israeli employees is based upon the number of years of employment and the latest monthly salary. Since our contributions to the Managers Insurance plan and/or the Pension Plan are made pursuant to section 14 of the Israeli Severance Pay Law (except with respect to two employees), our liability for severance pay is covered by our regular contributions to the Managers Insurance plan and the Pension Plan.

We have never experienced labor-related work stoppages and believe that our relations with our employees are good.

E. SHARE OWNERSHIP

The following table sets forth, as of March 1, 2011, the number of our ordinary shares beneficially owned by (i) each of our directors and corporate and executive officers and (ii) our current directors and corporate and executive officers as a group. The information in this table is based on 30,023,721 ordinary shares outstanding as of March 1, 2011. Beneficial ownership of shares is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power. Ordinary shares that are subject to convertible securities, warrants or options that are currently convertible or exercisable or convertible or exercisable within 60 days of March 1, 2011 are deemed to be outstanding and beneficially owned by the person holding the convertible securities, warrants or options for the purpose of computing the percentage ownership of that person, but are not treated as outstanding for the purpose of computing the percentage of any other person.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Outstanding Ordinary Shares
Kenneth A. Berlin (1)	549,553	1.8%
Ranit Aharonov, Ph.D. (2)	55,240	*
Ayelet Chajut, Ph.D. (3)	57,696	*
Tami Fishman Jutkowitz (4)	25,810	*
Keren Givli (5)	24,684	*
Tina Edmonston, M.D (6).	12,500	*
Tzipora Shoshani Kupitz, Ph.D. (7)	7,622	*
Racheli Vizman (8)	7,817	*
Yoav Chelouche (9)	238,786	*
Isaac Bentwich, M.D. (10)	1,472,690	4.9%
Prof. Moshe Many, M.D. (11)	46,522	*
Dr. David Sidransky (12)	17,463	*
Joshua Rosensweig (13)	157,849	*
Brian Markison	-	-
Gerald Dogon (14)	12,682	*
Tali Yaron-Eldar (15)	12,682	*
Ronen Tamir (16)	-	-
Dalia Cohen, Ph.D. (17)	37,461	*
Limor Zur-Stoller (18)	-	-
Current directors and executive officers as a group (16 persons) (19)	2,699,596	8.7%

* Represents beneficial ownership of less than 1% of ordinary shares.

(1) Consists of (i) 65,000 ordinary shares and (ii) options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 484,553 ordinary shares (which have an exercise price of $2.05 per share and expire in November 2019). Does not include the following options that become exercisable after April 30, 2011: options to purchase 515,447 shares (which have an exercise price of $2.05 per share and expire in November 2019).

(2) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 18,589 ordinary shares (which have an exercise price of $3.5 per share and expire in January 2016), 21,651 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018), and 15,000 ordinary shares (which have an exercise price of $1.4 per share and expire in October 2020). Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 9,849 shares (which have an exercise price of $4.16 per share and expire in June 2018), (ii) options to purchase 15,000 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(3) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 7,534 ordinary shares (which have an exercise price of $4.37 per share and expire in June 2016), 2,511 ordinary shares (which have an exercise price of $4.37 per share and expire in January 2017), 32,651 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018), 15,000 ordinary shares (which have an exercise price of $1.4 per share and expire in October 2020). Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 14,849 shares (which have an exercise price of $4.16 per share and expire in June 2018), and (ii) options to purchase 15,000 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(4) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 7,534 ordinary shares (which have an exercise price of $3.5 per share and expire in April 2016), 12,026 ordinary shares (which have an exercise price of $4.7 per share and expire in July 2018), 6,250 ordinary shares (which have an exercise price of $1.4 per share and expire in April 2020).Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 5,474 shares (which have an exercise price of $4.7 per share and expire in July 2018) and (ii) options to purchase 6,250 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(5) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 4,000 ordinary shares (which have an exercise price of $7.1 per share and expire in March 2017), 14,434 ordinary shares (which have an exercise price of $4.7 per share and expire in July 2018) and 6,250 shares (which have an exercise price of $1.4 per share and expire in October 2020).Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 6,566 shares (which have an exercise price of $4.7 per share and expire in July 2018), and (ii) options to purchase 6,250 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(6) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 6,250 ordinary shares (which have an exercise price of $2.12 per share and expire in March 2020) and 6,250 ordinary shares (which have an exercise price of $1.4 per share and expire in October 2020). Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 18,750 shares (which have an exercise price of $2.12 per share and expire in March 2020), and (ii) options to purchase 6,250 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(7) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 2,500 ordinary shares (which have an exercise price of $7.10 per share and expire in March 2017), 1,375 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018), 2,747 ordinary shares (which have an exercise price of $2.23 per share and expire in March 2019) and 1,000 ordinary shares (which have an exercise price of $1.4 per share and expire in October 2020). Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 625 shares (which have an exercise price of $4.16 per share and expire in June 2018), (ii) options to purchase 2,753 shares (which have an exercise price of $2.23 per share and expire in March 2019) and (iii) options to purchase 1,000 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(8) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 2,433 ordinary shares (which have an exercise price of $6 per share and expire in November 2017), 2,884 ordinary shares (which have an exercise price of $4.7 per share and expire in July 2018) and 2,500 ordinary shares (which have an exercise price of $1.4 per share and expire in October 2020).Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 567 shares (which have an exercise price of $6.00 per share and expire in November 2017) , (ii) options to purchase 1,316 shares (which have an exercise price of $4.70 per share and expire in July 2018), and (iii) options to purchase 2,500 shares (which have an exercise price of $1.4 per share and expire in October 2020).

(9) Consists of (i) 17,137 ordinary shares held by Yunsan Ltd., a company controlled by Mr. Chelouche, the chairman of our board of directors, (ii) 14,228 ordinary shares and (iii) options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 197,133 ordinary shares (which have an exercise price of $3.5 per share and expire in July 2016) and 10,288 ordinary shares (which have an exercise price of $0.00 per share and expire in April 2012).

(10) Consists of (i) 960,736 ordinary shares directly owned by Dr. Bentwich, (ii) 506,674 ordinary shares held by Harmonia 2000 and (iii) options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 5,280 ordinary shares (which have an exercise price of $1.65 per share and expire in December 2019). Harmonia 2000 is an Israeli non-profit association, of which Dr. Bentwich is one of seven members, and one of three members of its managing board. The members of Harmonia 2000's managing board control the securities held by Harmonia 2000, and Dr. Bentwich may therefore be deemed to beneficially own the securities owned by Harmonia 2000. Dr. Bentwich disclaims any beneficial ownership of the securities owned by Harmonia 2000.Does not include the following options that become exercisable after April 30, 2011: options to purchase 7,402 shares (which have an exercise price of $1.65 per share and expire in December 2019).

(11) Consists of (i) 26,932 ordinary shares held by Prof. Many and (ii) options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 6,908 ordinary shares (which have an exercise price of $3.50 per share and expire in July 2016) and 12,682 ordinary shares (which have an exercise price of $6.14 per share and expire in July 2016).

(12) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 12,183 ordinary shares (which have an exercise price of $5.70 per share and expire in January 2018) and 5,280 ordinary shares (which have an exercise price of $1.65 per share and expire in December 2019). Does not include the following options that become exercisable after April 30, 2011: (i) options to purchase 2,817 shares (which have an exercise price of $5.70 per share and expire in January 2018) and (ii) options to purchase 7,402 shares (which have an exercise price of $1.65 per share and expire in December 2019).

(13) Consists of (i) 138,259 ordinary shares held by Dr. Rosensweig and (ii) options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 6,908 ordinary shares (which have an exercise price of $3.50 per share and expire in July 2016) and 12,682 ordinary shares (which have an exercise price of $6.14 per share and expire in July 2016).

(14) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 12,682 ordinary shares (which have an exercise price of $8.80 per share and expire in March 2017).

(15) Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 12,682 ordinary shares (which have an exercise price of $8.80 per share and expire in March 2017).

(16) Mr. Tamir is our former Chief Commercialization Officer.

(17) Dr. Cohen is our former Chief Scientific Officer. Consists of options currently exercisable or exercisable within 60 days of March 1, 2011 to purchase 37,461 ordinary shares (which have an exercise price of $6.59 per share and expire in September 2012).

(18) Ms. Zur-Stoller is our former Vice President, Finance.

(19) See notes 1 through 15 above.

Employee Benefit Plans

2003 Israeli Share Option Plan

In March 2003, we adopted the Rosetta Genomics Ltd. 2003 Israeli Share Option Plan, or the 2003 Plan. The 2003 Plan provided for the grant of options to our directors, employees, consultants and service providers, and to the directors, employees, consultants and service providers of our subsidiaries and affiliates. Upon shareholder approval of the 2006 Global Share Incentive Plan, or 2006 Plan, in July 2006, the 2003 Plan was terminated and the 321,773 ordinary shares that were available for issuance under the 2003 Plan were transferred to the 2006 Plan. However, all outstanding options granted under the 2003 Plan remain outstanding and subject to the terms of the 2003 Plan. Any options that were granted under the 2003 plan and that are canceled are transferred to the 2006 Plan. As of March 1, 2011, options to purchase 152,618 ordinary shares have been granted and are still outstanding under the 2003 Plan and 367,945 shares have been issued pursuant to the exercise of options granted under the 2003 Plan.

2006 Global Share Incentive Plan

The 2006 Global Share Incentive Plan, or the 2006 Plan, was approved in July 2006. In November 2007, our board of directors approved an additional 500,000 shares under the 2006 Plan. In December 2009, our shareholders approved an additional 1,500,000 shares under the 2006 plan. As of March 1, 2011, there were 889,466 shares available for grant under the 2006 Plan, 77,664 shares have been issued pursuant to the exercise of options granted under the 2006 Plan and options to purchase 1,931,132 ordinary shares have been granted and are outstanding under the 2006 Plan. The 2006 Plan, and its appendices for grantees subject to U.S. taxation and grantees subject to Israeli taxation, provides for the grant of options to our directors, employees, consultants and office holders and those of our subsidiaries and affiliates.

Administration of Our Employee Benefit Plans

Our employee benefit plans are administered by our compensation committee, which makes recommendations to our board of directors regarding the grant of options and the terms of the grant, including, exercise price, method of payment, vesting schedule, acceleration of vesting and the other matters necessary in the administration of these plans. Options granted under the 2003 Plan and the 2006 Plan to eligible employees and office holders who are Israeli residents may be granted under Section 102(b)(2) of the Israel Income Tax Ordinance pursuant to which the options or the ordinary shares issued upon their exercise must be allocated or issued to a trustee and be held in trust for a minimum requisite period, which is currently two years from the date of grant. Under Section 102, any tax payable by an employee from the grant or exercise of the options is deferred until the transfer of the options or ordinary shares by the trustee to the employee or upon the sale of the options or ordinary shares and gains are generally subject to a capital gains tax of 25%, provided , however, that in accordance with Section 102(b)(3) of the Israel Income Tax Ordinance, if the exercise price of the options is lower than the average closing price of the shares in the 30 trading days preceding the grant, the difference between such average closing price and the exercise is taxed as ordinary employment income rates.

Options to be granted under the 2006 Plan to U.S. residents may qualify as incentive stock options within the meaning of Section 422 of the Code. The exercise price for incentive stock options must not be less than the fair market value on the date the option is granted, unless otherwise approved by our board of directors and shareholders, or 110% of the fair market value if the optionholder holds more than 10% of our share capital.

Options granted under our employee benefit plans generally vest over three or four years, and they generally expire ten years from the date of grant. If we terminate the employment or engagement of a participant under the 2006 Plan for cause, all of such participant's vested and unvested options expire immediately upon the date of such termination for cause unless specified otherwise in the award agreement. Upon termination of employment for any other reason, including due to death or disability of the participant, vested options may be exercised within three months of the date of termination, unless otherwise determined in the award agreement. Vested options not exercised within the prescribed period and options which have expired prior to vesting are available for future grants under the 2006 plan.

In the event of a change of control, or merger, consolidation, reorganization or similar transaction resulting in the acquisition of at least 50% of our voting power, or the sale of all or substantially all of our shares or assets, the options will be assumed or substituted by the acquiring entity, or if the if the acquiring party does not provide for such assumption or substitution, then the options shall be subject to acceleration.

ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

A. MAJOR SHAREHOLDERS

The following table sets forth, as of March 1, 2011, the number of ordinary shares beneficially owned by each person or entity known by us to be the beneficial owner of more than 5% of our outstanding ordinary shares. The information in this table is based on 30,023,721 ordinary shares outstanding as of March 1, 2011. Beneficial ownership of shares is determined in accordance with the rules of the SEC and generally includes any shares over which a person exercises sole or shared voting or investment power. Ordinary shares that are subject to convertible securities, warrants or options that are presently convertible or exercisable or convertible or exercisable within 60 days of March 1, 2011 are deemed to be outstanding and beneficially owned by the person holding the convertible securities, warrants or options for the purpose of computing the percentage ownership of that person, but are not treated as outstanding for the purpose of computing the percentage of any other person. None of the persons or entities that we know beneficially owns more than 5% of our outstanding ordinary shares, has different voting rights. Except as indicated in the footnotes to this table, each shareholder in the table has sole voting and investment power for the shares shown as beneficially owned by them.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Outstanding Ordinary Shares
Prometheus Laboratories Inc. (1)	1,890,100	6.3%
Becker Drapkin Management (2)	2,916,667	9.7%

(1) Based solely on a Schedule 13G filed by Prometheus with the SEC on February 14, 2011. Prometheus' address is 9410 Carroll Park Drive, San Diego, California 92121.

(2) Based solely on a Schedule 13G filed by Becker Drapkin with the SEC on February 24, 2011. Becker Drapkin's address is 300 Crescent Court, Suite 1111, Dallas, Texas 75201.

Our ordinary shares are traded on the NASDAQ Capital Market in the United States. A significant portion of our shares are held in street name, therefore we generally have no way of determining who our shareholders are, their geographical location or how many shares a particular shareholder owns.

Significant Changes in Share Ownership

The following table shows changes over the last three years in the percentage ownership by major shareholders:

Name of Beneficial Owner	Percentage of Outstanding Ordinary Shares Owned as of June 1, 2009	Percentage of Outstanding Ordinary Shares Owned as of March 1, 2010	Percentage of Outstanding Ordinary Shares Owned as of March 1, 2011
Isaac Bentwich, M.D.	11.7%	9.3%	4.9%
Prometheus Laboratories Inc. (1)	14.1%	11.9%	6.3%
Far West Capital Management (2)	6.0%	9.8%	-
Becker Drapkin Management (3)	-	-	9.7%

* Less than one percent.

(1) Percentage of outstanding shares owned as of June 1, 2009 and March 1, 2010 is based solely on a Schedule 13G filed with the SEC on May 4, 2009. Percentage of outstanding shares owned as of March 1, 2011 is based solely on a Schedule 13G filed with the SEC on February 14, 2011.

(2) Percentage of outstanding shares owned as of June 1, 2009 is based solely on a Schedule 13G filed with the SEC on May 18, 2009. Percentage of outstanding shares owned as of March 1, 2010 consists of (i) 1,343,014 ordinary shares reported as beneficially owned as of December 31, 2009 in a Schedule 13G filed by Far West Capital Management with the SEC on February 10, 2010 and (ii) 294,116 ordinary shares purchased in the 2010 registered direct offering.

(3) Percentage of outstanding shares owned as of March 1, 2011 is based solely on a Schedule 13G filed with the SEC on February 24, 2011.

Control of Registrant

To our knowledge, we are not directly or indirectly owned or controlled by another corporation, by any foreign government, or by any other natural or legal person. As of March 1, 2011, our officers and directors as a group beneficially owned 2,699,596 ordinary shares, or 8.7% of the then outstanding ordinary shares.

B. RELATED PARTY TRANSACTIONS

We have, from time to time, entered into agreements with our shareholders and affiliates. We describe these related party transactions entered into since January 1, 2009 below:

Exclusive Testing and Administrative Services Agreement with Teva Pharmaceutical Industries Ltd.

On December 24, 2008, we entered into an Exclusive Testing and Administrative Services Agreement with Teva Pharmaceutical Industries Ltd., pursuant to which Teva has the exclusive right to distribute our current diagnostic tests in Turkey and Israel. Prof. Moshe Many, M.D., Ph.D., one of our directors is the vice chairman of Teva Pharmaceutical Industries board of directors and has served as Chairman of the Research and Development Committee of Teva's board of directors since 1991. In 2010 and 2009, we received $23,000 and $24,000, respectively, under this agreement.

Exculpation, Indemnification and Insurance

Our Articles permit us to exculpate, indemnify and insure our directors and officers to the fullest extent permitted by the Companies Law. Our directors and officers are currently covered by a directors' and officers' liability policy. We have also resolved to provide directors and certain other office holders with indemnification from any liability for damages caused as a result of a breach of duty of care and to provide such directors and other office holders with an exemption, to the fullest extent permitted by law, all in accordance with and pursuant to the terms set forth in our standard indemnification undertaking.

C. INTERESTS OF EXPERTS AND COUNSEL

Not applicable.

ITEM 8. FINANCIAL INFORMATION

A. CONSOLIDATED STATEMENTS AND OTHER FINANCIAL INFORMATION

Consolidated Financial Statements

Our consolidated financial statements and related notes are included in this Annual Report beginning on page F-1. See also Item 18.

Legal Proceedings

On April 10, 2009, we entered into a license and collaboration agreement (the "License Agreement") with Prometheus Laboratories Inc., under which we agreed to exclusively license and sublicense to Prometheus certain rights related to our microRNA-based cancer diagnostic tests. We also agreed to collaborate with Prometheus in order to further develop the cancer diagnostic tests and to develop two new microRNA-based gastroenterology tests. On May 10, 2010, Prometheus initiated arbitration proceedings under the License Agreement in the International Court of Arbitration to resolve a dispute relating to the scope and funding of the development plan for the development program set forth in the License Agreement. On June 28, 2010, we responded to Prometheus' arbitration demand and filed counterclaims in the arbitration proceeding. On November 22, 2010, we and Prometheus entered into a Settlement Agreement and Mutual Release (the "Settlement Agreement") to resolve the various disputes between the parties relating to the License Agreement, the Laboratory Services Agreement, dated April 10, 2009 (the "Services Agreement"), and the Stock Purchase Agreement, dated April 10, 2009 (the "Stock Purchase Agreement"), including all claims relating to the arbitration proceeding. The material terms of the Settlement Agreement are as follows:

- The License Agreement and all licenses and commercialization rights granted thereunder, were terminated with the exception of the following sections, which survived termination: Sections 4.8 (Withholding Taxes), 6.1 (Confidentiality), 8 (Indemnification), 10 (Limitation of Liability), 11.2 (Arbitration – which has been amended to delete the reference to Section 11.1), 11.4 (Governing Law), 12.6 (Relationship of the Parties), 12.7 (Injunctive Relief), and 12.8 (Notices).

- The Services Agreement was terminated with the exception of the following sections, which survived termination: 4.2 (Records), 6 (Privacy; Confidentiality), 9 (Indemnities), 10 (Ownership), 11 (Insurance), 13 (Exclusions of Liability; Dispute Resolution), 14.1 (Notices), 14.2 (Independent Contractors), 14.3 (Assignment; Headings), and 14.8 (Governing Law; Counterparts).

- The Purchase Agreement was amended as follows: (a) Prometheus' rights under Sections 5.1 (Information and Inspection Rights), 5.2 (Pre-Emptive Rights), 5.3 (Board Observer Rights) and 5.10 (Tax Matters) have been terminated; and (b) the reference in Section 7.1(d)(i)(A) to "the second anniversary of the Closing Date" was changed to "May 1, 2012."

- In consideration of the termination of the licenses and the return of the commercialization rights under the License Agreement, we agreed to pay Prometheus $3.1 million as follows: (a) $1.2 million to be paid on December 2, 2010, (b) $500,000 to be paid on or before February 28, 2011, (c) $650,000 to be paid on or before November 22, 2011, and (d) $750,000 to be paid on or before May 22, 2012. Rosetta granted Prometheus a non-interest bearing note with respect to the $500,000 payment due on or before February 28, 2011 and a note bearing interest at 12% per year with respect to the $650,000 payment due on or before November, 22, 2011 and the $750,000 payment due on or before May 22, 2012.

- Each of the parties agreed to mutually release and discharge all claims which were made or could have been made in the arbitration proceeding, under the License Agreement, the Services Agreement and the Purchase Agreement, up to the date of the Settlement Agreement, and have dismissed the arbitration with prejudice.

See also Note 10m to our consolidated financial statements beginning on page F-1.

Dividend Policy

To date, we have not declared or paid cash dividends on any of our shares, and we have no current intention of paying any cash dividends in the near future.

The Companies Law also restricts our ability to declare dividends. We can only distribute dividends from profits (as defined in the Companies Law), or, if we do not meet the profits test, with court approval provided in each case that there is no reasonable concern that the dividend distribution will prevent the company from meeting its existing and foreseeable obligations as they come due. The payment of dividends may be subject to Israeli withholding taxes.

B. SIGNIFICANT CHANGES

See "Note 16. Subsequent Events" to our consolidated financial statements included in this Annual Report beginning on page F-1 for a discussion of significant events that have occurred since December 31, 2010.

ITEM 9. THE OFFER AND LISTING

A. OFFER AND LISTING DETAILS

Our ordinary shares began trading on The NASDAQ Global Market on February 27, 2007 under the symbol "ROSG." On June 30, 2010, we transferred the listing of our ordinary shares from The NASDAQ Global Market to The NASDAQ Capital Market. Prior to February 27, 2007, there was no established public trading market for our ordinary shares. The high and low sales prices per share of our ordinary shares for the periods indicated are set forth below:

Year Ended	High	Low
December 31, 2008	$ 6.25	$ 1.08
December 31, 2009	$ 3.80	$ 1.18
December 31, 2010	$ 3.48	$ 0.90

Quarter Ended	High	Low
March 31, 2009	$ 3.80	$ 1.18
June 30, 2009	$ 3.80	$ 2.69
September 30, 2009	$ 3.50	$ 2.26
December 31, 2009	$ 2.63	$ 1.65
March 31, 2010	$ 3.48	$ 1.59
June 30, 2010	$ 2.40	$ 1.55
September 30, 2010	$ 1.73	$ 0.93
December 31, 2010	$ 1.77	$ 0.90

Month Ended	High	Low
September 30, 2010	$ 1.50	$ 0.93
October 31, 2010	$ 1.77	$ 0.97
November 30, 2010	$ 1.43	$ 1.01
December 31, 2010	$ 1.17	$ 0.90
January 31, 2011	$ 1.03	$ 0.80
February 28, 2011	$ 0.89	$ 0.52

B. PLAN OF DISTRIBUTION

Not applicable.

C. MARKETS

Our ordinary shares are traded only in the United States on The NASDAQ Capital Market.

D. SELLING SHAREHOLDERS

Not applicable.

E. DILUTION

Not applicable.

F. EXPENSES OF THE ISSUE

Not applicable.

ITEM 10. ADDITIONAL INFORMATION

A. SHARE CAPITAL

Not applicable.

B. MEMORANDUM AND ARTICLES OF ASSOCIATION

Objects and Purposes

We were first registered under Israeli law on March 9, 2000. Our registration number with the Israel Registrar of Companies is 51-292138-8. The objective stated in Section 3 of our Articles is to carry on any business and perform any act which is not prohibited by law.

Fiduciary Duties of Office Holders

An "office holder" is defined in the Companies Law as a director, managing director, chief executive officer, executive vice president, vice president, or any other person fulfilling or assuming any of the foregoing positions, without regard to such person's title and any other manager directly subordinate to the managing director.

The Companies Law imposes a duty of care and a duty of loyalty on all office holders of a company. The duty of care requires an office holder to act with the standard of skills with which a reasonable office holder in the same position would have acted under the same circumstances. The duty of care includes a duty to use reasonable means to obtain:

- information regarding the business advisability of a given action brought for his or her approval or performed by him or her by virtue of his or her position; and
- all other information of importance pertaining to the aforesaid actions.

The duty of loyalty requires an office holder to act in good faith and for the benefit of the company and includes a duty to:

- refrain from any act involving a conflict of interest between the fulfillment of his or her role in the company and the fulfillment of any other role or his or her personal affairs;

- refrain from any activity that is competitive with the business of the company;
- refrain from exploiting any business opportunity of the company with the aim of obtaining a personal gain for himself or herself or others; and
- disclose to the company all information and provide it with all documents relating to the company's affairs which the office holder has obtained due to his position in the company.

Each person except for Tzipora Shoshani Kupitz, listed in the table under "Item 6 - Directors, Senior Management and Employees - A. Directors and Senior Management" is an office holder.

Disclosure of Personal Interests of an Officer Holder

The Companies Law requires that an office holder disclose to the company any personal interest that he or she may have, and all related material information and documents known to him or her, in connection with any existing or proposed transaction by the company. The disclosure is required to be made promptly and in any event, no later than the board of directors meeting in which the transaction is first discussed. "Personal interest", is defined by the Companies Law, as a personal interest of a person in an act or transaction of the company, including a personal interest of his relative or of a corporate body in which that person or a relative of that person is a holder of 5% or more of that corporate outstanding shares or voting rights, is a director or general manager, or in which he or she has the right to appoint at least one director or the general manager. "Personal interest" does not apply to a personal interest stemming merely from the fact that the office holder is also a shareholder in the company. Pursuant to the 2011 Amendment, as of May 6, 2011, the term "personal interest" shall also include the personal interest of a person voting under a proxy given by another person, even if such appointing person has no personal interest in the proposed act or transaction. In addition, according to the 2011 Amendment, the vote of a person voting under a proxy given by a person having a personal interest in the proposed act or transaction, even if the person voting under the proxy has no personal interest, shall be deemed as a vote made by a person having a personal interest in the proposed act or transaction. The Companies Law defines a "relative" as a spouse, sibling, parent, grandparent, descendent, spouse's descendant and the spouse of any of the foregoing. Pursuant to the 2011 Amendment, as of May 6, 2011, the term "relative" shall also include a sibling or a parent of a person's spouse or the spouse of any of the foregoing.

Notwithstanding the above, if the transaction is not an extraordinary transaction, the office holder is not required to disclose any personal interest that he or she has solely as a result of a personal interest of his or her relative in the transaction.

Transactions Requiring Special Approval

Under the Companies Law, an extraordinary transaction is a transaction:

- not in the ordinary course of business of the company;
- not on market terms; or
- likely to have a material impact on the company's profitability, assets or liabilities.

Under the Companies Law, certain transactions require special approvals, provided however that such transactions are not adverse to the company's interest. A transaction, between the company and an office holder, or a third party in which the office holder has a personal interest , must be approved by the board, subject to the provisions of applicable law and the company's articles of association. If the transaction is an extraordinary transaction, then it also must be approved by the audit committee, prior to the approval of the board of directors. Any engagement between a company and any one of its directors with respect to terms of office and/or employment by the company, including with respect to the grant of exculpation, indemnification or insurance of a director would generally require shareholder approval in addition to the approval of the audit committee and the board of directors. Generally, a director who has a personal interest in a matter which is considered at a meeting of the board of directors or the audit committee may not be present at this meeting or vote on this matter, unless a majority of the board of directors or the audit committee also has a personal interest in the transaction. If a majority of the directors have a personal interest in a transaction, shareholder approval is also required. Pursuant to the 2011 Amendment, as of May 6, 2011, generally, any person having a personal interest in the approval of a transaction may not attend the deliberations of the audit committee or the board of directors or participate in the vote on such transaction, provided however that an office holder having a personal interest in a transaction may be present in order to present such transaction, if the chairman of the audit committee or of the board of directors, as relevant, determined that such office holder is needed for such presentation. Under the Companies Law, the disclosure requirements which apply to an office holder also apply to a controlling shareholder of a public company. For these purposes, a controlling shareholder is any shareholder that has the ability to direct the activities of the company, including a shareholder holding 25% or more of the voting rights if no other shareholder owns more than 50% of the voting rights in the company, but excluding a shareholder whose power derives solely from his or her position on the board of directors or any other position with the company. If two or more shareholders are interested parties in the same transaction, their shareholdings are combined for the purposes of calculating percentages. Extraordinary transactions of a public company with a controlling shareholder or in which a controlling shareholder has a personal interest, as well as any engagement by a public company of a controlling shareholder or of such controlling shareholder's relative, if such person is also an office holder of such company - with respect to such person's terms of service and employment as an office holder, and if such person is an employee of the company but not an office holder with respect to such person's employment by the company, generally requires the approval of the audit committee, the board of directors and the shareholders of the company. If required shareholder approval must satisfy either of the following criteria:

- the majority of the votes for the approval includes the votes of at least one-third of the total votes of shareholders who are present at the meeting and who have no personal interest in the transaction; the votes of abstaining shareholders shall not be included in the number of the said total votes; or

- the total number of votes against the approval, among the shareholders who are present at the meeting and who have no personal interest in the transaction shall not exceed 1% of the aggregate voting rights in the company.

Pursuant to the 2011 Amendment, as of May 6, 2011, any engagement between a public company and a controlling shareholder or such controlling shareholder's relative, whether directly or indirectly, including through a company controlled by such person, with respect to the provision of services to the company, shall also require the approval procedure detailed above. In addition, as of such date, shareholder approval must satisfy either of the following criteria:

- the majority of the votes for the approval of the transaction includes the votes of at least a majority of the total votes of shareholders who are present at the meeting and who have no personal interest in the transaction; the votes of abstaining shareholders shall not be included in the number of the said total votes; or

- the total number of votes against the approval of the transaction, among the shareholders who are present at the meeting and who have no personal interest in the transaction shall not exceed 2% of the aggregate voting rights in the company.

According to the above amendment, transactions that are for a period of more than three years generally need to be brought for approval in accordance with the above procedure every three years.

Because we are presumed to be a controlling shareholder of Rosetta Green, any agreement or amendment to existing agreement between Rosetta Green and us will require approval in accordance with the above procedure.

In those circumstances in which shareholders approval is required, shareholders have the right to review any documents in the company's possession related to the proposed transaction. However, the company may prohibit a shareholder from reviewing the documents if the company believes the request was made in bad faith, the documents include trade secrets or patents or their disclosure could otherwise harm the company's interests.

For information concerning the direct and indirect personal interests of certain of our office holders and principal shareholders in certain transactions with us, see "Item 7 - Major Shareholders and Related Party Transactions - B. Related Party Transactions."

Directors' and Officers' Compensation

Under the Companies Law, all arrangements between a company and an office holder who is not a director, including as to compensation, and which are not deemed to be extraordinary transactions, require approval of the board of directors. Extraordinary transactions with, or exculpation, indemnification or insurance of, office holders who are not directors generally require approval of the audit committee and the board of directors. Arrangements as to compensation of directors, as well as exculpation, indemnification and insurance of directors, generally require the approval of the audit committee, the board of directors and the shareholders. Our compensation committee generally is required to approve the compensation of office holders.

Pursuant to the 2011 Amendment, as of May 6, 2011, any arrangement between a company and an office holder who is not a director as to such office holders' terms of office and employment, including, the grant of exculpation, indemnification and insurance, shall require prior to the approval of the board of directors, the approval of the audit committee or of a compensation committee provided that the compensation committee meets all of the requirements applicable to audit committees.

Directors Borrowing Powers

Our board of directors may from time to time, in its discretion, cause the Company to borrow or secure the payment of any sum or sums of money for the purposes of the Company.

Rights Attached to Our Shares

Dividend Rights. Our Articles provide that our board of directors may, subject to the applicable provisions of the Companies Law, from time to time, declare such dividend as may appear to the board of directors to be justified by the profits of the Company. Subject to the rights of the holders of shares with preferential or other special rights that may be authorized in the future, holders of ordinary shares are entitled to receive dividends according to their rights and interest in our profits. Dividends, to the extent declared, are distributed according to the proportion of the nominal value paid up on account of the shares held at the date so appointed by the Company, without regard to the premium paid in excess of the nominal value, if any. Under the Companies Law, a company may distribute a dividend only if the distribution does not create a reasonable concern that the company will be unable to meet its existing and anticipated obligations as they become due. A company may only distribute a dividend out of the company's profits, as defined under the Companies Law. If the company does not meet the profit requirement, a court may allow it to distribute a dividend, as long as the court is convinced that there is no reasonable concern that such distribution might prevent the company from being able to meet its existing and anticipated obligations as they become due.

Voting Rights. Holders of ordinary shares have one vote for each ordinary share held on all matters submitted to a vote of shareholders. These voting rights may be affected by the grant of any special voting rights to the holders of a class of shares with preferential rights that may be authorized in the future. The ordinary shares do not have cumulative voting rights in the election of directors. As a result, holders of ordinary shares that represent more than 50% of the voting power at the general meeting of shareholders, in person or by proxy, have the power to elect all the directors whose positions are being filled at that meeting to the exclusion of the remaining shareholders. With respect to the election of external directors see Item 6. "Directors and Senior Management" – Election of External Directors.

Liquidation Rights. In the event of our liquidation, subject to applicable law, after satisfaction of liabilities to creditors, our assets will be distributed to the holders of ordinary shares in proportion to their respective holdings. This liquidation right may be affected by the grant of preferential dividends or distribution rights to the holders of a class of shares with preferential rights that may be authorized in the future.

Redemption Provisions. We may, subject to applicable law and to our Articles, issue redeemable preference shares and redeem the same.

Capital Calls. Under our Articles and the Companies Law, the liability of our shareholders is limited to the nominal (par) value of the shares held by them.

Transfer of Shares. Fully paid ordinary shares are issued in registered form and may be transferred pursuant to our Articles, unless such transfer is restricted or prohibited by another instrument and subject to applicable securities laws.

Modification of Rights

Pursuant to our Articles, if at any time our share capital is divided into different classes of shares, the rights attached to any class, unless otherwise provided by our Articles , may be modified or abrogated by the Company, by a resolution of the shareholders, subject to the consent in writing of the holders of at least a majority of the issued shares of such class or the adoption of a resolution passed at a separate meeting of the holders of the shares of such class.

Shareholders' Meetings and Resolutions

Pursuant to our Articles, the quorum required for an ordinary meeting of shareholders consists of at least two shareholders present in person or by proxy, who hold shares conferring in the aggregate more than 25% of the voting power of the Company. A meeting adjourned for lack of a quorum generally is adjourned to the same day in the following week at the same time and place or any time and place as the chairman of the board may designate. At such reconvened meeting, the required quorum consists of any two shareholders present in person or by proxy.

Under the Companies Law, each shareholder of record will be provided at least 21 calendar days' prior notice of any general shareholders meeting or 35 days prior notice to the extent required under regulations promulgated under the Companies Law.

Under the Companies Law and our Articles, all resolutions of our shareholders require a simple majority of the shares present, in person or by proxy or by written ballot, and voting on the matter, subject to certain exceptions provided for in our Articles namely: (a) the amendment of the provisions of our Articles relating to the election of directors, which require the approval of the greater of (i) holders of not less than seventy-five percent (75%) of the voting power represented at a meeting in person or by proxy and voting thereon, or (ii) holders of a majority of the outstanding voting power of all shares of the Company voting on such matter at a general meeting; (b) the removal of any director from office, the election of a director in place of a director so removed or the filling of any vacancy, however created, on the board of directors, which require the vote of the holders of at least 75% of the voting power represented at the meeting; and (c) the consummation of a merger (as defined in the Companies Law) which requires the approval of the holders of at least a majority of the voting power of the Company.

Under the Companies Law, each and every shareholder has a duty to act in good faith and in customary manner in exercising his or her rights and fulfilling his or her obligations towards the company in which he or she holds shares and other shareholders, and refrain from abusing his or her power in the company, including in voting in the general meeting of shareholders on the following matters:

- any amendment to the articles of association;
- an increase of our authorized share capital;
- a merger; or
- approval of interested party transactions that require shareholder approval.

In addition, each and every shareholder has the general duty to refrain from discriminating against other shareholders. In addition, any controlling shareholder, any shareholder who knows that it possesses the power to determine the outcome of a shareholder or class vote and any shareholder who, pursuant to the company's articles of association has the power to appoint or prevent the appointment of an office holder in the company is under a duty to act with fairness towards the company. The Companies Law does not describe the substance of this duty of fairness.

Our annual general meetings are held once in every calendar year at such time (within a period of not more than fifteen months after the last preceding annual general meeting) and at such place determined by our board. All general meetings other than annual general meetings are called extraordinary general meetings.

Our board of directors may, in its discretion, convene additional meetings as "extraordinary general meetings." In addition, the board must convene an extraordinary general meeting upon the demand of two of the directors, one fourth of the directors in office, one or more shareholders having at least 5% of the outstanding share capital and at least 1% of the voting power in the company, or one or more shareholders having at least 5% of the voting power in the company. The chairperson of the board of directors shall preside at each of our general meetings. The chairperson of the board of directors is not entitled to a vote at a general meeting in his capacity as chairperson.

Limitation on Owning Securities

Our Articles and Israeli law do not restrict in any way the ownership or voting of ordinary shares by non-residents or persons who are not citizens of Israel, except with respect to subjects of nations which are in a state of war with Israel.

Mergers and Acquisitions and Tender Offers under Israeli Law

The Companies Law includes provisions that allow a merger transaction and requires that each company that is a party to a merger have the transaction approved by its board of directors and the majority of each party's shares (including the separate vote of each class of shares of the party to the merger which is not the surviving entity) voted on the proposed merger at a shareholders' meeting called on at least 35 days' prior notice. Under the Companies Law, merger transactions may be approved by holders of a simple majority of shares present, in person or by proxy, at a general meeting and voting on the transaction. In addition, under our Articles, approval of a merger transaction requires that holders of at least a majority of the voting power of the Company vote in favor of the merger transaction. In determining whether the required majority under the Companies Law has approved the merger, if shares of a company are held by the other party to the merger, or by any person holding 25% or more of the voting rights or 25% or more of the means of appointing directors of the other party to the merger, then a vote against the merger by holders of the majority of the shares present and voting, excluding shares held by the other party to the merger or by such person, or by any person or entity acting on behalf of either of them, including their relatives or entities controlled by any of them, is sufficient to reject the merger transaction. If the transaction would have been approved but for the separate approval of each class or exclusion of the votes of certain shareholders as provided above, a court may still approve the merger upon the request of holders of at least 25% of the voting rights of a company, if the court holds that the merger is fair and reasonable, taking into account the value of the parties to the merger and the consideration offered to the shareholders. Under the Companies Law, each merging company must inform its secured creditors of the proposed merger plans. Upon the request of a creditor of either party of the proposed merger, the court may delay or prevent the merger if it concludes that there exists a reasonable concern that as a result of the merger, the surviving company will be unable to satisfy the obligations of any of the parties to the merger and may further give instructions to secure the rights of creditors. In addition, a merger may not be completed unless at least 50 days have passed from the time that a proposal for the approval of the merger has been filed with the Israel Registrar of Companies and 30 days have passed from the time that the approval of the merging parties' shareholders has been received.

The Companies Law also provides that, subject to certain exceptions, an acquisition of shares of a public company must be made by means of a special tender offer if as a result of the acquisition the purchaser would become a holder of 25% or more of the voting rights in the company and there is no existing holder of 25% or more of the voting rights in the company. Similarly, the Companies Law provides that, subject to certain exceptions, an acquisition of shares in a public company must be made by means of a special tender offer if as a result of the acquisition the purchaser would become a holder of more than 45% of the voting rights in the company, if there is no other shareholder of the company that holds more than 45% of the voting rights in the company.

Under the Companies Law, a person may not acquire shares in a public company if following the acquisition of shares, the acquirer will hold 90% or more of the company's shares or of a class of shares, other than by means of a tender offer to acquire all of the shares of such class. If the shareholders who declined or do not respond to the tender offer hold 5% or less of the company's outstanding share capital or of the relevant class of shares, all the shares that the acquirer offered to purchase will be transferred to the acquirer by operation of law. Pursuant to the 2011 Amendment, as of May 6, 2011, in order for all of the shares that the acquirer offered to purchase be transferred to him by operation of law, one of the following needs to have occurred: (i) the shareholders who declined or do not respond to the tender offer hold 5% or less of the company's outstanding share capital or of the relevant class of shares and the majority of offerees who do not have a personal interest in accepting the tender offer accepted the offer, or (ii) the shareholders who declined or do not respond to the tender offer hold 2% or less of the company's outstanding share capital or of the relevant class of shares. A shareholder that had its shares so transferred, whether he or she accepted the tender offer or not, may, within three months from the date of acceptance of the tender offer, petition the court to determine that the tender offer was for less than fair value and that the fair value should be paid as determined by the court. Pursuant to the 2011 Amendment, as of May 6, 2011, such petition may generally be made within six months from the date of acceptance of the tender offer. If the dissenting shareholders hold more than 5% of the issued and outstanding share capital of the company (and pursuant to the 2011 Amendment, the majority of offerees who do not have a personal interest in accepting the tender offer rejected the offer), the acquirer may not acquire additional shares of the company from shareholders who accepted the tender offer to the extent that following such acquisition the acquirer would then own over 90% of the company's issued and outstanding share capital.

Pursuant to the 2011 Amendment, as of May 6, 2011, the above restriction shall apply, in addition to the acquisition of shares, to the acquisition of voting power.

C. MATERIAL CONTRACTS

Please see "Item 4. Information on the Company • B. Business Overview • Our Intellectual Property Strategy and Position • In-Licensed Intellectual Property" for a discussion of our material strategic alliances and research and license agreements. Please see "Item 7. Major Shareholders and Related Party Transactions• B. Related Party Transactions" for a discussion of other material contracts entered into other than in the ordinary course of business.

D. EXCHANGE CONTROLS

There are currently no exchange controls in effect in Israel that restrict the repatriation by non-residents of Israel in non-Israeli currency of any dividends, if any are declared and paid, and liquidation distributions.

E. TAXATION

ISRAELI TAX CONSIDERATIONS AND GOVERNMENT PROGRAMS

The following contains a description of material relevant provisions of the current Israeli income tax regime applicable to companies in Israel, with special reference to its effect on us. To the extent that the discussion is based on new tax legislation which has not been subject to judicial or administrative interpretation, we cannot assure you that the views expressed in the discussion will be accepted by the appropriate tax authorities or the courts.

This discussion does not address all of the tax consequences that may be relevant to purchasers of our ordinary shares in light of their particular circumstances or certain types of purchasers of our ordinary shares subject to special tax treatment. Examples of this kind of investor include residents of Israel and traders in securities who are subject to special tax regimes not covered in this discussion. Because individual circumstances may differ, you should consult your tax advisor to determine the applicability of the rules discussed below to you and the particular tax effects of the offer, including the application of Israeli or other tax laws. The discussion below is not intended, and should not be construed, as legal or professional tax advice and is not exhaustive of all possible tax considerations.

Taxation of Companies

General Corporate Tax Structure

Generally, Israeli companies are subject to "Corporate Tax" on their taxable income. On July 25, 2005, the Knesset (Israeli Parliament) approved the Law of the Amendment of the Income Tax Ordinance (No. 147), 2005, which prescribes, among others, a gradual decreased in the corporate tax rate in Israel to the following tax rates: in 2006 - 31%, in 2007 - 29%, in 2008 - 27%, in 2009 - 26% and in 2010 and thereafter - 25%. In July 2009, Israel's Parliament (the Knesset) passed the Economic Efficiency Law (Amended Legislation for Implementing the Economic Plan for 2009 and 2010), 2009, which prescribes, among other things, an additional gradual reduction in the Israeli corporate tax rate and real capital gains tax rate starting from 2011 to the following tax rates: 2011 - 24%, 2012 - 23%, 2013 - 22%, 2014 - 21%, 2015 - 20%, 2016 and thereafter - 18%. However, the effective tax rate payable by a company which derives income from an Approved Enterprise (as further discussed below) may be considerably less.

Tax Benefits for Research and Development

Israeli tax law allows, under specified conditions, a tax deduction for R&D expenditures, including capital expenditures, for the year in which they are incurred. These expenses must relate to scientific research and development projects and must be approved by the relevant Israeli government ministry, determined by the field of research. Furthermore, the research and development must be for the promotion of the company and carried out by or on behalf of the company seeking such tax deduction. However, the amount of such deductible expenses is reduced by the sum of any funds received through government grants for the finance of such scientific research and development projects. Expenditures not so approved are deductible over a three-year period.

Tax Benefits Under the Law for the Encouragement of Industry (Taxes), 1969

Under the Law for the Encouragement of Industry (Taxes), 1969, industrial companies, as defined under the law, are entitled to the following tax benefits, among others:

- Deduction of purchases of know-how and patents over an eight-year period for tax purposes;
- Right to elect, under specified conditions, to file a consolidated tax return with additional related Israeli Industrial Companies;
- Accelerated depreciation rates on equipment and buildings; and
- Deductions over a three-year period of expenses involved with the issuance and listing of shares on a stock market.

Eligibility for benefits under the Law for the Encouragement of Industry is not subject to receipt of prior approval from any governmental authority. Under the law, an "industrial company" is defined as a company resident in Israel, at least 90.0% of the income of which, in any tax year, determined in Israeli currency, exclusive of income from government loans, capital gains, interest and dividends, is derived from an "industrial enterprise" owned by it. An "industrial enterprise" is defined as an enterprise whose major activity in a given tax year is industrial production activity.

We believe that we currently qualify as an industrial company within the definition under the Law for the Encouragement of Industry. No assurance can be given that we will continue to qualify as an industrial company or that the benefits described above will be available in the future.

Special Provisions Relating to Taxation under Inflationary Conditions

According to the Income Tax law (Inflationary Adjustments), 1985, until 2007, the results for tax purposes were measured based on the changes in the Israeli CPI.

Starting 2008, the results for tax purposes are measured in nominal values, excluding certain adjustments for changes in the Israeli CPI carried out in the period up to December 31, 2007. The amendment to the law includes, inter alia, the elimination of the inflationary additions and deductions and the additional deduction for depreciation starting 2008.

Tax Benefits under the Law for the Encouragement of Capital Investments, 1959

The Company benefits from certain government programs and tax legislation, particularly as a result of the 'Approved Enterprise' or 'Benefiting Enterprise' status of substantially all of the Company's existing production facilities in Israel under the Law for the Encouragement of Capital Investment, 1959 (an "Approved Enterprise", a "Benefiting Enterprise" and the " "Investment Law" respectively) provides that a proposed capital investment in production facilities or other eligible facilities may be designated as an "Approved Enterprise." To obtain "Approved Enterprise" status, an application to the Investment Center of the Ministry of Industry and Trade (the "Investment Center") needs to be submitted. Each instrument of approval for an Approved Enterprise relates to a specific investment program that is defined both by the financial scope of the investment, including sources of funds, and by the physical characteristics of the facility or other assets.

The tax benefits available under any instrument of approval relate only to taxable profits attributable to the specific program and are contingent upon meeting the criteria set out in the instrument of approval. If a company has more than one approval or only a portion of its capital investments are approved, its effective tax rate is the weighted average of the applicable rates. Subject to certain qualifications, however, if a company with one or more approvals distributes dividends, the dividends are deemed attributable to the entire enterprise. As explained below, following the amendment of the Investment Law which became effective on April, 1, 2005, companies may receive tax benefits under the law without applying for an Approved Enterprise status.

The Investments Law also provides that an Approved Enterprise is entitled to accelerated depreciation on its property and equipment that are included in an Approved Enterprise program in the first five years of using the equipment.

Tax Benefits for Income from Approved Enterprises Approved Before April 1, 2005

Before April 1, 2005 an Approved Enterprise was entitled to either receive investment grants and certain tax benefits from the Government of Israel or an alternative package of tax benefits ("Alternative Benefits"). We have elected to forego the entitlement to grants and have applied for the Alternative Benefits, under which undistributed income that we generate from our Approved Enterprises will be completely tax exempt (a "tax exemption") for two years commencing from the year that we first produce taxable income and will be subject to a reduced tax rate of 10%-25% for an additional five to eight years, depending on the extent of foreign investment in the company.

Alternative Benefits are available until the earlier of (i) seven consecutive years, commencing in the year in which the specific Approved Enterprise first generates taxable income, (ii) 12 years from commencement of production and (iii) 14 years from the date of approval of the Approved Enterprise status.

Dividends paid out of income generated by an Approved Enterprise (or out of dividends received from a company whose income is generated by an Approved Enterprise) are generally subject to withholding tax at the rate of 15%. This tax is withheld at source by the Approved Enterprise. The 15% tax rate is limited to dividends and distributions out of income derived during the benefits period and actually paid at any time up to 12 years thereafter. Since we elected the Alternative Benefits track, we will be subject to pay corporate tax at the rate of 10% - 25% in respect of the gross amount of the dividend that we may distribute out of profits which were exempt from corporate tax in accordance with the provisions of the Alternative Benefits track. However, we are not obliged to attribute any part of dividends that we may distribute to exempt profits, and we may decide from which year's profits to declare dividends. We currently intend to reinvest any income that we may in the future derive from our Approved Enterprise programs and not to distribute the income as a dividend.

If we qualify as a "Foreign Investors' Company" or "FIC", our Approved Enterprises will be entitled to additional tax benefits. Subject to certain conditions, a FIC is a company with a level of foreign investment of more than 25%. The level of foreign investment is measured as the percentage of rights in the company (in terms of shares, rights to profits, voting and appointment of directors), and of combined share and loan capital, that are owned, directly or indirectly, by persons who are not residents of Israel. Such a company will be eligible for an extension of the period during which it is entitled to tax benefits under its Approved Enterprise status (so that the benefit periods may be up to ten years) and for further tax benefits if the level of foreign investment exceeds 49%. The tax rate for the remainder of the benefits period will be 25%, unless the level of foreign investment exceeds 49%, in which case the tax rate will be 20% if the foreign investment is more than 49% and less than 74%; 15% if more than 74% and less than 90%; and 10% if 90% or more. The benefits available to an Approved Enterprise are subject to the fulfillment of conditions stipulated in the Investment Law and its regulations and the criteria in the specific certificate of approval, as described above. If a company does not meet these conditions, it would be required to refund the amount of tax benefits, together with consumer price index linkage adjustment and interest.

Tax Benefits under an Amendment that became effective on April 1, 2005

On April 1, 2005, a significant amendment to the Investment Law became effective (the "2005 Amendment"). The Investment Law provides that terms and benefits included in any certificate of approval that was granted before the 2005 Amendment came into effect will remain subject to the provisions of the Investment Law as they were on the date of such approval.

The 2005 Amendment changed certain provisions of the Law. As a result of the 2005 Amendment, a company is no longer obliged to acquire Approved Enterprise status in order to receive the tax benefits previously available under the Alternative Benefits provisions, and therefore generally there is no need to apply to the Investment Center for this purpose (Approved Enterprise status remained mandatory for companies seeking grants). Rather, the company may claim the tax benefits offered by the Investments Law directly in its tax returns, provided that its facilities meet the criteria for tax benefits set out by the 2005 Amendment. A company is also granted a right to approach the Israeli Tax Authority for a pre-ruling regarding their eligibility for benefits under the 2005 Amendment.

Tax benefits are available under the Amendment to production facilities (or other eligible facilities), which are generally required to derive more than 25% of their business income from export (referred to as a "Benefited Enterprise"). In order to receive the tax benefits, the 2005 Amendment states that the company must make an investment which meets all the conditions set out in the 2005 Amendment for tax benefits and exceeds a minimum amount specified in the Investment Law. Such investment allows the company to receive a "Benefiting Enterprise" status, and may be made over a period of no more than three years ending at the end of the year in which the company requested to have the tax benefits apply to the Benefiting Enterprise (the "Year of Election"). Where the company requests to have the tax benefits apply to an expansion of existing facilities, only the expansion will be considered to be a Benefiting Enterprise and the company's effective tax rate will be the weighted average of the applicable rates. In this case, the minimum investment required in order to qualify as a Benefiting Enterprise is required to exceed a certain amount or certain percentage of the value of the company's production assets before the expansion.

The duration of tax benefits is subject to a limitation of the earlier of 7 (or 10 years) from the commencement year, or 12 years from the first day of the Year of Election. The tax benefits granted to a Benefiting Enterprise are determined, as applicable to its geographic location within Israel, according to one of the following new tax routes, which may be applicable to us:

- Similar to the previous Alternative Benefits package, exemption from corporate tax on undistributed income for a period of two to ten years, depending on the geographic location of the Benefiting Enterprise within Israel, and a reduced corporate tax rate of 10% to 25% for the remainder of the benefits period, depending on the level of foreign investment in each year. Benefits may be granted for a term of seven or ten years, depending on the level of foreign investment in the company. If the company pays a dividend out of income derived from the Benefiting Enterprise during the tax exemption period, such income will be subject to corporate tax at the applicable rate (10%-25%). The company is required to withhold tax at the source at a rate of 15% from any dividends distributed from income derived from the Benefiting Enterprise; and

- A special tax route, which enables companies owning facilities in certain geographical locations in Israel to pay corporate tax at the rate of 11.5% on income of the Benefiting Enterprise. The benefits period is ten years. Upon payment of dividends, the company is required to withhold tax at source at a rate of 15% for Israeli residents and at a rate of 4% for foreign residents.

Generally, a company which has a sufficiently high level of foreign investment (as defined in the Investments Law) is entitled to an extension of the benefits period by an additional five years, depending on the extent of its income that is derived from exports.

Dividends paid out of income derived by a Benefiting Enterprise will be treated similarly to payment of dividends by an Approved Enterprise under the Alternative Benefits track. Therefore, dividends paid out of income derived by a Benefiting Enterprise (or out of dividends received from a company whose income is derived from a Benefiting Enterprise) are generally subject to withholding tax at the reduced rate of 15% (deductible at source). The reduced rate of 15% is limited to dividends and distributions out of income derived from a Benefiting Enterprise during the benefits period and actually paid at any time up to 12 years thereafter. A company qualifying for tax benefits under the 2005 Amendment which pays a dividend out of income derived by its Benefiting Enterprise during the tax exemption period will be subject to tax in respect of the gross amount of the dividend at the otherwise applicable rate of 10%-25%.

The 2005 Amendment changed the definition of "foreign investment" in the Investment Law so that the definition now requires a minimal investment of NIS 5 million by foreign investors. Furthermore, such definition now also includes the purchase of shares of a company from another shareholder, provided that the company's outstanding and paid-up share capital exceeds NIS 5 million. Such changes to the aforementioned definition are retroactive from 2003.

As a result of the 2005 Amendment, tax-exempt income generated under the new provisions will subject us to taxes upon distribution of the tax-exempt income to shareholders or upon liquidation of the company, and we may be required to record a deferred tax liability with respect to such tax-exempt income.

Additional amendments to the Investment Law became effective in January 2011 (the "2011 Tax Amendment"). Under the 2011 Tax Amendment, income derived by 'Preferred Companies' from 'Preferred Enterprises' (both as defined in the 2011 Tax Amendment) would be subject to a uniform rate of corporate tax as opposed to the current incentives that are limited to income from Approved or Benefiting Enterprises during their benefits period. According to the 2011 Tax Amendment, the uniform tax rate on such income, referred to as 'Preferred Income', would be 10% in areas in Israel that are designated as Development Zone A and 15% elsewhere in Israel during 2011-2012, 7% and 12.5%, respectively, in 2013-2014, and 6% and 12%, respectively, thereafter. Income derived by a Preferred Company from a 'Special Preferred Enterprise' (as defined in the Investment Law) would enjoy further reduced tax rates for a period of ten years of 5% in Zone A and 8% elsewhere. As with dividends distributed from taxable income derived from an Approved Enterprise or Benefiting Enterprise during the applicable benefits period, dividends distributed from Preferred Income would be subject to a 15% tax (or lower, if so provided under an applicable tax treaty), which would generally be withheld by the distributing company. While the Company may incur additional tax liability in the event of distribution of dividends from tax exempt income generated from its Approved and Benefiting Enterprises, no additional tax liability will be incurred by the Company in the event of distribution of dividends from income taxed in accordance with the 2011 Tax Amendment.

Under the transitional provisions of the 2011 Tax Amendment, the Company may elect whether to irrevocably implement the 2011 Tax Amendment with respect to its existing Approved and Benefiting Enterprises while waiving benefits provided under the legislation prior to the 2011 Tax Amendment or keep implementing the legislation prior to the 2011 Tax Amendment during the next years.

We do not expect the 2011 Tax Amendment to have a material effect on the tax payable in respect of our Israeli operations.

As of December 31, 2010, we did not generate income under any of the above mentioned laws.

Israeli Transfer Pricing Regulations

On November 29, 2006, Income Tax Regulations (Determination of Market Terms), 2006, promulgated under Section 85A of the Tax Ordinance, came into effect (the "TP Regs"). Section 85A of the Tax Ordinance and the TP Regs generally require that all cross-border transactions carried out between related parties be conducted on an arm's length basis and be taxed accordingly. The TP Regs are not expected to have a material effect on us.

Taxation of our Shareholders

To the extent that the following discussion is based on new or existing tax or other legislation that has not been subject to judicial or administrative interpretation, there can be no assurance that the views expressed herein will be accepted by the tax or other authorities in question. The summary below does not address all of the tax consequences that may be relevant to all purchasers of ordinary shares in light of each purchaser's particular circumstances and specific tax treatment. For example, the summary below does not address the tax treatment of residents of Israel and traders in securities who are subject to specific tax regimes. As individual circumstances may differ, holders of ordinary shares should consult their own tax advisors as to United States, Israeli or other tax consequences of the purchase, ownership and disposition of ordinary shares. This discussion is not intended, nor should it be construed, as legal or professional tax advice and it is not exhaustive of all possible tax considerations. Each individual should consult his or her own tax or legal advisor.

(a) Israeli Taxation

(i) Taxation of Capital Gains Applicable to Non-Israeli Shareholders

Israeli law generally imposes a capital gains tax on the sale of securities and any other capital assets located in Israel. Pursuant to an amendment of the Tax Ordinance in 2005, effective as of January 1, 2006, the capital gains tax rate applicable to individuals upon the sale of securities acquired after that date is 20%. A 25% tax rate will apply to an individual who meets the definition of a 'Substantial Shareholder' on the date of the sale of the securities or at any time during the 12 months preceding such date. A 'Substantial Shareholder' is defined as a person who, either alone or together with any other person, holds, directly or indirectly, at least 10% of any of the means of control of a company (including, among other things, the right to receive profits of the company, voting rights, the right to receive the company's liquidation proceeds and the right to appoint a director).

With respect to corporate investors, effective January 1, 2006, capital gain tax of 25% will be imposed on the sale of traded shares. Capital gains accrued from the sale of assets acquired before January 1, 2003 are subject to a blended tax rate based on the relative periods of time before and after January 1, 2003 that the asset was held. These rates are subject to the provisions of any applicable bilateral double taxation treaty. The treaty concerning double taxation between the United States and Israel (the Convention between the Government of the State of Israel and the Government of the United States of America With Respect to Taxes on Income (the "Treaty")) is discussed below.

In addition, if the shares are traded on the Tel Aviv Stock Exchange, on an authorized stock exchange outside Israel or on a regulated market (which includes a system through which securities are traded pursuant to rules prescribed by the competent authority in the relevant jurisdiction) in or outside Israel, gains on the sale of shares held by non-Israeli tax resident investors will generally be exempt from Israeli capital gains tax. Notwithstanding the foregoing, dealers in securities in Israel are taxed at regular tax rates applicable to business income. In addition, persons paying consideration for shares, including purchasers of shares, Israeli securities dealers effecting a transaction, or a financial institution through which securities being sold are held, are required, subject to any applicable exemptions and the demonstration of the selling shareholder of its non-Israeli residency, to withhold tax upon the sale of publicly traded securities at the applicable corporate tax rate (25% in 2010) for a corporation and 20% for an individual.

Israeli law generally exempts non-resident individuals and entities from capital gains tax on the sale of securities of Israeli companies, provided that the securities were acquired on or after January 1, 2009.

(ii) Income Taxes on Dividend Distribution to Non-Israeli Shareholders

Non-Israeli residents (whether individuals or corporations) are generally subject to Israeli income tax on the receipt of dividends paid on the shares of companies that are not publicly traded at the rate of 20% (25% if the dividend recipient is a Substantial Shareholder, at the time of distribution or at any time during the preceding 12-month period), which tax is to be withheld at source, unless a different rate is provided under an applicable tax treaty. Dividends paid on the shares of companies that are publicly traded, like our ordinary shares, to non-Israeli residents, although generally subject to the same tax rates applicable to dividends paid on the shares of companies that are not publicly traded, are generally subject to Israeli withholding tax at a rate of 20% (whether or not the recipient is a Substantial Shareholder), unless a different rate is provided under an applicable tax treaty. The distribution of dividends to non-Israeli residents (either individuals or corporations) from income derived from an Approved Enterprise or a Benefiting Enterprise during the applicable benefits period or from Preferred Income is subject to withholding tax at a rate of 15%, unless a different tax rate is provided under an applicable tax treaty.

A non-resident of Israel who has dividend income derived from or accrued in Israel, from which the full amount of tax was withheld at source, is generally exempt from the duty to file tax returns in Israel in respect of such income, provided that: (i) such income was not derived from a business conducted in Israel by the taxpayer; and (ii) the taxpayer has no other taxable sources of income in Israel with respect to which a tax return is required to be filed.

Residents of the United States generally will have withholding tax in Israel deducted at source. Such residents may be entitled to a credit or deduction for U.S. federal income tax purposes in the amount of the taxes withheld, subject to detailed rules contained in U.S. tax legislation.

(iii) U.S. - Israel Tax Treaty

The Treaty is generally effective as of January 1, 1995. Under the Treaty, the maximum Israeli withholding tax on dividends paid to a holder of shares who is a Treaty U.S. Resident (as defined below) is generally 25%. However, pursuant to the Investment Law, dividends distributed by an Israeli company and derived from income eligible for benefits under the Investment Law will generally be subject to a reduced 15% dividend withholding tax rate, subject to the conditions specified in the Treaty. The Treaty further provides that a 12.5% Israeli dividend withholding tax will apply to dividends paid to a U.S. corporation owning 10% or more of an Israeli company's voting shares during, in general, the current and preceding tax year of the Israeli company. The lower 12.5% rate applies only on dividends distributed from income not derived from an Approved Enterprise or a Benefiting Enterprise in the applicable period or, presumably, from a Preferred Enterprise, and does not apply if the company has certain amounts of passive income.

Pursuant to the Treaty, the sale, exchange or disposition of shares in an Israeli company by a person who qualifies as a resident of the United States within the meaning of the Treaty and who is entitled to claim the benefits afforded to such residents under the Treaty (a "Treaty U.S. Resident") generally will not be subject to the Israeli capital gains tax unless such Treaty U.S. Resident holds, directly or indirectly, shares representing 10% or more of the voting power of the company during any part of the 12-month period preceding such sale, exchange or disposition subject to certain conditions. A sale, exchange or disposition of shares in an Israeli Company by a Treaty U.S. Resident who holds, directly or indirectly, shares representing 10% or more of the voting power of the company at any time during such preceding 12-month period would not be exempt under the Treaty from such Israeli tax; however, under the Treaty, such Treaty U.S. Resident would be permitted to claim a credit for such taxes against U.S. federal income tax imposed on any gain from such sale, exchange or disposition, under the circumstances and subject to the limitations specified in the Treaty.

CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

General

The following is a summary of certain material U.S. federal income tax consequences to U.S. persons holding our ordinary shares (referred to herein as U.S. holders) of purchasing, owning, and disposing of such shares. For this purpose, a U.S. person is, in each case as defined for U.S. federal income tax purposes: (a) an individual who is a citizen or resident of the United States; (b) a corporation (or other entity taxable as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia; (c) an estate the income of which is subject to U.S. federal income tax regardless of its source; or (d) a trust that is subject to the primary supervision of a court over its administration and one or more U.S. persons control all substantial decisions, or a trust that has validly elected to be treated as a domestic trust under applicable Treasury Regulations. This summary does not address any tax consequences to persons other than U.S. persons.

This discussion is a general summary and does not address all aspects of U.S. federal income taxation that may be relevant to particular U.S. holders based on their particular investment or tax circumstances. It does not address any tax consequences to certain types of U.S. holders that are subject to special treatment under the U.S. federal income tax laws, such as insurance companies, tax-exempt organizations, financial institutions, broker-dealers, dealers in securities or currencies, traders in securities that elect to use the mark-to-market method of accounting for their securities, partnerships or other pass-through entities for U.S. federal tax purposes, regulated investment companies, real estate investment trusts, expatriates, persons liable for alternative minimum tax, persons owning, directly or by attribution, 10% or more, by voting power or value, of our ordinary shares, persons whose "functional currency" is not the U.S. dollar, persons holding ordinary shares as part of a hedging, constructive sale or conversion, straddle, or other risk-reducing transaction, or persons acquiring an interest in our shares in exchange for services.

This summary addresses only ordinary shares that (a) are held as capital assets, and (b) were acquired upon original issuance at their initial offering price.

This summary relates only to U.S. federal income taxes. It does not address any other tax, including but not limited to, state, local, or foreign taxes, or any other U.S. federal taxes other than income taxes.

The statements in this summary are based on the current U.S. federal income tax laws as contained in the Internal Revenue Code, Treasury Regulations, and relevant judicial decisions and administrative guidance. The U.S. federal tax laws are subject to change, and any such change may materially affect the U.S. federal income tax consequences of purchasing, owning, or disposing of our ordinary shares. We cannot assure you that new laws, interpretations of law or court decisions, any of which may take effect retroactively, will not cause any statement in this summary to be inaccurate. No ruling or opinions of counsel will be sought in connection with the matters discussed herein. There can be no assurance that the positions we take on our tax returns will be accepted by the Internal Revenue Service.

This section is not a substitute for careful tax planning. Prospective investors are urged to consult their own tax advisors regarding the specific U.S. federal, state, foreign and other tax consequences to them, in light of their own particular circumstances, of the purchase, ownership and disposition of our ordinary shares and the effect of potential changes in applicable tax laws.

Dividends

A U.S. holder will be required to take into account as dividends any distributions with respect to our ordinary shares made out of our current or accumulated earnings and profits. The dividends received deduction will not be available to a U.S. holder that is taxed as a corporation. With certain exceptions (including but not limited to dividends treated as investment income for purposes of investment interest deduction limitations), qualified dividends received by a non-corporate U.S. holder generally will be subject to tax at the maximum tax rate accorded to capital gains, if certain holding period and other conditions are satisfied, through December 31, 2012, after which the rate applicable to dividends is scheduled to return to the tax rate generally applicable to ordinary income. Dividends will generally be from a non-U.S. source and treated as "passive income" for U.S. foreign tax credit purposes.

Although, to the extent we pay dividends in the future, we intend to pay dividends to U.S. holders in U.S. dollars, the amount of any dividend paid in Israeli currency will equal its U.S. dollar value for U.S. federal income tax purposes, calculated by reference to the exchange rate in effect on the date the dividend is received by the U.S. holder, regardless of whether the Israeli currency is converted into U.S. dollars. If the Israeli currency is not converted into U.S. dollars on the date of receipt, the U.S. holder will have a basis in the Israeli currency equal to its U.S. dollar value on the date of receipt. Any subsequent gain or loss upon the conversion or other disposition of the Israeli currency will be treated as ordinary income or loss, and generally will be income or loss from U.S. sources.

A U.S. holder will not incur tax on a distribution with respect to our ordinary shares in excess of our current and accumulated earnings and profits if the distribution does not exceed the adjusted basis of the U.S. holder's ordinary shares. Instead, the distribution will reduce the adjusted basis of the shares. Any such distribution in excess of both our current and accumulated earnings and profits and the U.S. holder's adjusted basis will be treated as capital gain, long-term if the U.S. holder has held the shares for more than one year, and generally will be gain or loss from U.S. sources. See "Disposition of Ordinary Shares" below for a discussion of capital gains tax rates and limitations on deductions for losses.

Disposition of Ordinary Shares

In general, a U.S. holder must treat any gain or loss recognized upon a taxable disposition of our ordinary shares as capital gain or loss, long-term if the U.S. holder has held the shares for more than one year. In general, a U.S. holder will recognize gain or loss in an amount equal to the difference between the sum of the fair market value of any property and the amount of cash received in such disposition and the U.S. holder's adjusted tax basis in such shares. A U.S. holder's adjusted tax basis generally will equal the U.S. holder's acquisition cost less any return of capital. Long-term capital gain realized by a non-corporate U.S. holder generally will be subject to a reduced maximum rate of 15% through December 31, 2012, after which the maximum capital gains rate is scheduled to return to 20%. The deduction of capital losses is subject to limitations, as are losses upon a taxable disposition of our ordinary shares if the U.S. holder purchases, or enters into a contract or option to purchase, substantially identical stock or securities within 30 days before or after any disposition. Gain or loss from the disposition of our ordinary shares will generally be from U.S. sources, but such gain or loss may be from a non-U.S. source under some circumstances under the U.S.-Israel Tax Treaty. U.S. holders should consult their own independent tax advisors regarding the sourcing of any gain or loss on the disposition of our ordinary shares, as well as regarding any foreign currency gain or loss in connection with such a disposition.

Credit for Foreign Taxes Paid or Withheld

Payments to U.S. holders as dividends or consideration for ordinary shares may in some circumstances be subject to Israeli withholding taxes. See "Israeli Tax Considerations and Government Programs" above. Generally, such withholding taxes in lieu of Israeli income taxes imposed on such transactions are creditable against the U.S. holder's U.S. tax liability, subject to numerous U.S. foreign tax credit limitations, including additional limitations in the case of qualified dividends eligible for the maximum rate accorded to capital gains. A corporate U.S. holder may also be eligible for an "indirect" foreign tax credit on dividends to take account of certain Israeli taxes we previously paid to Israel. A U.S. holder should consult its own independent tax advisor regarding use of the U.S. foreign tax credit and its limitations. A U.S. holder (except an individual who does not itemize deductions) may elect to take a deduction rather than a credit for foreign taxes paid.

Controlled Foreign Corporation

For U.S. federal income tax purposes, a "controlled foreign corporation" is a foreign corporation in which U.S. holders who own at least 10% of the voting power (directly or by constructive ownership through certain related persons) collectively own more than 50% of the voting power or value. If we are or become a controlled foreign corporation, such 10% U.S. holders must include in their current U.S. taxable income their share of the corporation's undistributed "Subpart F income" (i.e., certain passive income, sales or service income, insurance, shipping, ocean activity, or oil-related income, and income from specified disfavored activities or from ostracized foreign countries) and the amount of the corporation's investments in U.S. property. These income inclusions are not eligible for the maximum capital gains tax rate on qualified dividends to non-corporate tax payers. We believe that the corporation is not and has not been, and we expect that the corporation will not become, a controlled foreign corporation. There can be no assurance, however, that the corporation will not become a controlled foreign corporation in the future.

Passive Foreign Investment Company

We believe we were a "passive foreign investment company," or PFIC, for the years ended December 31, 2003, 2006 and 2007. We also believe that we were a PFIC in 2010. We do not believe we were a PFIC in 2004, 2005, 2008 and 2009. We nevertheless recognize that there are significant areas of uncertainty in the PFIC rules and the IRS may not agree with our belief. We are a PFIC if 75% or more of our gross income in a taxable year, including the pro rata share of the gross income of any company in which we are considered to own 25% or more of the shares by value, is passive income. Alternatively, we are a PFIC if at least 50% of our assets in a taxable year, averaged over the year and ordinarily determined based on fair market value, including the pro rata share of the assets of any company in which we are considered to own 25% or more of the shares by value, are held for the production of, or produce, passive income.

PFIC status is determined annually and cannot be definitively determined until the close of the year in question. If we qualify as a PFIC at any time during a U.S. holder's holding period of our ordinary shares, any subsequent distributions to, or disposition of the shares by, the U.S. holder will be subject to the excess distribution rules (described below), regardless of whether we are a PFIC in the year of distribution or disposition, unless the U.S. holder: (1) made the qualified electing fund ("QEF") election (described below); (2) made the mark-to-market election (described below); or (3) during a year in which the corporation is no longer a PFIC, elected to recognize all gain inherent in the shares on the last day of the last taxable year in which the corporation was a PFIC. Therefore, for example, if a U.S. holder acquired our ordinary shares in 2010, such ordinary shares will henceforth be considered shares in a PFIC, regardless of whether we meet the PFIC tests in future years, unless the U.S. holder makes a timely QEF or mark-to-market election, or makes the deemed-gain election in a year in which the corporation is no longer a PFIC.

If we are a PFIC, each U.S. holder, upon certain "excess distributions" by us and upon disposition of our ordinary shares at a gain, would be liable to pay tax at the highest then-prevailing income tax rate on ordinary income plus interest on the tax, as if the distribution or gain had been recognized ratably over the holder's holding period for the ordinary shares. Additionally, if we are a PFIC, a U.S. holder who acquires ordinary shares from a deceased person who was a U.S. holder would not receive the step-up of the income tax basis to fair market value for such ordinary shares. Instead, such U.S. holder would have a tax basis equal to the deceased's tax basis, if lower.

If a U.S. holder has made a QEF election covering all taxable years during which the holder holds ordinary shares and in which we are a PFIC, distributions and gains will not be taxed as described above, nor will denial of a basis step-up at death described above apply. Instead, a U.S. holder that makes a QEF election is required for each taxable year to include in income the holder's pro rata share of the ordinary earnings of the QEF as ordinary income and a pro rata share of the net capital gain of the QEF as capital gain, regardless of whether such earnings or gain have in fact been distributed. Undistributed income is subject to a separate election to defer payment of taxes. If deferred, the taxes will be subject to an interest charge. Where earnings and profits that were included in income under this rule are later distributed, the distribution is not a dividend. The basis of a U.S. shareholder's shares in a QEF is increased by amounts that are included in income, and decreased by amounts distributed but not taxed as dividends. In addition, if a U.S. holder makes a timely QEF election, our ordinary shares will not be considered shares in a PFIC in years in which we are not a PFIC, even if the U.S. holder had held ordinary shares in prior years in which we were a PFIC.

In order to comply with the requirements of a QEF election, a U.S. holder must receive certain information from us. The QEF election is made on a shareholder-by-shareholder basis and can be revoked only with the consent of the IRS. A shareholder makes a QEF election by attaching a completed IRS Form 8621, including the information provided in the PFIC annual information statement, to a timely filed U.S. federal income tax return and by filing a copy of the form with the IRS. There is no assurance that we will provide such information as the IRS may require in order to enable U.S. holders to make the QEF election. Moreover, there is no assurance that we will have timely knowledge of our status as a PFIC in the future. Even if a shareholder in a PFIC does not make a QEF election, if such shareholder is a U.S. holder, such shareholder must annually file with the shareholder's tax return and with the IRS a completed Form 8621.

If our ordinary shares are "regularly traded" on a "qualified exchange or other market," as provided in applicable Treasury Regulations, a U.S. holder of our shares may elect to mark the shares to market annually, recognizing as ordinary income or loss each year an amount equal to the difference between the shareholder's adjusted tax basis in such shares and their fair market value. Losses would be allowed only to the extent of net mark-to-market gain previously included by the U.S. holder under the election in previous taxable years. The adjusted tax basis of a U.S. holder's ordinary shares is increased by the amount included in gross income under the mark-to-market regime, or is decreased by the amount of the deduction allowed under the regime. As with the QEF election, a U.S. holder who makes a mark-to-market election would not be subject to the general excess distribution rules and the denial of basis step-up at death described above.

If we are a PFIC and, at any time, have a non-U.S. subsidiary that is classified as a PFIC, U.S. holders of our ordinary shares generally would be deemed to own, and also would be subject to the PFIC rules with respect to, their indirect ownership interests in that lower-tier PFIC. If we are a PFIC and a U.S. holder of our ordinary shares does not make a QEF election in respect of a lower-tier PFIC, the U.S. holder could incur liability for the deferred tax and interest charge described above if either (1) we receive a distribution from, or dispose of all or part of our interest in, the lower-tier PFIC or (2) the U.S. holder disposes of all or part of its ordinary shares. There is no assurance that any lower-tier PFIC will provide to a U.S. holder the information that may be required to make a QEF election with respect to the lower-tier PFIC. A mark-to-market election under the PFIC rules with respect to our ordinary shares would not apply to a lower-tier PFIC, and a U.S. holder would not be able to make such a mark-to-market election in respect of its indirect ownership interest in that lower-tier PFIC. Consequently, U.S. holders of our ordinary shares could be subject to the PFIC rules with respect to income of the lower-tier PFIC the value of which already had been taken into account indirectly via mark-to-market adjustments. Similarly, if a U.S. holder made a mark-to-market election under the PFIC rules in respect of our ordinary shares and made a QEF election in respect of a lower-tier PFIC, that U.S. holder could be subject to current taxation in respect of income from the lower-tier PFIC the value of which already had been taken into account indirectly via mark-to-market adjustments. U.S. holders are urged to consult their own tax advisors regarding the issues raised by lower-tier PFICs.

THE RULES DEALING WITH PFICS AND WITH THE QEF AND MARK-TO-MARKET ELECTIONS ARE VERY COMPLEX AND ARE AFFECTED BY VARIOUS FACTORS IN ADDITION TO THOSE DESCRIBED ABOVE, INCLUDING OUR OWNERSHIP OF ANY NON-U.S. SUBSIDIARIES. AS A RESULT, U.S. HOLDERS OF ORDINARY SHARES ARE STRONGLY ENCOURAGED TO CONSULT THEIR TAX ADVISORS ABOUT THE PFIC RULES IN CONNECTION WITH THEIR PURCHASING, HOLDING OR DISPOSING OF ORDINARY SHARES.

Backup Withholding and Information Reporting

A U.S. holder (excepting most corporations) may, under certain circumstances, be subject to information reporting requirements and backup withholding (currently at a rate of 28% but scheduled to increase to 31% after 2012) on payments of dividends, interest, and other reportable payments. A non-corporate U.S. holder should consult its own independent tax advisor regarding the possibility of information reporting and backup withholding on payments in connection with the purchase, ownership, or disposition of our ordinary shares.

F. DIVIDENDS AND PAYING AGENTS

Not applicable.

G. STATEMENT BY EXPERTS

Not applicable.

H. DOCUMENTS ON DISPLAY

We file annual and special reports and other information with the SEC. You may inspect and copy such material at the public reference facilities maintained by the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. You may also obtain copies of such material from the SEC at prescribed rates by writing to the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. Our SEC filings also are available to the public from the SEC's website at *www.sec.gov*. In addition, our annual and special reports and other information filed with the SEC is available free of charge through the Investors section of our website at *www.rosettagenomics.com* as soon as reasonably practicable after such materials have been electronically filed with, or furnished to, the SEC.

I. SUBSIDIARY INFORMATION

Not applicable.

ITEM 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

We are exposed to market risk related to changes in interest rates primarily from our investments in certain short-term investments. We maintain an investment portfolio consisting mainly of Israeli mutual fund and Israeli government bonds, directly or through managed funds. We do not utilize derivative financial instruments, derivative commodity instruments or other market risk-sensitive instruments to manage exposure to interest rate changes. Accordingly, we believe that, while the securities we hold are subject to changes in the financial standing of the issuer of such securities, we are not subject to any material risks arising from changes in interest rates, foreign currency exchange rates, commodity prices, equity prices or other market changes that affect market risk sensitive instruments.

Exchange Rate Risk

We hold most of our cash, cash equivalents and marketable securities in U.S. dollars but incur a significant portion of our expenses, principally salaries and related personal expenses, in NIS. As a result, we are exposed to the risk that the U.S. dollar will be devalued against the NIS.

The following table illustrates the effect of the changes in exchange rates on our operation loss for the periods indicated:

	Year ended December 31,					
	2008		2009		2010	
	Actual	At 2007 Exchange rates (1)	Actual	At 2008 Exchange rates (1)	Actual	At 2009 Exchange rates (1)
	(In thousands)					
Operating loss	$14,071	$ 12,814	$14,797	$ 15,794	$15,657	$ 14,553

(1) Based on average exchange rates during the period.

ITEM 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

Not applicable.

PART II

ITEM 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES

None.

ITEM 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS

Material Modifications to the Rights of Security Holders

Upon completion of our initial public offering in March 2007, all of our outstanding preferred shares and ordinary A shares were converted into ordinary shares. Our amended articles of association also became effective upon the completion of our initial public offering. On October 21, 2010, our shareholders approved amendments to our articles of association to (i) increase our authorized share capital by NIS 300,000 and (ii) remove the requirement that notice of general meetings of our shareholders be published in two daily newspapers in Israel. The material provisions of our articles of association, as amended, are described under "Item 10. Additional Information • B. Memorandum and Articles of Association."

Use of Proceeds

Not applicable.

ITEM 15. CONTROLS AND PROCEDURES

A. DISCLOSURE CONTROLS AND PROCEDURES

Our principal executive officer and principal financial officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of the end of the period covered by this Annual Report on Form 20-F, have concluded that, based on such evaluation, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

B. MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. Our internal control system was designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of published financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2010. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework. Based on our assessment we believe that, as of December 31, 2010, our internal control over financial reporting is effective at a reasonable assurance level based on those criteria.

C. ATTESTATION REPORT OF THE REGISTERED PUBLIC ACCOUNTING FIRM

This Annual Report on Form 20-F does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Because we are neither an accelerated filer nor a large accelerated filer, management's report was not subject to attestation by our registered public accounting firm pursuant to the rules of the SEC.

D. CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

During the period covered by this annual report, and as a result of the correction of the error in the unaudited interim financial statements for the six month period ended June 30, 2010, that is related to the classification as liability of the warrants we issued in connection with the January 2010 registered direct offering, we have taken several remediation steps with respect to our internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) in order to strengthen our controls over our financial closing & reporting process. Such steps implemented controls over the technical accounting analysis of the contractual rights of the equity instruments that we issue from time to time. Other than the foregoing, there have not been any changes that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 16. RESERVED

ITEM 16A. AUDIT COMMITTEE FINANCIAL EXPERT

Our audit committee consists of Gerald Dogon (Chairman), Prof. Moshe Many and Tali Yaron-Eldar, all of whom are independent under the rules and regulations of NASDAQ. Our board of directors has determined that Mr. Dogon qualifies as an "audit committee financial expert" as defined in the instructions to Item 16A of Form 20-F.

ITEM 16B. CODE OF ETHICS

We have adopted a code of conduct and ethics that applies to all of our employees, officers and directors. The text of the code of conduct and ethics is posted on the "Corporate Governance" section of our website at *www.rosettagenomics.com*. Disclosure regarding any amendments to, or waivers from, provisions of the code of conduct and ethics that apply to our directors, principal executive and financial and accounting officers will be included in a Form 6-K within four business days following the date of the amendment or waiver, unless website posting of such amendments or waivers is then permitted by the rules of The NASDAQ Stock Market.

ITEM 16C. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Accounting Fees and Services

The following table presents fees for professional audit services rendered by Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global, independent registered public accountants, for the audit of our consolidated financial statements and services normally provided by the independent auditor in connection with statutory and regulatory filings or engagements for the years ended December 31, 2010 and December 31, 2009 and fees billed for other services rendered by Kost Forer Gabbay & Kasierer during those periods.

	2010	2009
Audit fees (1)	$ 118,088	$ 104,000
Audit-related fees	36,745	40,762
Tax fees (2)	15,635	10,000
All other fees (3)	15,914	17,731
Total	$ 186,382	$ 172,493

(1) Audit services were comprised of services associated with the audit of our consolidated financial statements and services normally provided by the independent auditor in connection with statutory and regulatory filings or engagements and registration statements.
(2) Tax services were comprised of tax compliance, tax advice and tax planning services.
(3) All other services were comprised of business related consultation.

Policy on Audit Committee Pre-Approval of Audit and Permissible Non-audit Services of Independent Auditors

Our audit committee was established effective upon the completion of our initial public offering in March 2007. Consistent with policies of the Securities and Exchange Commission regarding auditor independence, the audit committee has responsibility for appointing, setting compensation and overseeing the work of the independent auditor. The audit committee operates under a written charter which provides that the committee must approve in advance all audit services and all permitted non-audit services, except where such services are determined to be de minimis under the Exchange Act. The audit committee may delegate, to one or more designated members of the audit committee, the authority to grant such pre-approvals. The decision of any member to whom such authority is delegated is to be presented to the full audit committee at each of its scheduled meetings.

ITEM 16D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

Not applicable.

ITEM 16E. PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Not applicable.

ITEM 16F. CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANT

Not applicable.

ITEM 16G. CORPORATE GOVERNANCE

There are no significant differences between our corporate governance practices and those required of a U.S. domestic issuer under the rules of The NASDAQ Stock Market. However, pursuant to the rules and regulations of The NASDAQ Stock Market, a foreign private issuer may follow its home country practice in lieu of certain NASDAQ listing requirements. We have in the past elected to follow home country practice in lieu of certain NASDAQ requirements as follows:

- NASDAQ rules require that the quorum for meetings of a company's shareholders be not less than 33 1/3% of the outstanding voting stock of the company. We have, however, chosen to follow home country practice with respect to shareholder meeting quorum and our Articles provide that the quorum required for any meeting of our shareholders shall consist of at least two shareholders present, in person or by proxy, who hold or represent between them more than 25% of the voting power of our issued share capital.

- Under NASDAQ's rules, (1) the private placement completed in December 2010 and (2) the concurrent private placement and registered direct offering completed in February 2011 would have required shareholder approval because these offerings represented the issuance (or potential issuance) of more than 20% of our outstanding ordinary shares at a price per share below the greater of book value per share or market value per share. However, we chose to follow our home country practice, which did not require shareholder approval of these offerings.

Because of these SEC and NASDAQ exemptions, investors are not afforded the same protections or information generally available to investors holding shares in public companies organized in the United States.

PART III

ITEM 17. FINANCIAL STATEMENTS

See Item 18.

ITEM 18. FINANCIAL STATEMENTS

Our consolidated financial statements and related notes are included in this Annual Report beginning on page F-1.

ITEM 19. EXHIBITS

The following is a list of exhibits filed as part of this Annual Report.

Exhibit Number	Description of Exhibit
1.1(10)	Amended and Restated Articles of Association.
2.1(1)	Form of Share Certificate for Ordinary Shares.
2.2(1)	Investor Rights Agreement dated April 4, 2006.
2.3(7)	Form of Ordinary Share Purchase Warrant issued by Rosetta Genomics Ltd. to the investors and the placement agent in the January 2010 registered direct offering.
2.4(5)	Convertible Note Agreement, dated as of September 24, 2008, by and among Rosetta Genomics Ltd. and the entities identified in the Schedule of Investors thereto and form of Convertible Promissory Notes.
2.5(9)	Form of Series A Warrant issued by Rosetta Genomics Ltd. to the investors and the placement agent in the December 2010 private placement.
2.6(9)	Form of Series B Warrant issued by Rosetta Genomics Ltd. to the investors in the December 2010 private placement.
2.7(9)	Registration Rights Agreement, dated November 29, 2010, by and between Rosetta Genomics Ltd. and the investors in the December 2010 private placement.
2.8(10)	Form of Ordinary Share Purchase Warrant issued by Rosetta Genomics Ltd. to the investors and the placement agent in the February 2011 private placement.
2.9(10)	Form of Ordinary Share Purchase Warrant issued by Rosetta Genomics Ltd. to the investors in the February 2011 registered direct offering.
2.10(10)	Form of Ordinary Share Purchase Warrant issued by Rosetta Genomics Ltd. to the placement agent in the February 2011 registered direct offering.
2.11(10)	Registration Rights Agreement, dated February 16, 2011, by and between Rosetta Genomics Ltd. and the investors in the February 2011 private placement.
4.1(1)@	License Agreement, dated as of May 4, 2006, by and between Rosetta Genomics Ltd. and The Rockefeller University.
4.2(2)@	License Agreement, dated effective as of May 1, 2007, by and between Rosetta Genomics Ltd. and The Rockefeller University.
4.3(1)	Lease Agreement, dated August 4, 2003, by and between Rosetta Genomics Ltd., as tenant, and Rorberg Contracting and Investments (1963) Ltd. and Tazor Development Ltd., as landlords, as amended in April 2004 and as extended on April 9, 2006 (as translated from Hebrew).
4.4(3)	Lease, dated December 2, 2007, between 15 Exchange Place Corp. and Rosetta Genomics Inc.
4.5(5)	Lease Agreement from Wexford-UCSC II, L.P. to Rosetta Genomics Inc., dated July 7, 2008, and First Amendment thereto, dated August 11, 2008.

4.6(1)	2003 Israeli Share Option Plan.
4.7*	2006 Employee Incentive Plan (Global Share Incentive Plan).
4.8(1)	Form of Director and Officer Indemnification Agreement.
4.9(6)@	Amended and Restated License Agreement, dated as of March 3, 2009, by and between Rosetta Genomics Ltd. and Max Planck Innovation GmbH.
4.10(1)@	License Agreement, dated August 2, 2006, by and between The Johns Hopkins University and Rosetta Genomics Ltd.
4.11(1)@	License Agreement, dated as of December 22, 2006, by and between Rosetta Genomics Ltd. and Max Planck Innovation GmbH.
4.12(1)@	Cooperation and Project Funding Agreement, dated effective as of May 1, 2006, by and among Rosetta Genomics Ltd., the Israel-United States Binational Industrial Research and Development Foundation and Isis Pharmaceuticals, Inc.
4.13(3)@	License Agreement, dated effective as of January 8, 2008, by and between Rosetta Genomics Ltd. and The Rockefeller University.
4.14(5)@	Exclusive Testing and Administrative Services Agreement between Rosetta Genomics Ltd. And Teva Pharmaceutical Industries Ltd.
4.15(5)@	License Agreement by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd., dated April 10, 2009.
4.16(5)@	Laboratory Services Agreement, effective as of April 10, 2009, by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd.
4.17(4)	Stock Purchase Agreement by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd., dated April 10, 2009.
4.18(5)	Stock Purchase Agreement by and among Rosetta Genomics Ltd., Rosetta Genomics Inc., Parkway Clinical Laboratories, Inc. and Dr. Raza Bokhari, dated July 22, 2008.
4.19(5)	Stock Purchase Agreement by and among Sanra Laboratories, LLC, Parkway Clinical Laboratories, Inc. and Rosetta Genomics Inc., dated May 15, 2009.
4.20*	Shareholders Agreement, dated November 25, 2010, by and between Rosetta Genomics Ltd. and Plan B Ventures I LLC.
4.21*	Settlement Agreement and Mutual Release, dated November 22, 2010, by and among Rosetta Genomics Ltd., Rosetta Genomics, Inc. and Prometheus Laboratories Inc.
4.21.1*	Promissory Note, dated November 22, 2010, by and among Rosetta Genomics Ltd., Rosetta Genomics, Inc. and Prometheus Laboratories Inc.
4.21.2*	Promissory Note, dated November 22, 2010, by and among Rosetta Genomics Ltd., Rosetta Genomics, Inc. and Prometheus Laboratories Inc.
8.1*	Subsidiaries.
12.1*	Certification of Principal Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a).
12.2*	Certification of Principal Accounting and Financial Officer required by Rule 13a-14(b) or Rule 15d-14(b).
13.1*	Certification of the Principal Executive Officer and the Principal Accounting and Financial Officer under Section 906 of the Sarbanes-Oxley Act of 2002.
15.1*	Consent of Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global.

(1) Incorporated by reference from the Registrant's Registration Statement on Form F-1 (Reg. No. 333-137095), initially filed with the SEC on September 1, 2006.

(2) Incorporated by reference from the Registrant's Form 6-K dated August 2, 2007 (Reg. No. 001-33042), filed with the SEC on August 3, 2007.

(3) Incorporated by reference from the Registrant's Annual Report on Form 20-F for the year ended December 31, 2007 (Reg. No. 001-33042), filed with the SEC on June 26, 2008.

(4) Incorporated by reference from the Registrant's Form 6-K dated April 2009 (Reg. No. 001-33042), filed with the SEC on April 14, 2009.

(5) Incorporated by reference from the Registrant's Annual Report on Form 20-F for the year ended December 31, 2008 (Reg. No. 001-33042), filed with the SEC on June 30, 2009.

(6) Incorporated by reference from the Registrant's Form 6-K dated August-September 2009 (Reg. No. 001-33042), filed with the SEC on September 9, 2009.

(7) Incorporated by reference from the Registrant's Form 6-K dated January 2010 (Reg. No. 001-33042), filed with the SEC on January 14, 2010.

(8) Incorporated by reference from the Registrant's Form 6-K/A dated January 2011 (Reg. No. 001-33042), filed with the SEC on January 24, 2011.

(9) Incorporated by reference from the Registrant's Form 6-K dated November 2010 (Reg. No. 001-33042), filed with the SEC on November 30, 2010.

(10) Incorporated by reference from the Registrant's Form 6-K dated February 2011 (Reg. No. 001-33042), filed with the SEC on February 18, 2011.

(11) Incorporated by reference from the Registrant's Annual Report on Form 20-F for the year ended December 31, 2009 (Reg. No. 001-33042), filed with the SEC on March 26, 2010.

* Filed herewith.

@ Confidential portions of these documents have been filed separately with the SEC pursuant to a request for confidential treatment.

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

ROSETTA GENOMICS LTD.

Dated: March 31, 2011

By: /s/ Kenneth A. Berlin
Kenneth A. Berlin, Chief Executive Officer and President

ROSETTA GENOMICS LTD. AND ITS SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS

AS OF DECEMBER 31, 2010

U.S. DOLLARS IN THOUSANDS

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of

ROSETTA GENOMICS LTD.

We have audited the accompanying consolidated balance sheets of Rosetta Genomics Ltd. ("the Company") and its subsidiaries as of December 31, 2010 and 2009, and the related consolidated statements of operations, changes in equity (deficiency) and cash flows for each of the three years in the period ended December 31, 2010. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. We were not engaged to perform an audit of the Company's and its subsidiaries internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the Company's and its subsidiaries' internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, based on our audits, the consolidated financial statements referred to above, present fairly, in all material respects, the consolidated financial position of the Company and its subsidiaries as of December 31, 2010 and 2009, and the consolidated results of their operations and cash flows for each of the three years in the period ended December 31, 2010, in conformity with accounting principles generally accepted in the United States.

Tel-Aviv, Israel
March 31, 2011

KOST FORER GABBAY & KASIERER
A Member of Ernst & Young Global

CONSOLIDATED BALANCE SHEETS

U.S. dollars in thousands

	Note	December 31, 2010	December 31, 2009
ASSETS			
CURRENT ASSETS:			
Cash and cash equivalents		$ 2,727	$ 3,329
Restricted cash	10a	-	1,076
Short-term bank deposit	4	190	3,143
Marketable securities	5	392	2,756
Trade receivables		21	72
Other accounts receivable and prepaid expenses	6	458	557
Total current assets		3,788	10,933
LONG TERM ASSETS:			
Long-term receivables	1f	153	502
Severance pay fund		128	92
Property and equipment, net	7	1,224	1,216
Total long term assets		1,505	1,810
Total assets		$ 5,293	$ 12,743

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED BALANCE SHEETS

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

	Note	December 31, 2010	December 31, 2009
LIABILITIES AND EQUITY (DEFICIENCY)			
CURRENT LIABILITIES:			
Short-term bank loan, current maturities of capital lease and of long-term bank loan	10b	$ 49	$ 125
Trade payables		1,152	654
Other accounts payable and accruals	8	2,117	1,526
Total current liabilities		3,318	2,305
LONG-TERM LIABILITIES:			
Long-term bank loan and capital lease	10b	1	46
Convertible loan	9	-	1,500
Warrants related to share purchase agreements	11	1,479	-
Deferred revenue		228	1,928
Settlement arrangement	10m	728	-
Accrued severance pay		169	122
Total long-term liabilities		2,605	3,596
COMMITMENTS AND CONTINGENT LIABILITIES	10		
EQUITY (DEFICIENCY):			
Share capital:	11		
Ordinary shares of NIS 0.01 par value: 57,578,371 and 27,578,371 shares authorized at December 31, 2010 and 2009, respectively; 19,600,309 and 14,434,814 shares issued at December 31, 2010 and 2009, respectively; 19,404,938 and 14,239,443 shares outstanding at December 31, 2010 and 2009, respectively		46	32
Additional paid-in capital		74,732	68,174
Other comprehensive income		7	96
Accumulated deficit		(76,215)	(61,460)
Total Rosetta Genomics shareholders' equity (deficiency)		(1,430)	6,842
Non-controlling interests		800	-
Total equity (deficiency)		(630)	6,842
Total liabilities and equity (deficiency)		$ 5,293	$ 12,743

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS

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

	Note	Year ended December 31, 2010	2009	2008
Revenues		$ 279	$ 150	$ -
Cost of revenues		628	339	-
Gross loss		349	189	-
Operating expenses:				
Research and development, net		6,486	6,552	8,705
Marketing and business development		5,402	4,451	2,177
General and administrative		2,866	3,605	3,189
Other expenses related to the settlement arrangement, net	10m	554	-	-
Total operating expenses		15,308	14,608	14,071
Operating loss		15,657	14,797	14,071
Financial income, net	13	(1,054)	(45)	(5,449)
Loss from continuing operations		14,603	14,752	8,622
Net loss from discontinued operations	1f	539	1,753	841
Net loss after discontinued operations		$ 15,142	$ 16,505	$ 9,463
Attributable to non-controlling interests		(387)	-	-
Net loss attributable to Rosetta Genomics		$ 14,755	$ 16,505	$ 9,463
Basic and diluted net loss per Ordinary share from continuing operations attributable to Rosetta Genomics		$ 0.84	$ 1.09	$ 0.72
Basic and diluted net loss per Ordinary share from discontinuing operations attributable to Rosetta Genomics		$ 0.03	$ 0.13	$ 0.07
Basic and diluted net loss per Ordinary share attributable to Rosetta Genomics		$ 0.87	$ 1.22	$ 0.79
Weighted average number of Ordinary shares used to compute basic and diluted net loss per Ordinary share		16,908,087	13,543,324	12,038,295

The accompanying notes are an integral part of the consolidated financial statements.

STATEMENTS OF CHANGES IN EQUITY (DEFICIENCY)

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

	Number of Ordinary shares	Share capital	Additional paid-in capital	Accumulated other comprehensive income	Accumulated deficit	Non-controlling interests	Total equity (deficiency)
Balance as of January 1, 2008	11,910,744	$ 27	$ 58,984	$ 86	$ (35,492)	$ -	$ 23,605
Exercise of stock options	31,527	*) -	33	-	-	-	33
Issuance of shares in July 2008	229,661	*) -	1,000	-	-	-	1,000
Stock-based compensation to non-employees	-	-	70	-	-	-	70
Stock-based compensation to employees	-	-	938	-	-	-	938
Realized loss from hedging activities	-	-	-	(83)	-	-	(83)
Net loss	-	-	-	-	(9,463)	-	(9,463)
Balance as of December 31, 2008	12,171,932	27	61,025	3	(44,955)	-	16,100
Exercise of stock options	2,511	*) -	-	-	-	-	*) -
Issuance of shares in April 2009 (a)	2,000,000	5	5,725	-	-	-	5,730
Stock-based compensation to non-employees	-	-	52	-	-	-	52
Stock-based compensation to employees	65,000	-	1,372	-	-	-	1,372
Unrealized gain from marketable securities	-	-	-	93	-	-	93
Net loss	-	-	-	-	(16,505)	-	(16,505)
Balance as of December 31, 2009	14,239,443	32	68,174	96	(61,460)	-	6,842
Exercise of stock options	126,495	*) -	-	-	-	-	*) -
Issuance of restricted shares	9,000	*) -	-	-	-	-	*) -
Issuance of shares in January 2010, net (b)	2,530,000	7	3,400	-	-	-	3,407
Issuance of shares in December 2010, net (c)	2,500,000	7	1,149	-	-	-	1,156
Conversion of convertible note related to Rosetta Green establishment	-	-	1,252	-	-	248	1,500
Stock-based compensation to non-employees	-	-	19	-	-	-	19
Stock-based compensation to employees	-	-	738	-	-	939	1,677
Unrealized loss from marketable securities, net of realized gain	-	-	-	(89)	-	-	(89)
Net loss	-	-	-	-	(14,755)	(387)	(15,142)
Balance as of December 31, 2010	19,404,938	$ 46	$ 74,732	$ 7	$ (76,215)	$ 800	$ (630)

Accumulated other comprehensive income

	Year ended December 31,	
	2010	2009
Accumulated unrealized gains from available-for-sale marketable securities	$ 7	$ 96

*) Represents an amount lower than $ 1.
(a) Net of issuance expenses in an amount of $ 570 and deferred revenues in an amount of $ 1,700 (see Note 1g (3)).
(b) Net of $ 301 issuance cost and warrants liability in the amount of $ 1,352 (see Note 11b (6)).
(c) Net of $ 145 issuance cost and warrants liability in the amount of $ 1,199 (see Note 11b(7)).

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

U.S. dollars in thousands

	Year ended December 31,		
	2010	2009	2008
Cash flows from operating activities:			
Net loss	$(15,142)	$(16,505)	$ (9,463)
Loss from discontinued operations	539	1,753	841
Loss from continuing operations	(14,603)	(14,752)	(8,622)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation	428	344	316
Foreign currency adjustments	15	8	(39)
Interest on short-term bank deposit	-	(28)	(5)
Capital loss from sale of property and equipment	3	4	2
Increase (decrease) in accrued severance pay, net	11	(359)	209
Stock-based compensation to employees	1,677	1,372	938
Compensation related to shares and warrants granted to non-employees	19	52	70
Gain from marketable securities	(125)	(31)	(5,676)
Impairment of investments in marketable securities	-	-	631
Decrease (Increase) in trade receivables	51	(72)	-
Decrease (increase) in other accounts receivable and prepaid expenses	(244)	(769)	7
Increase (decrease) in trade payables	498	(10)	148
Increase (decrease) in other accounts payable and accruals	(472)	312	112
Adjustment for settlement arrangement	94	-	-
Increase (decrease) in deferred revenue	-	1,700	-
Revaluation of warrants related to share purchase agreements	(1,072)	-	-
Net cash used in operating activities from continuing operations	(13,720)	(12,229)	(11,909)
Net cash provided by (used in) operating activities from discontinued operations	-	458	(26)
Net cash used in operating activities	(13,720)	(11,771)	(11,935)
Cash flows from investing activities:			
Purchase of property and equipment	(440)	(199)	(431)
Proceeds from sale of property and equipment	7	1	-
Decrease (increase) in bank deposits	2,953	(2,275)	(723)
Purchase of marketable securities	(1,489)	(4,497)	(8,491)
Proceeds from sale of marketable securities	3,889	2,291	23,755
Decrease (Increase) in restricted cash	1,076	(433)	(643)
Proceeds from sale of Parkway	147	(35)	-
Net cash provided by (used in) investing activities from continuing operations	6,143	(5,147)	13,467
Net cash used in investing activities from discontinued operations	-	(12)	(2,115)
Net cash provided by (used in) in investing activities	6,143	(5,159)	11,352

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

U.S. dollars in thousands

	Year ended December 31,		
	2010	**2009**	**2008**
Cash flows from financing activities:			
Repayment of capital lease	(143)	(119)	(239)
Receipt of long-term bank loan and capital lease	4	73	249
Repayment of long-term bank loan	-	(10)	(14)
Proceeds from convertible loans	-	750	750
Issuance of shares and warrants, net	7,114	5,730	-
Exercise of warrants and options	-	-	33
Net cash provided by financing activities from continuing operations	6,975	6,424	779
Net cash provided by financing activities from discontinued operations	-	24	25
Net cash provided by financing activities	6,975	6,448	804
Increase (decrease) in cash and cash equivalents	(602)	(10,482)	221
Cash and cash equivalents at beginning of year	3,329	*) 13,811	13,590
Cash and cash equivalents at end of year	$ 2,727	$ 3,329	$ 13,811 *)
Supplemental disclosure:			
Cash paid during the year for:			
Interest	$ -	$ -	$ 3
Non-cash activities:			
Conversion of convertible notes into RG Ordinary shares	$ 1,500	$ -	$ -

*) Includes cash and cash equivalents of discontinued operations of $ 84 at December 31, 2008.

The accompanying notes are an integral part of the consolidated financial statements.

NOTE 1:- GENERAL

a. Rosetta Genomics Ltd. ("the Company") commenced operations on March 9, 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 patent 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 tools. The Company's microRNA-based tests, miRview™ squamous, miRview™ mets, miRview™ mets2 and miRview™ meso, are commercially available worldwide and all samples are processed in its Philadelphia-based CAP-accredited, CLIA-certified lab.

b. The Company holds a wholly-owned subsidiary in the U.S., Rosetta Genomics Inc. The principal business activity of the subsidiary is to commercialize the Company's products, perform and develop tests in its CLIA approved laboratory and expand the business development of the Company in the U.S.

c. On March 2, 2007, the Company consummated an initial public offering ("the IPO") on the NASDAQ Global Market and issued an aggregate of 4,312,500 Ordinary shares for net proceeds of $ 26,000.

d. On September 24, 2008, the Company signed a convertible note agreement with private investors ("the Purchasers") in an initiative for development of microRNA-based algae feedstocks for biofuels. The convertible note was for the purpose of establishing a separately operated business unit by forming a wholly-owned Israeli subsidiary to be named Rosetta Green Ltd. ("RG"). During 2008 and 2009, the Purchasers purchased convertible notes in a total amount of $ 1,500. The notes were converted into a number of RG Ordinary shares, nominal value NIS 0.01, once RG was established, reflecting a fully-diluted pre-money valuation of RG equal to $ 5,000 (see also Note 9).

On February 4, 2010, the Company established RG, as a controlled subsidiary. The principal business of RG is to leverage the Company's capabilities into the areas of cleantech and plant biotech by using the proprietary microRNA technologies to develop plants and algae more suitable for various applications such as improved feedstocks for biofuels and advanced agriculture.

Upon RG establishment, and according to the agreement terms, the convertible notes in the amount of $ 1,500 were converted into RG Ordinary shares.

NOTE 1:- GENERAL (Cont.)

e. The Company is currently moving from the development stage to the operational stage due to commercial sales.

The Company incurred an accumulated deficit of approximately $ 76,215 since inception and incurred recurring operating losses and negative cash flows from operating activities. The Company will have to obtain additional capital resources to maintain its commercialization, research and development activities beyond December 31, 2011.

The Company is addressing its liquidity issues by implementing initiatives to allow covering of its anticipated budget deficit for 2011. In the event that the company will not raise sufficient funds to support its current operations in the next few months, the Company intends to take costs reduction measures that may reduce its research and development activities and potentially manpower until additional funding will be raised. Such initiatives may also include monetizing part of the Company’s assets, such as the Company's shares in its subsidiary Rosetta Green.

As a result from the above mentioned measures that are under Company's control, the Company will have enough resources to continue as a going concern up to December 31, 2011.

There are no assurances, however, that the Company will be successful in obtaining an adequate level of financing needed for the long-term development and commercialization of its products.

Subsequent to the balance sheet date, the Company has obtained additional financing from its investors in the net amount of $5,500, as described in more detail in Note 16.

f. Parkway Clinical Laboratories, Inc. ("Parkway"):

On July 22, 2008 ("the closing date"), the Company, through its subsidiary Rosetta Genomics Inc., acquired all of the issued and outstanding capital stock of a company in the U.S., Parkway Clinical Laboratories Inc. ("the Parkway transaction").

Parkway is a national, full-service Clinical Laboratories Improvement Amendments ("CLIA") certified clinical laboratory service company, which specializes in oral drug screening in the workplace environment and genetics testing services.

The consideration included (i) $ 1,900 in cash, (ii) issuing 229,661 Ordinary shares of the Company equal in value to $ 1,000, and (iii) issuing expenses of $ 207.

Starting the closing date, Parkway's results of operations have been included in the consolidated financial statements.

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

NOTE 1:- GENERAL (Cont.)

This acquisition was accounted for under the purchase method of accounting, in accordance with ASC 805, "Business Combinations" (formerly: Statement of Financial Accounting Standards No. 141, "Business Combinations"), and accordingly, the purchase price was allocated to the assets acquired and liabilities assumed based on their relative fair values as of the acquisition date, as follows:

Working capital	$	(71)
Property and equipment, net		86
Intangible assets:		
Backlog		193
CLIA certification		144
Goodwill		2,755
Net assets acquired	$	3,107

The Company performed an annual assessment of goodwill impairment as of December 31, 2008 for the laboratory services. The Company performed the impairment analysis based on estimated discounted future cash flow. As a result of this analysis, the Company determined that goodwill impairment related to the laboratory services had occurred and recognized a non-cash impairment charge of $ 850 as of December 31, 2008.

Subsequent to obtaining the CLIA certification for the Company's laboratory in Philadelphia, Pennsylvania, on May 18, 2009, the Company sold Parkway, in a management buy-out for up to a maximum amount of $ 2,500, to be paid as a fixed percentage of revenues (15%) over six years and minimum price of $ 750. According to ASC 810, "Consolidation" (formerly: Statement of Financial Accounting Standards No. 160, "Non-controlling Interests in Consolidated Financial Statements"), the Company calculated the fair value of future consideration by using discounted estimate of future cash receipt. As a result of the transaction, the controlling interests in Parkway were transferred to the buyer, as well as all the risks. Accordingly, the Company has no future liabilities or obligation related to Parkway. As of the transaction date, the fair value of the estimated future consideration was $ 759. During the years ended December 31, 2010 and December 31, 2009, the Company received an amount of $ 148 and $ 48, respectively, in respect of this consideration.

As of December 31, 2010 and December 31, 2009, the Company revalued the fair value of the estimated future consideration to $ 171 and $ 773, respectively, out of which $ 30 and $ 292 is recorded as short-term other accounts receivable as of December 31, 2010 and December 31, 2009, respectively, and $ 141 and $ 481 is recorded as long-term other accounts receivable as of December 31, 2010 and December 31, 2009, respectively. As a result of the revaluation, the Company recorded a loss of $ 539, attributed to discontinued operations, and an amount of $ 90 was attributed to financial income in the year ended December 31, 2010.

NOTE 1:- GENERAL (Cont.)

The loss from discontinued operations of Parkway in the amount of $ 539 for the year ended December 31, 2010 is all attributable to updating the fair value of the estimated future consideration.

According to ASC 360, "Property, Plant, and Equipment" / ASC 205, "Presentation of Financial Statements" (formerly: Statement of Financial Accounting Standards No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets"), when a component of an entity, as defined in ASC 360, has been disposed of or is classified as held-for-sale, the results of its operations, including the gain or loss on its disposal should be classified as discontinued operations when the operations and cash flows of the component have been eliminated from the Company's consolidated operations and the Company will no longer have any significant continuing involvement in the operations of the component. The business sold by the Company met the criteria for reporting discontinued operations and, therefore, the results of operations of the business and the loss on the sale have been classified as discontinued operations in the statement of operations and prior periods results have been reclassified accordingly. In addition, the comparative data of the assets and liabilities have been reclassified as assets and liabilities attributed to discontinued operations in the balance sheets.

g. 1. License and collaboration agreement with Prometheus:

On April 10, 2009, the Company entered into a license and collaboration agreement ("the License Agreement") and a laboratory services agreement ("the Services Agreement") with Prometheus Laboratories Inc. ("PL" or "Prometheus") under which the Company agreed to exclusively license and sublicense to PL certain rights related to the Company's microRNA-based cancer diagnostic tests: miRview™ mets, miRview™ squamous and miRview™ meso ("Cancer Diagnostics Products"), including the rights to certain software developed by the Company and related to the miRview ™ mets product. The Company also agreed to collaborate with Prometheus in order to further develop the Cancer Diagnostics Products and to develop two new microRNA-based gastroenterology tests ("GI Products"). Under the License Agreement, PL had the exclusive right to develop and commercialize the Cancer Diagnostics Products and the GI Products in the U.S. The License Agreement also gave PL a right of first negotiation to take a license for certain diagnostic tests or products that are under development by the Company.

Under the provisions of the License Agreement, PL was to contribute to a development fund that was to be used to further develop the Cancer Diagnostic Products and to develop the GI Products. In addition, PL was to pay the Company additional amounts upon reaching certain publication requirements for the Cancer Diagnostic Products and achieving certain product profiles for the GI Products. The Company was also entitled to receive certain payments upon the achievement of commercial milestones.

NOTE 1:- GENERAL (Cont.)

The Company was also entitled to royalties according to the License Agreement on the sale of the Cancer Diagnostic Products and the GI Products, subject to reductions in certain instances.

Under the provisions of the Services Agreement, from the fees that the Company received from PL, in consideration for performing the services, the Company deducted the COGS, royalties to third parties, and the remaining amounts were transferred to a separate account ("Development Fund"). The amounts in the Development Fund were then to be used by the Company to develop improvements to the Company's products, according to an agreed upon development plan, with PL. The Company classified these amounts as restricted cash in its balance sheet.

The License Agreement and the Services Agreement were terminated on November 22, 2010 as part of a settlement agreement reached between Prometheus and the Company, see Note 10m.

2. Prometheus stock purchase agreement:

On April 10, 2009, the Company entered into a stock purchase agreement with PL ("the Purchase Agreement"). Under the Purchase Agreement, on April 27, 2009 ("the closing date"), PL purchased 2,000,000 Ordinary shares of the Company ("the Shares") at a price of $ 4.00 per share in a private placement transaction. Under the terms of the Purchase Agreement, as long as PL or its affiliates continued to hold at least 50% of these Shares, PL was entitled to information rights, pre-emptive rights and board observer rights. Pursuant to the pre-emptive rights, PL had the right to participate in future offerings of the Company's securities to purchase up to its pro rata share in any such offering on the same terms and conditions as other investors.

Certain provisions of this Purchase Agreement were terminated on November 22, 2010 as part of a settlement agreement reached between Prometheus and the Company, see Note 10m.

3. As a result of the stock purchase Agreement and the license and collaboration agreement detailed above, the Company received $ 8,000 out of which an amount of $ 5,730 was recorded as shareholders' equity (net of issuance cost of $ 570) and $ 1,700 was recorded as deferred revenue. On November 22, 2010, the Company recognized the $ 1,700 deferred revenues in its statements of operations as part of a settlement agreement reached between Prometheus and the Company.

The Services Agreement was terminated on November 22, 2010 as part of a settlement agreement reached between Prometheus and the Company, see Note 10m.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP").

a. Use of estimates:

The preparation of financial statements, in conformity with U.S. GAAP, requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

b. Financial statements in U.S. dollars:

The Company's financing activities are incurred in U.S. dollars. A portion of the Company's costs is incurred in U.S. dollars. The Company's management believes that the U.S. dollar is the primary currency of the economic environment in which the Company operates. Thus, the functional and reporting currency of the Company is the U.S. dollar.

Accordingly, monetary accounts maintained in currencies other than the dollar are remeasured into U.S. dollars in accordance with ASC 830, "Foreign Currency Matters" (formerly: Statement of Financial Accounting Standards No. 52 of the Financial Accounting Standards Board ("FASB"), "Foreign Currency Translation"). All transaction gains and losses from the remeasurement of monetary balance sheet items are reflected in the statements of operations as financial income or expenses, as appropriate.

c. Principles of consolidation:

The consolidated financial statements include the accounts of the Company and its subsidiaries. Intercompany transactions and balances have been eliminated upon consolidation.

d. Cash equivalents:

Cash equivalents include short-term highly liquid investments that are readily convertible to cash with original maturities of three months or less from time of deposit.

e. Short-term bank deposits:

Short-term bank deposits are deposits with maturities of more than three months but less than one year. The short-term deposits are presented at their cost.

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

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

f. Marketable securities:

The Company accounts for investments in debt securities and trust fund in accordance with ASC 320, "Investments-Debt and Equity Securities" (formerly: Statement of Financial Accounting Standards No. 115, "Accounting for Certain Investments in Debt and Equity Securities" and FASB Staff Position ("FSP") No. 115-2). Management determines the appropriate classification of its investments in debt securities and trust fund at the time of purchase and reevaluates such determination at each balance sheet date.

Investments in marketable securities are accounted for at fair value, based on quoted market prices, and classified as either trading securities or available-for-sale securities. For investments classified as trading securities, unrealized and realized gains and losses related to the investment and are recorded in earnings. For investments classified as available-for-sale securities, unrealized gains and losses are recorded in accumulated other comprehensive income, a separate component of shareholders' equity, realized gains and losses on sales of available-for-sale securities, as determined on a specific identification basis, are included in the consolidated statement of operations.

As of December 31, 2007, the Company had $ 7,400 of principal invested in Auction Rate Securities ("ARS") ranked AAA/Aaa at the time of purchase. All of these securities retained at least AAA or Aaa rating as of December 31, 2007. All securities continue to pay interest in accordance with their stated terms as of December 31, 2007. However, since these ARS have experienced multiple failed auctions due to a lack of liquidity in the market for these securities, the Company has revalued its ARS portfolio. As a result, it has recorded an impairment charge of $ 5,009 in its statement of operations to reflect other than temporary decline in the value of its investment in ARS. During 2008, the Company recorded an additional impairment of $ 631 related to the ARS.

During the fourth quarter of 2008, the Company received $ 7,400 from the repurchase of the ARS following an unexpected offer to settle the ARS and recorded a gain in the amount of $ 5,640 upon receiving the funds.

g. Property and equipment:

Property and equipment are stated at cost, net of accumulated depreciation. Depreciation is calculated by the straight-line method over the estimated useful lives of the assets.

The annual depreciation rates are as follows:

	%
Computer equipment	33
Office furniture and laboratory equipment	7 - 15 (mainly 15)
Leasehold improvement	Over the shorter of the lease term or useful economic life

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

h. Impairment of long-lived assets:

The long-lived assets of the Company and its subsidiaries and all identifiable intangible assets that are subject to amortization are reviewed for impairment in accordance with ASC 360-10-35, "Property, Plant and Equipment - Subsequent Measurement"/ ASC 250, "Presentation of Financial Statements" (formerly: Statement of Financial Accounting Standards No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets"), whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted cash flows expected to be generated by the assets. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. As of December 31, 2010 and 2009, no impairment losses have been identified.

i. Convertible notes:

Convertible notes are accounted for in accordance with the provisions of ASC 815, "Derivatives and Hedging" and ASC 470-20, "Debt with Conversion and Other Options". The Company, where applicable, recorded an embedded derivative instrument classified as a liability. As of December 31, 2010, the Company did not hold any convertible notes.

j. Revenue recognition:

Revenues from sales of the Company's products are recognized in accordance with Staff Accounting Bulletin No. 104, "Revenue Recognition in Financial Statements" ("SAB No. 104"), when delivery has occurred, persuasive evidence of an agreement exists, the vendor's fee is fixed or determinable, no further obligation exists and collectability is probable.

Revenues from collaborative agreements consist primarily of royalty payments, payments for research and developmental services, up-front fees and milestone payments. If an arrangement requires the delivery or performance of multiple deliverables or service elements, the Company determines whether the individual elements represent "separate units of accounting" under the requirements of ASC 605-25 "Multiple-Element Arrangements".

If the separate elements meet the requirements of ASC 605-25, the Company recognizes the revenue associated with each element separately and revenue is allocated among elements based on relative fair value. If the elements within a multiple deliverable arrangement are not considered separate units of accounting, the delivery of an individual element is considered not to have occurred if there are undelivered elements that are considered essential to the arrangement. Revenue resulting from the achievement of contingent milestone events stipulated in the agreements is recognized when the milestone is achieved. Milestones are based upon the occurrence of a substantive element specified in the contract.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

Royalties from licensing the right to use the Company's products are recognized when earned and when written sales confirmation from the licensee is received and no future obligation exists. Non-refundable, up front advancements of royalties from licensing the right to use the Company's products which are fully chargeable against royalties, are recorded as deferred revenue until the above mentioned criteria for recognizing revenue are met.

Deferred revenues represent payments received in advance, where revenue recognition criteria were not met. As of December 31, 2010, the Company has deferred revenue in an amount of $ 228.

k. Research and development expenses, net:

Research and development expenses include costs of salaries and related expenses, activities related to intellectual property, research materials and supplies and equipment depreciation. All research and development costs are expensed as incurred. The Company has entered into several license agreements for rights to utilize certain technologies. The terms of the licenses may provide for upfront payments, annual maintenance payments and royalties on product sales. Costs to acquire and maintain licensed technology are charged to research and development expense as incurred. During the years ended December 31, 2010, 2009 and 2008, the Company charged to research and development expense $ 123, $ 135 and $ 162 of costs associated with license fees, respectively. (See also Note 10f-10k).

Royalty bearing grants from the Bi-national Industrial Research and Development Foundation ("BIRD") and from the Chief Scientist of Israel's Ministry of Industry, Trade and Labor ("the OCS") for funding approved research and development projects, are presented as a reduction from the research and development expenses (see also Note 10.l). The Company and its subsidiaries received grants in an amount of $ 147, $ 297 and $ 143, in the years 2010, 2009 and 2008, respectively.

l. Accounting for stock-based compensation:

The Company accounts for stock-based compensation in accordance with ASC 718, "Compensation-Stock Compensation" **(**formerly: Statement of Financial Accounting Standards No. 123 (revised 2004), "Share-Based Payment" ("SFAS No. 123(R)")). ASC 718 requires companies to estimate the fair value of equity-based payment awards on the date of grant using an option-pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as an expense over the requisite service periods in the Company's consolidated income statements.

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

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

The Company recognizes compensation expenses for the value of its awards granted based on the straight line method over the requisite service period of each of the awards, net of estimated forfeitures. ASC 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Estimated forfeitures are based on actual historical pre-vesting forfeitures.

The Company selected the Black-Scholes option pricing model as the most appropriate fair value method for its stock-options awards and values restricted stock based on the market value of the underlying shares at the date of grant. The option-pricing model requires a number of assumptions, of which the most significant are the expected stock price volatility and the expected option term.

The weighted-average estimated fair value of employee stock options granted during the 12 months ended December 31, 2010, 2009 and 2008 was $ 0.94, $ 1.24 and $ 3.14, respectively per share using the Black-Scholes option pricing model with the following weighted-average assumptions (annualized percentages):

	Year ended December 31,		
	2010	2009	2008
Dividend yield	0%	0%	0%
Expected volatility	61%-67%	61%-75%	75%-85%
Risk-free interest	1.8%	2.35%	3.53%
Expected life	5.5-6.25 years	5-6.25 years	6.25 years

The weighted-average estimated fair value of employee stock options granted during the 12 months ended December 31, 2010 for RG's shares was $ 2.58 per share using the Black-Scholes option pricing model with the following weighted-average assumptions (annualized percentages):

	Year ended December 31, 2010
Dividend yield	0%
Expected volatility	62%-76%
Risk-free interest	2.18%-3.95%
Expected life	4.75-6 years

The Company is required to assume a dividend yield as an input in the Black-Scholes model. The dividend yield assumption is based on the Company's historical experience and expectation of future dividend payouts. The Company has historically not paid dividends and has no foreseeable plans to pay dividends. The dividend yield used for the twelve months ended December 31, 2010 and 2009 was 0%.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

The computation of expected volatility is based on realized historical stock price volatility of peer data as well as historical volatility of the Company's stock starting from the IPO date.

The risk-free interest rate assumption is the implied yield currently available on United States treasury zero-coupon issues with a remaining term equal to the expected life term of the Company's options.

The Company determined the expected life of the options according to the simplified method, average of vesting and the contractual term of the Company's stock options.

The Company applies ASC 718 and ASC 505-50, "Equity-Based Payments to Non-Employees" (formerly: EITF No. 96-18, "Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring or in Conjunction with Selling, Goods or Services"), with respect to options and warrants issued to non-employees. ASC 718 requires the use of option valuation models to measure the fair value of the options and warrants at the measurement date.

m. Net loss per share:

Basic earnings per share are computed based on the weighted average number of Ordinary shares outstanding during each year. Diluted earnings per share are computed based on the weighted average number of Ordinary shares outstanding during each year, plus dilutive potential Ordinary shares considered outstanding during the year, in accordance with ASC 260, "Earnings per Share" (formerly: Statement of Financial Accounting Standards No. 128, "Earnings per Share").

Basic and diluted net loss per share is computed using the weighted average number of Ordinary shares outstanding during the period.

For the years ended December 31, 2010, 2009 and 2008, all outstanding options, warrants and Preferred shares, if any, have been excluded from the calculation of the diluted net loss per share since their effect was anti-dilutive.

n. Income taxes:

The Company and its subsidiaries account for income taxes and uncertain tax positions in accordance with ASC 740, "Income Taxes" (formerly: Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes". ASC 740 prescribes the use of the liability method whereby deferred tax assets and liability account balances are determined based on the differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

The Company and its subsidiaries provide a valuation allowance, if necessary, to reduce deferred tax assets to the amounts that are more likely-than-not to be realized.

The Company adopted ASC 740-10 (formerly: Statement of Financial Accounting Standards Interpretation No. 48, "Accounting for Uncertainty in Income Taxes, an Interpretation of FASB Statement No. 109") ASC 740-10 contains a two-step approach to recognizing and measuring uncertain tax positions accounted for in accordance with ASC 740. The first step is to evaluate the tax position taken or expected to be taken in a tax return by determining if the weight of available evidence indicates that it is more likely than not that, on an evaluation of the technical merits, the tax position will be sustained on audit, including resolution of any related appeals or litigation processes. The second step is to measure the tax benefit as the largest amount that is more than 50% likely to be realized upon ultimate settlement.

o. Severance pay:

A majority of the employees are included under section 14 of the Israeli Severance Compensation Law ("Section 14"). Under Section 14, the Company’s monthly deposits, at a rate of 8.33% of such employees' monthly salary, are made on their behalf with insurance companies on account of severance pay. Payments in accordance with Section 14 release the Israeli companies from any future severance payments in respect of those employees. Deposits under Section 14 are not recorded as an asset in the Company's balance sheet.

For those Israeli employees who are not included under Section 14, the liability for severance pay is calculated pursuant to Israel's Severance Pay Law based on the most recent salary of the employees multiplied by the number of years of employment, as of the balance sheet date. Employees are entitled to one month's salary for each year of employment or a portion thereof. The Israeli subsidiary's liability for all of its employees is fully provided by monthly deposits with insurance policies and by an accrual. The value of these policies is recorded as an asset in the Company's balance sheet.

The deposited funds may be withdrawn only upon the fulfillment of the obligation pursuant to Israel's Severance Pay Law or labor agreements. The value of the deposited funds is based on the cash surrendered value of these policies, and includes immaterial profits.

Severance expenses for the years ended December 31, 2010, 2009 and 2008 were $ 261, $ 138 and $ 478, respectively.

The U.S. subsidiary has a 401(K) defined contribution plan covering certain employees in the U.S. All eligible employees may elect to contribute to the plan. The subsidiary matches the employee contributions to the plan up to a limit of 3% of their eligible compensation. In the years 2010, 2009, and 2008, the subsidiary recorded an expense for matching contributions in the amount of $ 48, $ 22 and $ 24, respectively.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

p. Concentrations of credit risk:

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents, short-term bank deposits, marketable securities, trade receivables and other account receivables.

Cash and cash equivalents are deposited with major banks in Israel and major banks in the United States. Such deposits in the United States may be in excess of insured limits and are not insured in other jurisdictions. Management believes that the financial institutions that hold the Company's investments are institutions with high credit standing, and accordingly, minimal credit risk exists with respect to these investments.

The Company's marketable securities include investments in Israeli Government securities. Management believes that the portfolio is well diversified, and accordingly, minimal credit risk exists with respect to these marketable securities.

As of December 31, 2010, the Company's marketable securities include investments in Israeli Government bonds and a trust fund. Management believes that minimal credit risk exists with respect to these marketable securities.

q. Fair value of financial instruments:

The carrying amounts of the Company's financial instruments, including cash and cash equivalents, short-term bank deposits, marketable securities, accounts receivable, accounts payable and accrued liabilities, approximate fair value because of their generally short-term maturities.

The Company adopted ASC 820, "Fair Value Measurements and Disclosures". ASC 820 clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants.

As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability. As a basis for considering such assumptions, ASC 820 establishes a three-tier value hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:

Level 1 - Observable input that reflects quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 - Include other inputs that are directly or indirectly observable in the marketplace.

Level 3 - Unobservable inputs which are supported by little or no market activity.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

The fair value hierarchy also requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

r. Impact of recently issued Accounting Standards:

In September 2009, the FASB amended the ASC as summarized in Accounting Standard Update ("ASU") 2009-14, Software (Topic 985): Certain Revenue Arrangements That Include Software Elements, and ASU 2009-13, Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements. As summarized in ASU 2009-14, ASC Topic 985 has been amended to remove from the scope of industry specific revenue accounting guidance for software and software related transactions, tangible products containing software components and non-software components that function together to deliver the product's essential functionality. As summarized in ASU 2009-13, ASC Topic 605 has been amended (1) to provide updated guidance on whether multiple deliverables exist, how the deliverables in an arrangement should be separated, and the consideration allocated; (2) to require an entity to allocate revenue in an arrangement using estimated selling prices of deliverables if a vendor does not have vendor-specific objective evidence ("VSOE") or third-party evidence of selling price; and (3) to eliminate the use of the residual method and require an entity to allocate revenue using the relative selling price method. The accounting changes summarized in ASU 2009-14 and ASU 2009-13 are both effective for fiscal years beginning on or after June 15, 2010, with early adoption permitted. Adoption may either be on a prospective basis or by retrospective application. The Company believes the adoption of this guidance will not have a material impact on its financial condition, results of operations or cash flows.

In April 2010, the FASB issued guidance ASC Topic 605 to amend the accounting and disclosure for revenue recognition - milestone method. This amendment, effective for fiscal years beginning on or after June 15, 2010 (early adoption is permitted), provides guidance on defining a milestone and determining when it may be appropriate to apply the milestone method of revenue recognition for research and development transactions. The Company believes that the adoption of the amendment will not have a material impact on its consolidated financial statements.

In January 2010, the FASB updated the guidance ASC Topic 820 related to "Fair Value Measurements Disclosures". More specifically, this update requires (a) an entity to disclose separately the amounts of significant transfers in and out of Levels 1 and 2 fair value measurements and to describe the reasons for the transfers; and (b) information about purchases, sales, issuances and settlements to be presented separately (i.e. present the activity on a gross basis rather than net) in the reconciliation for fair value measurements using significant unobservable inputs (Level 3 inputs). This update clarifies existing disclosure requirements for the level of disaggregation used for classes of assets and liabilities measured at fair value, and requires disclosures about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements using Level 2 and Level 3 inputs. The adoption of this new guidance did not have a material impact on the Company's financial statements.

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

NOTE 3: - FAIR VALUE MEASUREMENTS

In accordance with ASC 820, "Fair Value Measurements and Disclosures" (originally issued as SFAS 157), the Company measures its marketable securities at fair value based on quoted market price. Marketable securities are classified within level 1. The Company valued the level 3 other accounts receivable, which resulted from the fair value of Parkway's estimated future consideration based on a valuation using the discounted cash flow model. Unobservable inputs used in this model are significant to the fair value of the asset. The fair value of the liability for warrants related to share purchase agreement was calculated using the Black & Scholes Model and Monte Carlo Simulation and the Company classified this liability within Level 3. The Company valued the level 3 accrued expenses, which resulted from the fair value of future payments due for Prometheus settlement, based on a valuation using the discounted cash flow model. Unobservable inputs used in this model are significant to the fair value of the liability. See also Note 11.

The Company's financial assets (liabilities) measured at fair value on a recurring basis, excluding accrued interest components, consisted of the following types of instruments as of December 31, 2010:

	Fair value measurements using input type			
	Level 1	Level 2	Level 3	Total
Assets:				
Marketable securities	$ 392	$ -	$ -	$ 392
Other accounts receivable resulting from fair value of Parkway's estimated future consideration	171	-	-	171
Total assets	$ 563	$ -	$ -	$ 563

	Fair value measurements using input type			
	Level 1	Level 2	Level 3	Total
Liabilities:				
Warrants related to share purchase agreement	$ -	$ -	$ 1,479	$ 1,479
Total liabilities	$ -	$ -	$ 1,479	$ 1,479

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

NOTE 4:- SHORT-TERM BANK DEPOSIT

As of December 31, 2010, the Company holds deposits as follows:

	Amount	Maturity date	Annual interest
	$ 78	January 11, 2011	1.82%
	112	December 5, 2011	0.6%
Total	**$ 190**		

NOTE 5:- MARKETABLE SECURITIES

As of December 31, 2010 and 2009, the Company holds $ 149 and $ 2,756 in marketable securities, respectively, designated as available-for-sale and $ 243 and $ 0 in marketable securities, respectively, designated as held for trading.

The balance of these securities as of December 31, 2010 and 2009 is stated at fair value.

	Amortized cost	Accrued interest	Unrealized gains	Market value
December 31, 2010:				
Held for trading:				
Israeli mutual fund	$ 243	$ -	$ -	$ 243
Available-for-sale:				
Israeli Government bonds	141	1	7	149
Total securities at December 31, 2010	$ 384	$ 1	$ 7	$ 392
December 31, 2009:				
Israeli Government bonds	$ 2,629	$ 31	$ 96	$ 2,756

The Israeli government bonds as of December 31, 2010 mature in August, 2017.

Proceeds from maturity and sales of available-for-sale securities during 2010, 2009 and 2008 were $ 3,398, $ 2,291 and $ 23,755, respectively. Net realized gains from the sales of available-for-sale securities in the years 2010, 2009 and 2008 are $ 123, $ 16 and $ 62, respectively.

Proceeds from maturity and sales of securities held for trading during 2010, 2009 and 2008 were $ 491, $ 0 and $ 0, respectively. Net realized gains from the sales of trading securities in the years 2010, 2009 and 2008 are $ 20, $ 0 and $ 0, respectively. Realized gains are determined based on the specific identification method and are reported to the statement of operations.

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

NOTE 6:- OTHER ACCOUNTS RECEIVABLES AND PREPAID EXPENSES

	December 31,	
	2010	2009
Prepaid expenses	$ 428	$ 265
Other accounts receivable (*)	30	292
	$ 458	$ 557

(*) Other accounts receivable result from the fair value of Parkway's estimated future consideration (see Note 1f).

NOTE 7:- PROPERTY AND EQUIPMENT

	December 31,	
	2010	2009
Cost:		
Computer equipment	$ 584	$ 534
Office furniture and laboratory equipment	1,816	1,577
Leasehold improvements	384	257
	2,784	2,368
Accumulated depreciation:		
Computer equipment	471	408
Office furniture and laboratory equipment	942	658
Leasehold improvements	147	86
	1,560	1,152
Depreciated cost	$ 1,224	$ 1,216

Depreciation expenses for the years ended December 31, 2010, 2009 and 2008 were $ 428, $ 344, and $ 316, respectively. Those expenses include depreciation expenses of capital lease equipment for the years ended December 31, 2010, 2009 and 2008 of $ 88, $ 88 and $ 51, respectively.

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

NOTE 8:- OTHER ACCOUNTS PAYABLE AND ACCRUALS

	December 31,	
	2010	2009
Employees salaries and payroll accruals	$ 843	$ 932
Accrued expenses and other	139	527
Settlement arrangement - see Note 10m	1,135	-
Joint development fund	-	67
	$ 2,117	$ 1,526

NOTE 9:- CONVERTIBLE LOAN

On September 24, 2008, the Company signed a convertible note agreement with private investors ("the Purchasers") in an initiative for development of microRNA-based algae feedstocks for biofeuls. Under the agreement, the Purchasers had the right to purchase convertible notes in an amount up to $ 2,500. The notes were converted to Rosetta Green Ltd. ("RG") Ordinary shares, nominal value NIS 0.01, once RG was established as is obtained by dividing the principal amount of the note by a price per RG share reflecting a fully-diluted pre-money valuation of RG equal to $ 5,000. If RG was not to be established, the notes were then to be converted into Ordinary shares of the Company at a price per share reflecting the average of the closing prices over the five consecutive trading days ending on the last trading day prior to the date of conversion. Such purchase price was not to be lower than $ 2.00 per share. Up to $ 1,250 was to be paid at the closing and up to $ 1,250 was to be paid upon satisfaction of the first of two milestones.

Under this agreement, in September 2008, the Company issued a convertible loan in a principal amount of $ 750 and on March 11, 2009, the Company issued the second tranche for the convertible note of an additional $ 750.

In January 2010, the Company's board of directors approved the establishment of Rosetta Green.

The convertible loan was a hybrid instrument that contains an embedded conversion option to the Company's Ordinary shares or RG's Common shares, until the formation of RG, as detailed above. The embedded conversion option was separated from the host contract and accounted for a derivative under ASC 815 (originally issued as SFAS No. 133). According to EITF 00-19, the derivative was classified as a liability and was measured at fair value.

On February 4, 2010, the Company established Rosetta Green Ltd., an Israeli Company, which is a controlled subsidiary. At that time, the convertible loan was converted to RG shares. As a result of the conversion, the Company's holdings in RG decreased to 76%. The Company recorded $ 1,252 as additional paid-in capital as a result of the conversion of the notes. See also Note 1d and Note 16.

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

NOTE 10: - COMMITMENTS AND CONTINGENT LIABILITIES

a. Restricted cash:

As of December 31, 2009, restricted cash included the following:

1. Accumulated cash balance in an amount of $ 1,064, which was dedicated to future use of RG activity.

2. Cash that the Company received from Prometheus and has dedicated to a Mutual Development Fund according to the agreements signed between the parties in the amount of $ 12.

As of December 31, 2010, the Company does not have any restricted cash.

b. Capital lease and operating lease:

During 2010 and 2009, the Company leased laboratory equipment and computer equipment under several capital and operating lease agreements in a total amount of $ 29 and $ 87, respectively, to be paid in 18 to 36 monthly payments.

The commitments under the lease and loan agreements are $ 62 due until December 31, 2011.

c. The facilities of the Company are rented under operating leases. Aggregate minimum rental commitments under the non-cancelable rent agreements as of December 31, 2010, are as follows:

2011	$	552
2012		557
2013		536
Total	$	1,645

Total rent expenses for the years ended December 31, 2010, 2009 and 2008, were $ 565, $ 566 and $ 431, respectively.

d. The Company leases its motor vehicles under cancelable operating lease agreements. The minimum payment under these operating leases, upon cancellation of these lease agreements was $ 18 as of December 31, 2010.

Lease expenses for motor vehicles for the years ended December 31, 2010, 2009 and 2008, were $ 139, $ 140 and $ 152, respectively.

e. As of December 31, 2010 and 2009, the Company provided a bank guarantee for the fulfillment of its lease commitments in the amount of approximately $ 139 and $ 138, respectively.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

f. In May 2006, the Company signed a royalty-bearing, co-exclusive, worldwide license agreement with a third party. Under this agreement, the Company was granted the right to make, use and sell the third party's proprietary microRNAs for diagnostic purposes including a limited right to sublicense. In consideration for this license the Company paid an initiation fee and will pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of the Company's revenues from any sublicense. The Company estimates that until 2029 the minimum aggregate license maintenance fees over the term of this agreement should be approximately $ 960, of which $ 760 will be paid after December 31, 2010. During the years ended December, 31, 2010, 2009 and 2008, the Company paid fees in the amount of $ 47, $ 47 and $ 40, respectively, to the third party. The Company recorded the payments as research and development expenses.

g. In June 2006, the Company signed a royalty-bearing, co-exclusive, worldwide license agreement with a third party. Under this agreement, the Company licensed from this third party the rights to its proprietary microRNAs for diagnostic purposes. In consideration for this license the Company paid an initiation fee and will pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of the Company's revenue from any sublicense. The Company estimates that until 2022 the minimum aggregate license maintenance fees over the term of this agreement should be approximately $ 520, of which $ 480 will be paid after December 31, 2010. During the years ended December 31, 2010, 2009 and 2008, the Company paid fees in the amount of $ 27, $ 13 and $ 0, respectively, to the third party. The Company recorded the payments as research and development expenses.

h. In August 2006, the Company signed a royalty-bearing, exclusive, worldwide license agreement with a third party. Under this agreement, the Company has exclusively licensed from this third party the rights to its proprietary microRNAs for all fields and applications including a limited right to sublicense. In consideration for this license the Company paid an initiation fee and will pay minimum annual royalties, royalties based on net sales and a percentage of the Company's revenues from any sublicense. The Company estimates that until 2032 the aggregate minimum royalties over the term of this agreement should be approximately $ 2,275, of which $ 2,175 will be paid after December 31, 2010. During the years ended December 31, 2010, 2009 and 2008, the Company paid fees in the amount of $ 59, $ 25 and $ 15, respectively to the third party. The Company recorded the payments as research and development expenses.

i. In December 2006, the Company signed a royalty-bearing, non-exclusive, worldwide license agreement with a third party. Under this agreement the Company licensed from the third party its proprietary microRNAs for research purposes. In consideration for this license the Company will pay an initiation fee and will be required to pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of the Company's revenues from any sublicenses. The Company estimates that until 2022 the minimum aggregate license maintenance fees over the term of this agreement should be approximately $ 320, of which $ 240 will be paid after December 31, 2010. During the years ended December 31, 2010, 2009 and 2008, the Company paid fees in the amount of $ 22, $ 19 and $ 22, respectively under this agreement. The Company recorded the payments as research and development expenses.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

j. In May 2007, the Company signed a royalty-bearing, co-exclusive, worldwide license agreement with a third party. Under this agreement, the Company has licensed from this third party the rights to its proprietary microRNAs for therapeutic purposes including a limited right to sublicense. In consideration for this license the Company paid an initiation fee and will pay a fixed annual license maintenance fee, payments based on milestones and royalties based on net sales and a percentage of the Company's revenues from any sublicense. The Company estimates that until 2029 the minimum aggregate maintenance fees over the term of this agreement should be approximately $ 690, of which $ 570 will be paid after December 31, 2010. During the years ended December 31, 2010 and 2009, the Company paid fees in the amount of $ 35 and $ 35, respectively, to the third party. The Company recorded the payments as research and development expenses.

k. In January 2008, the Company signed a royalty-bearing, co-exclusive, worldwide license agreement with a third party. Under this agreement, the Company was granted the right to make, use and sell the third party's proprietary microRNAs for research purposes including a limited right to sublicense. In consideration for this license the Company paid an initiation fee and will pay a fixed annual license maintenance fee, royalties based on net sales and a percentage of the Company's revenues from any sublicense. The Company estimates that until 2029 the minimum aggregate license maintenance fees over the term of this agreement should be approximately $ 440, of which $ 380 will be paid after December 31, 2010. During the years ended December, 31, 2010 and 2009, the Company paid fees in the amount of $ 24 and $ 24, respectively, to the third party. During the year ended December, 31, 2008, the Company paid initiation fees in the amount of $ 40, to the third party. The Company recorded the payments as research and development expenses.

l. Under the BIRD royalty-bearing program, the Company is not obligated to repay any amounts received from BIRD if the development work being carried out by the Company does not continue beyond the investigational new drug ("IND") stage. If the development work which is being carried out by the Company continues beyond the IND stage, the Company is required to repay BIRD 100% of the grant that the Company received provided that the repayment to BIRD is made within the first year following project completion. For every year that the Company does not make these repayments, the amount to be repaid incrementally increases up to 150% in the fifth year following project completion. All amounts to be repaid to BIRD are linked to the U.S. Consumer Price Index.

As of December 31, 2010, the Company had received $ 484 from BIRD, which was offset against research and development expenses. As of December 31, 2010, no liability was recorded since the Company did not reach technological feasibility for this project.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

The Company participated in programs sponsored by the Israeli Government for the support of research and development activities. In 2010, these programs, including all rights and obligations, were transferred to the Company's subsidiary, RG. As of December 31, 2010, RG had obtained a grant from the Office of the Chief Scientist of Israel's Ministry of Industry, Trade and Labor ("the OCS") aggregating to $ 318 for certain of RG's research and development projects. RG is obligated to pay royalties to the OCS, amounting to 3% - 5% of the sales of the products and other related revenues generated from such projects, up to 100% of the grants received, linked to the U.S. dollar and bearing interest at the rate of LIBOR.

As of December 31, 2010, RG's aggregate contingent obligations for payments to OCS, based on royalty-bearing participation received, totaled approximately $ 318.

m. Settlement Agreement with Prometheus

1. On May 10, 2010, Prometheus Laboratories Inc. ("Prometheus") initiated arbitration proceedings under the License Agreement, dated April 10, 2009, by and between the Company and Prometheus ("the License Agreement") in the International Court of Arbitration to resolve a dispute relating to the scope and funding of the development plan for the development program set forth in the License Agreement ("the Arbitration Proceeding"). On May 12, 2010, the Company delivered a notice of material breach of the License Agreement to Prometheus, alleging that Prometheus failed to comply with its obligations under the License Agreement (i) to fund and implement the development program; and (ii) to use commercially reasonable efforts to commercialize the three diagnostic tests licensed to Prometheus pursuant to the License Agreement.

2. In response, on May 12, 2010, Prometheus issued a notice to the Company alleging that the Company had made material misrepresentations in connection with the Stock Purchase Agreement, dated April 10, 2009, between the Company and Prometheus and demanding rescission of the securities purchased by Prometheus under the Stock Purchase Agreement ("the Rescission Demand").

3. On June 28, 2010, the Company responded to Prometheus' arbitration demand and filed its counterclaims in the Arbitration Proceeding, alleging the same material breaches set forth in its May 12, 2010 notice of material breach. In its counterclaim, the Company requested that the arbitral tribunal declare the License Agreement to be terminated or rescinded on the grounds of Prometheus' material breaches, and further requested that the tribunal award money damages to the Company, in an amount to be determined in the Arbitration Proceeding. That same day, the Company also sent a termination notice to Prometheus, confirming that if Prometheus failed to cure its material breaches, the Company would deem the License Agreement as terminated on and as of July 12, 2010. On July 1, 2010, the Company and Prometheus entered into a standstill agreement, deferring the effectiveness of the Company's termination of the License Agreement.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

On November 22, 2010, the Company and Prometheus entered into a Settlement Agreement and mutual release ("the Settlement Agreement") to resolve these disputes, including all claims relating to the Arbitration Proceeding.

Under the Settlement Agreement, the License Agreement and the Services Agreement have been terminated and the Purchase Agreement has been amended such that, among other things, Prometheus' information rights, pre-emptive rights and board observer rights have been terminated.

In consideration of the termination of the licenses and the return of the commercialization rights under the License Agreement, the Company has agreed to pay Prometheus $ 3.1 million as follows: (a) $ 1.2 million is to be paid on December 2, 2010, (b) $ 500 is to be paid on or before February 28, 2011, (c) $ 650 is to be paid on or before November 22, 2011, and (d) $ 750 is to be paid on or before May 22, 2012. The Company has granted Prometheus a non-interest bearing note with respect to the $ 500 payment due on or before February 28, 2011 and a note bearing interest at 12% per year with respect to the $ 650 payment due on or before November, 22, 2011 and the $ 750 payment due on or before May 22, 2012.

The Company and Prometheus have agreed to mutually release and discharge all claims which were made or could have been made in the arbitration, under the License Agreement, the Services Agreement and the Purchase Agreement, up to the date of the Settlement Agreement, and have agreed to dismiss the arbitration with prejudice within two business days of the date the initial $ 1.2 million payment is received by Prometheus. The Company paid the initial $ 1.2 million payment in December 2010 and therefore, as of December 31, 2010, all claims have been released.

As a result of the Settlement Agreement, the Company reversed the $ 1,700 which had been classified in previous periods as deferred revenues, due to Prometheus' past payments to the Company and has released the restricted cash recorded for the Development Fund which amounted to $ 729 and recognized the accrued expenses recorded for this Development Fund in its statements of operations (see Note 1g). In addition, the Company has recorded a liability for settlement arrangement for its future payment obligations to Prometheus according to their fair values. As of December 31, 2010, the accrued expenses for these future payments amounted to a total of $ 1,862, of which an amount of $ 727 was classified to long-term accrued expenses and $ 1,135 was classified to short-term accrued expenses. The fair value of the payments due to Prometheus as of November 22, 2010, net of the $ 1,700 deferred revenues and the Development Fund recognized, amounted to $ 554 and was recorded as other operating expenses. In 2010, the Company recorded an amount of $ 79 as financial expenses relating to the settlement agreement.

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

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

The following table provides the breakdown of the other operating expenses related to the settlement arrangement in the net total amount of $ 554:

Payments obligations to Prometheus as of arrangement date	$ 2,983
Reversal of deferred revenue	(1,700)
Release of Development Fund	(729)
Total other expenses, net related to settlement agreement	$ 554

n. Consortium funded by the European Union

On December 14, 2010 the Company entered into a consortium funded by the European Union which is part of the Seventh Framework Programme ("FP7") with 11 other participants in relation to the funding of a project done by RG. The expected funding under this program will be €499 ($141) thousands and the Company must contribute up to €150 ($42) thousand for the project. On November 8, 2010, RG signed a letter pursuant to which it undertook to provide the Company with:

1. A royalty free license to use any and all intellectual property rights owned or licensed by RG required in order to perform the FP7 program activities.

2. Any and all resources (such as employees, cash amounts, materials and equipment) required in order to perform the FP7 activities.

In addition, RG agreed to indemnify the Company for any losses and expenses incurred or imposed by the Company in connection with the performance of the FP7 activities.

NOTE 11:- SHARE CAPITAL

a. Ordinary shares:

Ordinary shares confer upon the holders the right to receive notice to participate and vote in the general meetings of the Company, the right to receive dividends, if declared.

b. Investment agreements:

1. In July 2008, as a part of the consideration of Parkway's acquisition (see also Note 1f), the Company issued to Parkway's former sole owner 229,661 Ordinary shares which are equal in value to $ 1,000 based on the weighted-average closing price of the Company's Ordinary shares during the 10 trading days immediately preceding the date of issuance.

2. On April 10, 2009, the Company entered into a stock purchase agreement with Prometheus Laboratories ("the Purchase Agreement" and "PL" or "Prometheus", respectively). Under the Purchase Agreement, on April 27, 2009 ("the closing date"), PL purchased 2,000,000 Ordinary shares of the Company at a price of $ 4.00 per share in a private placement transaction for gross consideration amount of $ 8,000 (see also Note 1g(2)).

3. In November 2009, the board of directors of the Company approved the grant of 65,000 Ordinary shares to one of the Company's executive officers.

4. In December 2009, the board of directors and the shareholders of the Company approved an increase of 10,000,000 Ordinary shares to the authorized share capital. The authorized share capital of the Company after this increase was 27,578,370 Ordinary shares.

5. In October 2010, the board of directors and the shareholders of the Company approved an increase of 30,000,000 Ordinary shares to the authorized share capital. The authorized share capital of the Company after this increase was 57,578,371 Ordinary shares.

6. In January 2010, the Company completed a registered direct offering with several institutional investors. The Company received proceeds of approximately $ 4,650 net of placement agent fees and other offering expenses. Under the terms of the financing, the Company sold 2,530,000 units, consisting of an aggregate of 2,530,000 Ordinary shares and warrants to purchase 1,265,000 additional Ordinary shares. Each unit, consisting of one Ordinary share and a 0.50 warrant to purchase an Ordinary share, was sold for a purchase price of $ 2.00. In addition, the Company granted additional warrants as finders' fee to purchase up to 94,875 Ordinary shares.

   The exercise price of the warrants is $ 2.5 per Ordinary share. The warrants are exercisable for a period of five years.

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

NOTE 11:- SHARE CAPITAL (Cont.)

The Company accounted for these warrants according to the provisions of ASC 815, "Derivatives and Hedging - Contracts in Entity's Own Equity" and based on certain terms of the warrants classified them as liabilities, measured at fair value each reporting period until they will be exercised or expired, with changes in the fair values being recognized in the Company's statement of operations as financial income or expense.

The fair value was measured using the Black & Scholes model. In estimating the warrants' fair value, the Company used the following assumptions:

	Issuance date	December 31, 2010
Risk-free interest rate (1)	2.48%	1.46%
Expected volatility (2)	64%	67%
Expected life (in years) (3)	5	4.05
Expected dividend yield (4)	0	0
Fair value:		
Warrants	$ 1,352	$ 360

(1) Risk-free interest rate - based on yield rates of non-index linked U.S. Federal Reserve treasury bonds.

(2) Expected volatility - since the Company has been traded only since 2007, the volatility was computed according to that of comparable companies in the industry and/or sector.

(3) Expected life - the expected life was based on the maturity date of the warrants.

(4) Expected dividend yield - was based on the fact that the Company has not paid dividends to its shareholders in the past and does not expect to pay dividends to its shareholders in the future.

On the issuance date, In January 2010, the warrants' fair value amounted to $ 1,352. As of December 31, 2010, the fair value of the warrants amounted to $ 360.

7. On December 1, 2010, the Company completed a private placement ("PIPE") offering with several investors. The Company received proceeds of approximately $ 2,240 net of placement agent fees and other offering expenses. Under the terms of the financing, the Company sold 2,500,000 units, consisting of an aggregate of 2,500,000 Ordinary shares, warrants to purchase up to an aggregate of 1,250,000 ordinary shares at an exercise price of $ 1.30 per share ("Series A Warrants") and warrants to purchase up to an aggregate of 625,000 Ordinary shares at an exercise price of $ 0.01 per share ("Series B Warrants"). Each unit was sold for a purchase price of $ 1.00. In addition, the Company granted additional warrants as finders' fee to purchase up to 62,500 Ordinary shares.

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

NOTE 11:- SHARE CAPITAL (Cont.)

The Series A Warrants are exercisable immediately upon issuance, expire on December 1, 2015 and the exercise price is subject to potential future adjustment upon occurrence of various events, such as stock splits or dilutive issuances. On February 23, 2011, in connection with the financing transactions closed by the Company (see Note 16), the exercise price of the Series A Warrants was automatically adjusted thereof from $ 1.30 per share to $ 1.00 per share.

Each Series B Warrant will be automatically exercised on a cashless basis on the 33rd trading day following December 23, 2010, to a number of Ordinary shares equal to the amount of (a) the maximum number of Ordinary shares issuable under such Series B Warrant and (b) the quotient obtained by dividing (1) the difference between (a) $ 1.00 and (b) the greater of $ 0.80 and 80% of the average of the volume weighted average price for the 10 days immediately following December 23, 2010 and (2) $ 0.20. In the event that 80% of the average of the volume weighted average price for the 10 days immediately following December 23, 2010 exceeds $ 1.00, the Series B Warrants terminate. These warrants were exercised after the balance sheet date.

The Company accounted for the Series A and B Warrants according to the provisions of ASC 815, "Derivatives and Hedging - Contracts in Entity's Own Equity", and based on certain terms of the warrants, classified them as liabilities, measured at fair value in each reporting period until they are exercised or expired, with changes in the fair values being recognized in the Company's statement of operations as financial income or expense.

The fair value of the Series A Warrants was measured using Monte Carlo simulation. The fair value was estimated taking into consideration (a) the possibility of the Company becoming privately owned and/or a possibility in which there is an all-cash transaction in the Company's shares, (b) the possibility that the Company will issue additional shares for a share price of under $ 1. In estimating the warrants' fair value, the Company used the following assumptions:

	Issuance date	December 31, 2010
Risk-free interest rate (1)	1.35%	1.93%
Expected volatility (2)	63%	63%
Expected life (in years) (3)	5	4.91
Expected dividend yield (4)	0	0
Fair value:		
Warrants	$ 636	$ 539

(1) Risk-free interest rate - based on yield rates of non-index linked U.S. Federal Reserve treasury bonds.
(2) Expected volatility - since the Company has been traded only since 2007, the volatility was computed according to that of comparable companies in the industry and/or sector.

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

NOTE 11:- SHARE CAPITAL (Cont.)

(3) Expected life - the expected life was based on the maturity date of the warrants.
(4) Expected dividend yield - was based on the fact that the Company has not paid dividends to its shareholders in the past and does not expect to pay dividends to its shareholders in the future.

The fair value of the Series B Warrants was measured using Monte Carlo simulation. In estimating the warrants fair value, the Company used the following assumptions:

	Issuance date	December 31, 2010
Risk-free interest rate (1)	0.29%	0.29%
Expected volatility (2)	65%	65%
Expected life (3)	48 days	40 days
Expected dividend yield (4)	0	0
Fair value:		
Warrants	$ 563	$ 580

(1) Risk-free interest rate - based on yield rates of non-index linked U.S. Federal Reserve treasury bonds.
(2) Expected volatility - based on the volatility of the Company.
(3) Expected life - the expected life was based on the maturity date of the warrants.
(4) Expected dividend yield - was based on the fact that the Company has not paid dividends to its shareholders in the past and does not expect to pay dividends to its shareholders in the future.

On December 1, 2010, the fair value of the Series A Warrants and Series B Warrants amounted to $ 636 and $ 563, respectively. As of December 31, 2010, the fair value of the Series A Warrants and Series B Warrants amounted to $ 539 and $ 580, respectively.

On February 9, 2011, the Series B Warrants were automatically exercised on a cashless basis to 618,444 Ordinary shares. Upon the conversion of Series B Warrants, the fair value of Series B Warrants was classified as equity.

c. Finders' fee warrants:

Under finders' fee agreements, 157,375 warrants are outstanding as of December 31, 2010.

d. Stock option plans:

1. During 2001, the Company adopted the 2001 Israeli Share Option Plan ("the 2001 Plan"), pursuant to which options may be granted to the Company's officers, directors, employees and consultants.

NOTE 11:- SHARE CAPITAL (Cont.)

Pursuant to the 2001 Plan, the Company has reserved a total of 376,679 shares for this plan and for any other option plans, which may be adopted by the Company in the future.

In March 2003, the Company adopted the 2003 Israeli Share Option Plan ("the 2003 Plan"), pursuant to which options may be granted to the Company's officers, directors, employees and consultants. Pursuant to the 2003 Plan, the Company has reserved an additional 188,340 shares for the 2003 Plan and for any other share option plans that have previously been, or in the future may be, adopted by the Company.

In March 2005, the Company's board of directors approved an increase in the shares available under the 2003 Plan from 401,791 shares to a total of 966,810 shares (including the 376,679 shares reserved under the 2001 Plan).

In July 2006, the Company adopted the 2006 Israeli Share Option Plan ("the 2006 Plan"), pursuant to which options may be granted to the Company's directors, employees, consultants and service providers. Pursuant to the 2006 Plan, the Company has reserved an additional 452,024 shares for the 2006 Plan and for any other share option plans that have previously been, or in the future may be, adopted by the Company. In November 2007, the Company approved an additional 500,000 shares for the 2006 Plan.

In December 2009, the Company approved an additional 1,500,000 Ordinary shares for the 2006 Plan.

The total number of options authorized for grant under the plans amounted to 3,418,825. As of December 31, 2010, an aggregate of 818,871 options of the Company are available for future grants.

Options granted under the 2001 and 2003 Plans typically vest, as set forth in each optionee's option agreement, over three years. Options granted under the 2006 Plan typically vest, as set forth in each optionee's option agreement, over 4 years. All options are exercisable until ten years from the grant of the option. Any options which are forfeited or unexercised become available for future grants. The exercise price equals the share price on the grant date.

2. In September 2005, the Company's board of directors approved the acceleration of the vesting of 5,274 unvested options, held by a former employee. As a result, the Company recorded additional compensation costs of $ 12.

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

NOTE 11:- SHARE CAPITAL (Cont.)

3. A summary of the Company's stock option activity and related information for the year ended December 31, 2010, is as follows:

	Number of options	Weighted-average exercise price	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value
Outstanding at January 1, 2010	2,174,858	$ 3.14		
Granted	207,000	$ 1.60		
Exercised	126,495	$ -		
Forfeited	319,106	$ 4.61		
Outstanding at December 31, 2010	1,936,257	$ 2.93	7.64	$ 10
Vested or expected to vest	1,869,358	$ 2.94	7.92	$ 10
Exercisable at December 31, 2010	1,106,240	$ 3.51	7.23	$ 10

The weighted-average grant-date fair value of options granted during the twelve months ended December 31, 2010, 2009 and 2008 was $ 0.94, $ 1.24 and $ 3.14, respectively. The aggregate intrinsic value in the table above represents the total intrinsic value (the difference between the fair market value of the Company's Ordinary shares on December 31, 2010 and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2010. This amount changes based on the fair market value of the Company's shares. During the year ended December 31, 2010, 126,495 options were exercised. As of December 31, 2010, there was $ 894 of total unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the Company's stock option plans. The cost is expected to be recognized over a weighted average period of 2.57 years.

In October 2010, the board of directors of the Company approved the grant of 9,000 restricted shares.

As of December 31, 2010, 4,500 restricted shares of employees are outstanding.

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

NOTE 11:- SHARE CAPITAL (Cont.)

The following table summarizes information about options to employees outstanding at December 31, 2010 under the Plans:

Exercise price	Options outstanding at December 31, 2010	Weighted average remaining contractual life (years)	Weighted average exercise price	Options exercisable at December 31, 2010	Average exercise price of options exercisable
$ 0	10,877	3.28	$ 0	10,877	$ 0
$ 0.01-2.05	1,171,364	8.97	$ 1.96	475,115	$ 2.07
$ 2.12-4.70	520,808	6.3	$ 3.60	397,578	$ 3.69
$ 5.45-6.59	189,650	3.87	$ 6.09	180,245	$ 6.10
$ 7.099-8.8	43,558	6.20	$ 8.09	42,425	$ 8.12
	1,936,257			1,106,240	

In November 2009, the board of directors of the Company approved the grant of 65,000 Ordinary shares to one of Company's executive officers for no consideration, the total fair value of the shares is $ 133.

The following table sets forth the total stock-based compensation expense resulting from stock options granted to employees and directors included in the Company's consolidated statement of operations, excluding options granted on RG's shares:

	Year ended December 31,	
	2010	2009
Research and development costs, net	$ 213	$ 269
Marketing and business development expenses	272	584
General and administrative expenses	242	519
Cost of goods sold	11	-
Total stock-based compensation expense	$ 738	$ 1,372

The total stock-based compensation expense resulting from stock options granted on RG's shares is $ 939, were recorded under non-controlling interests.

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

NOTE 11:- SHARE CAPITAL (Cont.)

e. Options issued to non-employees:

1. The Company's outstanding options to non-employees as of December 31, 2010, are as follows:

Issuance date	Options for Ordinary shares	Exercise price	Options exercisable	Exercisable through
April 2002	30,864	$ -	30,864	April 2012
May 2002	10,288	$ -	10,288	May 2012
July 2002	10,288	$ -	10,288	July 2012
September 2002	11,651	$ 3.65	11,651	September 2012
September 2002	7,534	$ -	7,534	September 2012
January 2004	2,511	$ -	2,511	January 2014
November 2004	14,228	$ -	14,228	November 2014
December 2004	2,511	$ -	2,511	December 2014
August 2006	3,767	$ 6.59	3,767	August 2016
July 2007	38,940	$ 7.30	31,632	July 2017
July 2007	10,000	$ 6.84	8,116	July 2017
November 2007	25,000	$ 5.96	18,746	November 2017
January 2008	15,000	$ 5.70	10,309	January 2018
August 2008	25,000	$ 3.80	14,060	August 2018
	207,582		176,505	

As of December 31, 2010, there was $ 8 of total unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the Company's stock option plans. The cost is expected to be recognized over a weighted average period of 0.01 years.

2. The Company had accounted for its options to non-employees under the fair value method of ASC 718 and ASC 505-50. The fair value of options granted with an exercise price of $ 0, was equal to the share price at the date of grant.

3. The total stock-based compensation expense resulting from stock options granted to non-employees included in the Company's consolidated statement of operations were $ 19 and $ 52 for the years ended December 31, 2010 and 2009, respectively.

4. Options to purchase 2,511 Ordinary shares at an exercise price of $ 0, which were granted in January 2004, were exercised during 2009.

5. Options to purchase 126,495 Ordinary shares at an exercise price of $ 0, which were granted during the years 2003-2010, were exercised during 2010.

NOTE 12:- INCOME TAXES

a. Measurement of taxable income under the Income Tax (Inflationary Adjustments) Law, 1985:

Results for tax purposes in Israel are measured and reflected in real terms in accordance with the change in the Consumer Price Index (CPI) until the end of 2007. As explained in Note 2b, the consolidated financial statements are presented in dollars. The differences between the change in the Israeli CPI and in the NIS/dollar exchange rate causes a difference between taxable income or loss and the income or loss before taxes reflected in the consolidated financial statements. In accordance with paragraph 9(f) of ASC 740 (formerly: SFAS No. 109, "Accounting for Income Taxes"), the Company has not provided deferred income taxes on this difference between the reporting currency and the tax bases of assets and liabilities.

In February 2008, the "Knesset" (Israeli parliament) passed an amendment to the Income Tax (Inflationary Adjustments) Law, 1985, which limits the scope of the law starting 2008 and thereafter. Starting 2008, the results for tax purposes are measured in nominal values, excluding certain adjustments for changes in the Israeli CPI carried out in the period up to December 31, 2007. The amendment to the law includes, inter alia, the elimination of the inflationary additions and deductions and the additional deduction for depreciation starting 2008.

b. Tax benefits under Israel's Law for the Encouragement of Industry (Taxes), 1969 ("the Tax Law"):

The Company is currently qualified as an "industrial company", as defined by the Tax Law, and as such, is entitled to certain tax benefits, mainly amortization of costs relating to know-how and patents over eight years, the right to claim public issuance expenses over three years, and accelerated depreciation.

c. Tax benefits under the Law for the Encouragement of Capital Investments, 1959 ("the Law"):

The Company's production facilities in Israel have been granted "Approved Enterprise" status under the Law currently under separate investment programs. Pursuant to the Law, the Company elected the "Alternative Benefits Track" and has waived Government grants in return for tax exemption.

The main benefit arising from such status is the reduction in tax rates on income derived from "Approved Enterprises". Consequently, the Company is entitled to a two-year tax exemption and five years of tax at a reduced rate (25%).

Additionally, if the Company becomes a "foreign investors company", as defined by the Law, as such it will be entitled to a reduced tax rate of 10%-25% (based on the percentage of foreign ownership in each tax year) and an extension of three years for the benefit period. Since the Company has had no taxable income, the benefits have not yet commenced for any of the programs.

NOTE 12:- INCOME TAXES (Cont.)

The period of tax benefits, detailed above, is subject to a limit of 12 years from the commencement of production, or 14 years from the approval date, whichever is earlier. The year's limitation does not apply to the exemption period.

The entitlement to the above benefits is conditional upon the Company's fulfilling the conditions stipulated by the Law, regulations published thereunder and the letters of approval for the specific investments in "Approved Enterprises". In the event of failure to comply with these conditions, the benefits may be canceled and the Company would be required to refund the amount of tax benefits, plus a consumer price index linkage adjustment and interest.

As of December 31, 2010, management believes that the Company will be able to meet all of the aforementioned conditions.

If these retained tax-exempt profits attributable to the "Approved Enterprise" are distributed in a manner other than in the complete liquidation of the Company, they would be taxed at the corporate tax rate at the applicable rate (10%-25%) in respect of the gross amount of the amount that the Company distributed. The Company is required to withhold tax at the source at a rate of 15% from any dividends distributed from income derived from the Approved Enterprise.

Income from sources other than the "Approved Enterprise" during the benefit period will be subject to tax at the regular corporate tax rate.

On April 1, 2005, an amendment to the Law came into effect ("the Amendment") and has significantly changed the provisions of the Law. The Amendment limits the scope of enterprises, which may be approved by the Investment Center by setting criteria for the approval of a facility as a Beneficiary Enterprise such as provision generally requiring that at least 25% of the Beneficiary Enterprise's income will be derived from export. Additionally, the Amendment enacted major changes in the manner in which tax benefits are awarded under the Law so that companies no longer require Investment Center approval in order to qualify for tax benefits.

If the Company pays a dividend out of income derived from the Beneficiary Enterprise during the tax exemption period, such income will be subject to corporate tax at the applicable rate (10%-25%) in respect of the gross amount of the dividend that the Company may be distributed. The Company is required to withhold tax at the source at a rate of 15% from any dividends distributed from income derived from the Beneficiary Enterprise. Under the Amendment, the benefit period for the Company will be extended until the earlier of (1) seven years from the commencement year or (2) twelve years from the first day of the year of election. This period may be extended for a Beneficiary Enterprise owned by a "foreign investor's company" during all or part of the benefit period.

NOTE 12:- INCOME TAXES (Cont.)

However, the Amendment provides that terms and benefits included in any letter of approval already granted will remain subject to the provisions of the Law as they were on the date of such approval.

As of December 31, 2010, the Company did not generate income under the Law prior to and after the Amendment.

Amendments to the Law:

In December 2010, the "Knesset" (Israeli Parliament) passed the Law for Economic Policy for 2011 and 2012 (Amended Legislation), 2011, which prescribes, among others, amendments to the Law. The amendment became effective as of January 1, 2011. According to the amendment, the benefit tracks in the Law were modified and a flat tax rate applies to the Company's entire preferred income. The Company will be able to opt to apply (the waiver is non-recourse) the amendment and from then on it will be subject to the amended tax rates that are: 2011 and 2012 - 15% (in development area A - 10%), 2013 and 2014 - 12.5% (in development area A - 7%) and in 2015 and thereafter - 12% (in development area A - 6%).

The Company examined the possible effect of the amendment on the financial statements, if at all, and at this time do not believe it will opt to apply the amendment.

d. Tax rates applicable to the income of the Company:

Taxable income of the Company is subject to tax at the rate of 27% in 2008, 26% in 2009 and 25% in 2010.

In July 2009, the Knesset passed the Law for Economic Efficiency (Amended Legislation for Implementing the Economic Plan for 2009 and 2010), 2009, which prescribes, among others, an additional gradual reduction in the rates of the Israeli corporate tax and real capital gains tax, commencing 2011, to the following tax rates: 2011 - 24%, 2012 - 23%, 2013 - 22%, 2014 - 21%, 2015 - 20%, 2016 and thereafter - 18%.

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

NOTE 12:- INCOME TAXES (Cont.)

e. Deferred income taxes:

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred tax assets are as follows:

	December 31,	
	2010	2009
Tax asset in respect of:		
Operating loss carryforward and deductions	$ 17,249	$ 14,411
Reserves, allowances and other	60	49
Net deferred tax asset before valuation allowance	17,309	14,460
Valuation allowance	(17,309)	(14,460)
Net deferred tax asset	$ -	$ -

As of December 31, 2010 and 2009, the Company has provided valuation allowances of $ 17,309 and $ 14,460, respectively, in respect of deferred tax assets resulting from tax loss carryforward and other temporary differences. Management currently believes that since the Company has a history of losses it is more likely than not that the deferred tax regarding the loss carryforward and the other temporary differences will not be realized in the foreseeable future.

f. The main reconciling item between the statutory tax rate of the Company and the effective tax rate is the recognition of valuation allowances in respect of deferred taxes relating to accumulated net operating losses carried forward among the various subsidiary worldwide due to the uncertainty of the realization of such deferred taxes and the effect of the "Approved Enterprise".

g. Net operating losses carryforward:

The Company has estimated accumulated losses for tax purposes as of December 31, 2010, in the amount of approximately $ 70,633 which may be carried forward and offset against taxable income in the future for an indefinite period. The Company's subsidiary in Israel has estimated accumulated losses for tax purposes as of December 31, 2010, in the amount of approximately $ 448 which may be carried forward and offset against taxable income in the future for an indefinite period. The Company's subsidiary in the United States has estimated total available carryforward tax losses as of December 31, 2010 of approximately $ 7,129 to offset against future tax profits for periods of 20 years.

h. Income taxes for the twelve months ended December 31, 2010 and 2009:

The Company and its subsidiaries have not recorded any tax expenses during the twelve months ended December 31, 2010 and 2009, as the Company has losses.

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

NOTE 12:- INCOME TAXES (Cont.)

i. The Company adopted the provisions of ASC 740 for uncertain tax positions on January 1, 2007, and there was no effect on the financial statements. As a result, the Company did not record any cumulative effect related to adopting ASC 740 for uncertain tax positions. The Company did not record a liability deriving from the implementation of ASC 740 for uncertain tax positions.

NOTE 13:- FINANCIAL EXPENSES (INCOME)

	Year ended December 31,		
	2010	2009	2008
Financial income:			
Interest income on short-term deposits	$ (26)	$ (87)	$ (185)
Interest and realized gain on marketable securities	(297)	(45)	* (6,115)
Foreign currency adjustments gains and other	(494)	(33)	-
Revaluation of warrants related to share purchase agreement	(1,072)	-	-
	(1,889)	(165)	(6,300)
Financial expenses:			
Bank and interest expenses	39	107	109
Foreign currency adjustments losses	473	-	11
Realized loss on marketable securities	-	13	13
Impairment of investment in marketable securities	-	-	631
Loss related to derivative instruments	-	-	87
Issuance cost derived from warrants related to share purchase agreement	244		
Others	79	-	-
	835	120	851
	$ (1,054)	$ (45)	$ (5,449)

* Including the reversal of impairment of the ARS securities in the amount of $ 5,640.

NOTE 14 – SEGMENT REPORTING

The Company's segment information has been prepared in accordance with ASC Topic 280, "Segment Reporting." Operating segments are defined as components of an enterprise engaging in business activities about which separate financial information is available that is evaluated regularly by the Company's chief operating decision-maker in deciding how to allocate resources and assess performance. The Company's chief operating decision-maker is its chief executive officer, who evaluates the Company's performance and allocates resources based on segment operating Loss.

As a result of the establishment of Rosetta Green during 2010 (See Note 1d) the Company operates in 2 operating segments:

Rosetta Genomics Ltd –

Development of microRNA-based molecular diagnostics. 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 patent 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 tools. The company's microRNA-based tests, miRview(TM) squamous, miRview(TM) mets, miRview(TM) mets(2) and miRview(TM) meso, are commercially available through its Philadelphia-based CAP-accredited, CLIA-certified lab.

The Company holds a wholly-owned subsidiary in the U.S., Rosetta Genomics Inc. The principal business activity of the subsidiary is to commercialize the Company's products, perform and develop tests in its CLIA approved laboratory and expand the business development of the Company in the U.S.

Rosetta Green Ltd. ("RG").

Development of improved plant traits using innovative genes called microRNAs for the agriculture and biofuel industries. The Company specializes in the identification and use of these unique genes that function as "main bio-switches" to control key processes in major crops such as corn, wheat, rice, soybean, cotton, canola and algae. Rosetta Green's current trait development portfolio includes improved abiotic stress tolerance, increased yield, improved nitrogen use efficiency, improved cotton fiber quality, increased yield for canola and soybean, increased oil content in algae, castor bean and canola for the biofuel industry and improved algal traits for various industrial applications.

Expenses included in segment operating loss consist principally of research and development, business development costs and general and administrative. Certain general and administrative expenses, stock-based compensation and a portion of depreciation and amortization are specifically allocated to specific segments as management believes they are directly attributable to specific segment.

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

NOTE 14 – SEGMENT REPORTING (cont.)

The table below present financial information for the Company's two reportable segments for the year ended December 31, 2010.

	Rosetta Genomics Ltd.	Rosetta Green	Consolidation
Revenues from external customers	$ 279	$ -	$ 279
Research and development expense	$ 5,707	$ 779	$ 6,486
Operating Loss	$ 13,915	$ 1,742	$ 15,657
Financial income, net	$ 1,031	$ 23	$ 1,054
Depreciation and amortization	$ 415	$ 13	$ 428
Segment assets	$ 4,697	$ 596	$ 5,293

In 2010, one customer accounted for 80% of the Company's revenues related to the development of microRNA-based molecular diagnostics segment.

NOTE 15:- RELATED PARTY TRANSACTIONS

a. In June 2003, the Company entered into a license agreement with a shareholder of the Company to use its intellectual property for a period of 20 years for consideration of up to $ 100. During the years 2010, 2009 and 2008, expenses of $ 0, $ 80 and $ 0 were recorded, respectively.

As of December 31, 2010, the Company has no further obligation in connection with this transaction.

b. On December 24, 2008, the Company entered into an Exclusive Testing and Administrative Services Agreement with another company, pursuant to which the other company has the exclusive right to distribute the Company's current diagnostic tests in Turkey and Israel. One of the Company's directors has served as Vice Chairman and Chairman of the Research and Development Committee in the other company's board of directors since 1991. In 2010 and 2009, the Company received $ 23 and $24 under this agreement, respectively.

NOTE 16:- SUBSEQUENT EVENTS

a. On February 23, 2011, the Company completed a concurrent private placement and registered direct offering. The Company has received proceeds of approximately $ 5.5 million net of placement agent fees and other offering expenses.

Under the terms of the private placement, the Company has sold 4,541,668 Ordinary shares at a price of $ 0.60 per share. The purchasers in the private placement also received warrants to purchase up to an aggregate of 3,406,251 Ordinary shares at an exercise price of $ 0.80 per share ("the private Placement Warrants"). The Private Placement Warrants are exercisable immediately upon issuance and have a term of five years.

Under the terms of the registered direct offering, the Company has sold 5,458,671 Ordinary shares at a price of $ 0.60 per share. The purchasers in the registered direct offering also received warrants to purchase up to an aggregate of 2,729,335 Ordinary shares at an exercise price of $ 0.80 per share ("the Registered Direct Warrants"). The Registered Direct Warrants are exercisable immediately upon issuance and have a term of five years.

b. Initial public offering ("IPO") of Rosseta Green Ltd. in Israel:

On February 23, 2011, Rosetta Green Ltd. closed an IPO in Israel pursuant to which RG's shares will trade on the Tel Aviv Stock Exchange (TASE) under the ticker symbol, "RSTG" beginning on February 23, 2011.

Rosetta Green Ltd. raised gross proceeds of NIS 21,900,960 ($ 6,060) in the IPO and sold 136,200 units at NIS 160.8 ($ 44.51) per unit, with each unit comprised of 25 Ordinary shares, 25 Warrants 1 and 25 Warrants 2 for an aggregate of 3,405,000 Ordinary shares, 3,405,000 Warrants 1 and 3,405,000 Warrants 2. The Warrants 1 are exercisable at NIS 8.04 ($ 2.23) until February 8, 2013 and the Warrants 2 are exercisable at NIS 9.65 ($ 2.67) until February 8, 2015. Following the IPO, RG will have 9,905,000 shares outstanding and the Company will hold a 50.03% ownership position in RG. The net proceeds from RG's IPO after offering fees amounted to 18,694 NIS in thousand ($ 5,174).

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Exhibit 4.20

SHAREHOLDERS AGREEMENT

This Shareholders Agreement (the "**Agreement**") is entered into as of the 25th day of November 2010, by and among Rosetta Genomics Ltd. ("**Genomics**") and Plan B Ventures I LLC ("**Plan B**") (each of Genomics and Plan B may be referred to as a "**Shareholder**" and collectively referred to as the "**Shareholders**").

WHEREAS, the Shareholders are holders of ordinary shares, nominal value NIS 0.01 each of Rosetta Green Ltd., Israeli private company number 51-440312-0 (the "**Company**"); **and**

WHEREAS, in connection with the proposed initial public offering and listing of the Company's shares for trading on the Tel Aviv Stock Exchange (the "**IPO**" and the "**TASE**", respectively) the Shareholders desire to set forth certain provisions governing the composition of the Company's board of directors (the "**Board**"), certain restrictions on the sale of shares by the Shareholders and certain co-sale rights upon transfer by the Shareholders of shares of the Company that they currently hold; and

WHEREAS the effectiveness of this Agreement is subject, inter alia, to the receipt of a written confirmation by June 30, 2011, from the Offering Agent (*Rakaz Hanpaka*) in the proposed IPO that all of the conditions for the listing of the Company's shares for trading on the TASE have been satisfied (the "**Condition Precedent**")**.**

NOW THEREFORE, in consideration of their mutual promises and obligations the parties hereto have agreed as follows:

1. Interpretation.

1.1. The Recitals hereto consist an integral part hereof.

1.2. The headings of the sections and subsections of this Agreement are for convenience of reference only and are not to be considered in construing this Agreement.

2. Board of Directors.

2.1. Amendment of Articles of Association. Genomics hereby agrees to vote all of the shares of the Company owned or controlled by Genomics as of the date hereof (the "**Genomics Share**") and Plan B hereby agrees to vote all of the shares of the Company owned or controlled by Plan B as of the date hereof (the "**Plan B Shares**" and, together with the Genomics Shares, the "**Shares**") so that effective immediately prior to satisfaction of the Condition Precedent, the articles of association of the Company (the "**Articles**") will be amended to provide that: (A) the number of members of the Board of Directors of the Company (the "**Directors**" and the "**Board**", respectively) will be not more than seven (7); (B) at least one third of the Directors but not less than three (3) Directors (including, for these purposes , the External Directors required pursuant to the Companies Law ("**External Directors**")) will qualify as "independent directors" as such term is defined in the Companies Law, 5759-1999 ("**Independent Directors**" and "**Companies Law**", respectively); (C) the qualification of any nominee to serve as an Independent Director (other than the initial Independent Director) will be determined by the Audit Committee, annually; (D) the audit committee of the Board (the "**Audit Committee**") will consist of all of the External Directors and, to the extent there are less than three (3) External Directors, two (2) External Directors and one (1) additional Director, who will be either an Independent Director or the Director nominated by Plan B, as determined by the Board; (E) the quorum for any meeting of the Board will include at least (i) two (2) External Directors, or (ii) one (1) External Director and one (1) Independent Director; and (F) the chairman of the Board (the "**Chairman**") will not have a casting vote for any purposes.

2.2. Initial Independent Director. The initial Independent Director will be approved unanimously by the Board prior to satisfaction of the Condition Precedent and further appointment confirmation required under the Companies Law.

2.3. Plan B Nominee. Effective immediately following satisfaction of the Condition Precedent and for as long as Plan B continues to hold 50% or more of the Plan B Shares, Genomics will vote all the Genomics Shares in favor of the election to the Board of one (1) nominee proposed by Plan B.

2.4. Director Compensation. All Directors, including External Directors, but not including any Director who is an employee of the Company, will receive compensation for their directorship equal to the "fixed amount" in accordance with the Companies Regulations (Rules with respect to the Compensation and Expenses of External Directors), 5760-2000 as applicable to the Company's ranking in accordance with such regulations from time to time, plus VAT. The "fixed amount" currently applicable to the Company pursuant to said regulations currently in effect is NIS 25,000 payable to each Director, per year plus NIS 1,590 payable to each Director, for participation at each Board or committee meeting.

Directors who are employees of the Company will not receive any additional compensation beyond their compensation as employees for serving as a Director.

The Chairman will be an active Chairman and as long as in compliance with the duties set forth below or agreed upon by the Board, will receive compensation in the amount of NIS 20,000 per month plus VAT, which will be the total and exclusive cash compensation to which the Chairman will be entitled for his directorship.

The active Chairman will, in addition to his/her responsibilities under the Companies Law, assist in formulating and overseeing the Company's business strategy and its corporate and management development and be involved in identifying and pursuing strategic transactions and initiatives.

In addition to the foregoing compensation, each Director who is in office immediately following the satisfaction of the Condition Precedent and each External Director elected by the Company, but not including a Director who is an employee of the Company or the Chairman, will be given a one-time grant of an option to purchase up to 26,000 ordinary shares of the Company, NIS 0.01 nominal value each at an exercise price of NIS 3.6540 per share. Such options will vest in equal quarterly installments over a period of three (3) years beginning as of the date of satisfaction of the Condition Precedent, with respect to the Directors in office as of such date and, with respect to the External Directors, beginning as of the date of their nomination for election as External Directors by the Board (provided that they are subsequently elected as External Directors by the Shareholders). The options will be valid for a period of ten (10) years and, to the extent not exercised, will expire ten (10) years after the date of grant.

The Chairman shall receive a one-time grant of an option to purchase 52,000 ordinary shares, nominal value NIS 0.01 each of the Company, at the same exercise price per share and with the same vesting schedule as the other Directors. The option will be valid for a period of ten (10) years and, to the extent not exercised, will expire ten (10) years after the date of grant.

3. Lock-Up.

Plan B will be subject to the lock-up provisions required by the TASE with respect to the Plan B Shares. Rosetta Genomics will be subject to a total lock-up with respect to the Genomics Shares for a period of twelve (12) months following satisfaction of the Condition Precedent and thereafter until the termination of twenty-four (24) months following satisfaction of the Condition Precedent will be entitled to sell up to 1% of the Genomics Shares per month (which may be accumulated for up to three (3) months, so that any Shares not sold in any month may be aggregated and sold not later than the end of the second calendar month thereafter). After the termination of twenty-four (24) months following satisfaction of the Condition Precedent there will be no further restrictions on the sale of shares of the Company by Genomics.

4. Co-Sale.

4.1. Following the satisfaction of the Condition Precedent and subject to the provisions of Section 4.6 below, in the event of any proposed sale of any Genomics Shares by Genomics or in the event of any proposed sale of any Plan B Shares by Plan B in an off-market transaction (an "**Off-Market Sale Transaction**"), then Genomics or Plan B as relevant (the "**Selling Shareholder**") shall promptly notify the other (the "**Co-Sale Party**") in writing describing in such notification the purchaser's identity and the material terms of such proposed sale (the "**Transfer Notice**").

4.2. Upon receipt of the Transfer Notice, the Co-Sale Party shall have the option, exercisable by written notice to the Selling Shareholder, within five (5) days after receipt of the Transfer Notice, to require the Selling Shareholder to provide as part of the Off-Market Sale Transaction that the Co-Sale Party be given the right to participate in the Off-Market Sale Transaction and to sell Shares held by the Co-Sale Party, proportionate to the respective holdings between the two Shareholders in the Shares at the time of the Transfer Notice (the **"Co-Sale Party Pro Rata Shares**"), by including such Co-Sale Party Pro Rata Shares held by the Co-Sale Party with the Selling Shareholder's Shares being sold in such Off-Market Sale Transaction. The sale by the Co-Sale Party in accordance with this Section 4.2 shall be on the same terms and conditions under which the Selling Shareholder's Shares are to be sold in the Off-Market Sale Transaction.

4.3. Notwithstanding the above, in the event that Genomics is the Selling Shareholder in an Off- Market Sale Transaction and at the time of the Transfer Notice: (A) Genomics holds less than 20% of the issued and outstanding shares of the Company or as a result of the proposed Off-Market Sale Transaction Genomics holdings in the Company would fall below 20% of the issued and outstanding shares of the Company; and (B) Plan B holds less than 5% of the issued and outstanding shares of the Company, then Plan B shall have the right to either participate pro-rata in such Off-Market Sale Transaction as aforesaid or include all of its remaining Plan B Shares in such transaction.

4.4. In the event that the Co-Sale Party exercises its rights hereunder, the Selling Shareholder (or its Permitted Transferee) must either (i) cause the proposed purchaser in such Off – Market Sale Transaction (the "**Proposed Purchaser**") to add the Co-Sale Party Pro Rata Shares to the Selling Shareholder's Shares to be purchased by the Proposed Purchaser, as part of the Off-Market Sale Transaction; or (ii) so reduce the number of the Selling Shareholder's Shares to be sold in the Off-Market Sale Transaction from the total amount of shares to be purchased by the Proposed Purchaser as to allow the Co-Sale Party to sell the Co-Sale Party Pro Rata Shares in the said Off-Market Sale Transaction,

4.5. Notwithstanding anything to the contrary, the provisions of this Section 4 shall remain in full force and effect until Plan B sells Shares of the Company (whether under this Section 4 or otherwise (including on the TASE or in any Off-Market Sale Transaction) in an aggregate amount at least US$ 1,500,000 and thereafter shall be null and void and of no further effect.

4.6. For the avoidance of doubt, the provisions of this Section 4 shall not apply with respect to a sale of Shares by either party on the TASE or with respect to any shares acquired by either party after the date hereof.

4.7. The provisions of this Section 4 shall not apply with respect to a sale or transfer of Shares by either party to a Permitted Transferee, provided however, that any such Permitted Transferee shall thereafter be bound by the provisions hereof and so confirm in writing to the other party hereto.

"**Permitted Transferee**" means: (a) a transferee by operation of law; (b) a person who is an affiliate or subsidiary of the transferor, (c) any purchaser of all or substantially all of the assets of the transferor or (d) any successor in interest to such transferor, whether by merger, liquidation (including successive mergers or liquidations) or otherwise.

5. Termination.

5.1. This Agreement shall automatically become null and void, and shall not bind any Shareholder, if the Company's board of directors shall resolve to cease proceeding towards the listing of the Company's shares for trading on the TASE, for any reason whatsoever.

5.2. If by June 30, 2011 the Condition Precedent has not occurred, then this Agreement shall automatically become null and void and of no further effect, and shall not bind any Shareholder.

6. Miscellaneous.

6.1. Governing Law and Jurisdiction; Remedies.

(a) This Agreement shall be governed by and interpreted in accordance with the laws of the State of Israel, without giving effect to the rules respecting conflict of law.

(b) The competent courts in Tel Aviv shall have sole and exclusive jurisdiction over any dispute between the parties with respect to this Agreement.

(c) In case any one or more of the covenants and/or agreements set forth in this Agreement shall have been breached by any party hereto, the other parties may proceed to protect and enforce their rights at law or in equity, including by an action for specific performance, injunctive relief and other forms of equitable relief (without posting any bond and without proving that damages would be inadequate) of any such covenant or agreement contained in this Agreement. All remedies hereunder shall be cumulative and the election of any one remedy shall not preclude any other remedy.

6.2. Waiver and Delays. No waiver with respect to any breach or default in the performance of any obligation under the terms of this Agreement shall be deemed to be a waiver with respect to any subsequent breach or default, whether of similar or different nature. Nothing in this Agreement shall be deemed to be a waiver of any remedy available to any party under applicable law. No delay or omission to exercise any right, power, or remedy accruing to any party upon any breach or default under this Agreement, shall be deemed a waiver of any other breach or default theretofore or thereafter occurring.

6.3. Rights; Severability. In case any provision of the Agreement shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby, and in such event this Agreement shall be interpreted so as to give effect, to the greatest extent consistent with and permitted by applicable law, to the meaning and intention of the invalid, illegal or unenforceable provision as determined by a court of competent jurisdiction.

6.4. Notices. Any notice, declaration or other communication required or authorized to be given by any party under this Agreement to any other party shall be in writing and shall be personally delivered, sent by facsimile transmission (with a copy by ordinary mail in either case) or dispatched by courier addressed to the other party at the address stated below or such other address as shall be specified by the parties hereto by notice in accordance with the provisions of this Section. Any notice shall operate and be deemed to have been served, if personally delivered or sent by fax on the next following business day, and if by courier, on the fifth following business day. The Shareholders' addresses for the purposes of this Section 6.4 shall be the addresses set forth below:

Rosetta Genomics Ltd.
10 Plaut Street, Rehovot
Israel, 76706
Fax: +972 (073) 2220701
Attn: Tami Fishman Jutkowitz, Adv.
General Counsel

Plan B Ventures I, LLC
436 Atlantic Avenue
Marblehead, MA 01945
Fax: 781 823 0098
Attn: Barbara W. Goldman

With a copy (which shall not constitute notice) to:
Tulchinsky Stern Marciano Cohen Levitski & Co.
4 Berkowitz Street
Museum Tower, 12th Floor
Tel Aviv
Israel, 64238
Fax: +972 (3) 6075050
Attn: David Cohen, Adv.

With a copy to:
Pearl Cohen Zedek Latzer LLP
50 Congress Street
Suite 640
Boston, MA 02109
Direct 617 228 5726
Fax: 617 228 5721
Email OdedK@pczlaw.com
Attn: Oded Kadosh

6.5. Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of all parties to this Agreement.

6.6. Entire Agreement. This Agreement constitutes the entire agreement among the parties and no party shall be liable or bound to any other party in any manner by any warranties, representations, or covenants except as specifically set forth herein.

6.7. Further Assurance. Each of the parties shall take such actions, including the execution and delivery of further instruments and voting its Shares, as may be necessary to give full effect to the provisions hereof and to the intent of the parties hereto.

6.8. Successors and Assigns. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective Permitted Transferees, provided that such Permitted Transferees sign a written undertaking to the satisfaction of the non-transferring party to be bound by the terms of this Agreement as if such transferee was a party to this Agreement. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective Permitted Transferees any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

6.9. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

6.10. Titles and Subtitles. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

6.11. Expenses. If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other relief to which such party may be entitled.

IN WITNESS WHEREOF the parties have signed this Shareholders Agreement as of the date first set forth hereinabove.

Plan B Ventures I, LLC		Rosetta Genomics Ltd.	
By:	/s/ Barbara W. Goldman	By:	/s/ Yoav Chelouche
Date:	November 25, 2010	Date:	November 25, 2010

Exhibit 4.21

SETTLEMENT AGREEMENT AND MUTUAL RELEASE

This Settlement Agreement is made and entered into as of November 22, 2010 (the "Effective Date"), by and among: (1) on the one hand, **Rosetta Genomics Ltd.**, a corporation organized under the laws of Israel and with its principal place of business at 10 Plaut Street, Rehovot, Israel, 76706 and **Rosetta Genomics Inc.**, a Delaware corporation with its principal place of business at 3711 Market Street, Suite 740, Philadelphia, PA, 19104 (for purposes of this Settlement Agreement, Rosetta Genomics Ltd. and Rosetta Genomics Inc. shall be defined collectively as "Rosetta"); and (2) on the other hand, **Prometheus Laboratories Inc.** ("Prometheus"), a California corporation with its principal place of business at 9410 Carroll Park Drive, San Diego, California, 92121, USA. Rosetta and Prometheus are at times jointly referred to herein as the "Parties" and each as a "Party."

WHEREAS, the Parties entered into a License Agreement dated April 10, 2009 (the "License Agreement"), a Stock Purchase Agreement dated April 10, 2009 (the "Stock Purchase Agreement") and a Laboratory Services Agreement dated April 10, 2009 (the "Laboratory Services Agreement");

WHEREAS, various disputes have developed between the Parties regarding their rights and obligations under the aforesaid agreements;

WHEREAS, the Parties are parties to an arbitration proceeding before the International Court of Arbitration, International Chamber of Commerce ("ICC"), designated by the ICC as Case No. 17123 (the "Arbitration");

WHEREAS, to avoid costs and uncertainties of continued litigation, the Parties desire to resolve, by this Settlement Agreement, their various disputes and all claims asserted in or relating to the Arbitration without any admission of fault on the part of any Party.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby expressly acknowledged, the Parties agree as follows:

1. **Definitions**. Capitalized terms not otherwise defined in this Settlement Agreement shall have the meanings set forth in the License Agreement, Stock Purchase Agreement and Laboratory Services Agreement.

2. **Payments to Prometheus**. Rosetta agrees to make four separate payments to Prometheus as follows:

   a. On December 2, 2010, Rosetta shall pay Prometheus one million, two hundred thousand U.S. dollars ($1,200,000.00) by wire transfer to the following Prometheus account:

b. On or before February 28, 2011, Rosetta shall pay Prometheus five hundred thousand U.S. dollars ($500,000.00) by wire transfer to the Prometheus account identified in Section 2(a) of this Settlement Agreement (the "February 28, 2011 Payment").

c. No later than twelve (12) months after the Effective Date of this Settlement Agreement, Rosetta shall pay Prometheus six hundred and fifty thousand U.S. dollars ($650,000.00) by wire transfer to the Prometheus account identified in Section 2(a) of this Settlement Agreement (the "Twelve Month Payment").

d. No later than eighteen (18) months after the Effective Date of this Settlement Agreement, Rosetta shall pay Prometheus seven hundred and fifty thousand U.S. dollars ($750,000.00) by wire transfer to the Prometheus account identified in Section 2(a) of this Settlement Agreement (the "Eighteen Month Payment").

These payments by Rosetta shall not be reduced by withholding taxes that may be due (taxes are addressed herein in Section 16 of this Settlement Agreement).

3. **Unsecured Notes for Payments.** Concurrently with and as a condition to the execution of this Settlement Agreement, Rosetta shall execute and provide to Prometheus the following unsecured notes (the "Notes") related to the payments set out in Sections 2(b)-(d) of this Settlement Agreement, above:

a. With respect to the February 28, 2011 Payment, an unsecured, non-interest bearing note in the form attached to this Settlement Agreement as Exhibit A. Rosetta may, in its sole and complete discretion, voluntarily prepay this Note in whole or in part at any time and from time to time without penalty.

b. With respect to the Twelve Month Payment and the Eighteen Month Payment, an unsecured note bearing an annual interest rate of twelve percent (12%) in the form attached to this Settlement Agreement as Exhibit B. Rosetta may, in its sole and complete discretion, voluntarily prepay this Note in whole or in part at any time and from time to time without penalty; provided, however, that no payment made by Rosetta shall be applied toward the Twelve Month Payment or the Eighteen Month Payment unless and until the entire balance of the February 28, 2011 Payment is paid in full.

If Rosetta defaults on the Notes, or either of them, the Parties agree that Prometheus may pursue all avenues of relief available to it – including, without limitation, by filing a Consent Judgment in court, in the form attached hereto as Exhibit C, without first complying with any dispute resolution procedures.

4. **Termination of the License Agreement.** Notwithstanding any contrary language in the License Agreement (including, without limitation, as may be set forth in Section 9.7 titled "Survival"), upon the Effective Date of this Settlement Agreement, the License Agreement, all provisions thereof, and all licenses granted thereunder, shall terminate and shall not survive this Settlement Agreement; provided, however, that the following sections (and only the following sections) of the License Agreement shall survive this Settlement Agreement: Sections 4.8 (Withholding Taxes), 6.1 (Confidentiality), 8 (Indemnification), 10 (Limitation of Liability), 11.2 (Arbitration – which shall be amended to delete reference to Section 11.1), 11.4 (Governing Law), 12.6 (Relationship of the Parties), 12.7 (Injunctive Relief), and 12.8 (Notices). Section 4.7 (Audit Rights) shall survive provided that Rosetta shall only be entitled to exercise the audit rights set forth therein if contractually obliged to do so by the terms and conditions of an Upstream License Agreement.

5. **Notification to Customers by Prometheus.** Prometheus shall, within five (5) business days of the Effective Date, send a notification letter in the form attached to this Settlement Agreement as Exhibit D to all customers who have purchased a Diagnostic Test from Prometheus.

6. **Delivery of Information by Prometheus.** On or before January 21, 2011, Prometheus shall deliver to Rosetta the information set forth in Exhibit E hereto.

7. **Payments for Certain Diagnostic Tests; Cancellation of Certain Diagnostic Tests.** The Parties agree and acknowledge that upon Prometheus' receipt of the Payment described in Section 2(a) of this Settlement Agreement, each of the Parties will be deemed to have been compensated in full for: (i) all amounts due to Rosetta for all Diagnostic Tests that, as of the Effective Date, have been ordered by Prometheus and completed by Rosetta (i.e., the tests have been performed by Rosetta and regarding which test reports have been delivered by Rosetta); (ii) all amounts due to Rosetta for all Diagnostic Tests that, as of the Effective Date, have been ordered by Prometheus but not yet completed by Rosetta; (iii) all amounts due to be refunded to Prometheus, including but not limited to any amount due to be refunded to Prometheus in connection with the testing problem disclosed by Rosetta in a Form 6-K filed with the SEC on November 9, 2010; and (iv) all amounts due to each of Rosetta and Prometheus for all Diagnostic Tests that, as of the Effective Date, have been ordered by Prometheus and completed by Rosetta, but the results of which have not yet been reported to the customer by Prometheus. The parties further agree and acknowledge that any Diagnostic Tests that have been ordered by Prometheus as of the Effective Date but not yet performed by Rosetta will be cancelled as of the Effective Date. Nothing in this Section (nor any other section of this Settlement Agreement) shall affect in any way the Parties' indemnity rights, which shall survive this Settlement Agreement.

8. **The Development Fund.** The Parties agree and acknowledge that the Development Fund and all Services Agreement Profits are the sole and exclusive property of Rosetta, and may be used in Rosetta's sole and complete discretion.

9. **Amendment of the Stock Purchase Agreement.** As of the Effective Date, the Stock Purchase Agreement shall be deemed amended as follows: (a) Prometheus' rights under Sections 5.1 (Information and Inspection Rights), 5.2 (Pre-Emptive Rights), 5.3 (Board Observer Rights) and 5.10 (Tax Matters) of the Stock Purchase Agreement are terminated; and (b) the reference in Section 7.1(d)(i)(A) of the Stock Purchase Agreement to "the second anniversary of the Closing Date" is changed to "May 1, 2012"

10. **Termination of the Laboratory Services Agreement.** Upon the termination of the License Agreement, as described in Section 4 of this Settlement Agreement, the Laboratory Services Agreement shall terminate pursuant to Section 12.4 of that agreement. Notwithstanding the foregoing sentence, and any contrary language in the Laboratory Services Agreement (including, without limitation, as may be set forth in Section 12.6 titled "Survival"), the following sections (and only the following sections) of the Laboratory Services Agreement shall survive this Settlement Agreement: 4.2 (Records), 6 (Privacy; Confidentiality), 9 (Indemnities), 10 (Ownership), 11 (Insurance), 13 (Exclusions of Liability; Dispute Resolution), 14.1 (Notices), 14.2 (Independent Contractors), 14.3 (Assignment; Headings), and 14.8 (Governing Law; Counterparts).

11. **Mutual Release of Claims**. In consideration of the promises set forth in this Settlement Agreement, the Parties, each for itself and for its respective parents, subsidiaries, and affiliates and its and their respective predecessors, successors, assigns, directors, officers, employees, contractors, and agents, in each case, in their individual and corporate capacities (each, a "Releasing Party"), hereby fully and completely release and discharge each other and their past and present respective parents, subsidiaries, and affiliates and its and their respective predecessors, successors, assigns, directors, officers, employees, contractors, and agents, in each case, in their individual and corporate capacities (each, a "Released Party") of and from any and all actions, causes of action, claims, demands, counterclaims, and suits, (including, without limitation, the cost of investigation, the cost of litigation and attorney's fees), obligations and/or liabilities of any kind whatsoever, whether or not known, suspected, claimed, developed or undeveloped, anticipated or unanticipated, including, but not limited to, those arising from or related to any of the allegations which were made or could have been made in the Arbitration, under the License Agreement, under the Stock Purchase Agreement, and/or under the Laboratory Services Agreement, up to the date of this Settlement Agreement; provided, however, that nothing in this Section shall in any way limit or otherwise affect in any way: (i) the rights and obligations of the Parties under this Settlement Agreement; (ii) the rights and obligations of the Parties under the Stock Purchase Agreement (as amended hereby); (iii) the rights and obligations of the Parties under the provisions of the License Agreement and Laboratory Services Agreement that survive termination (as set forth herein); or (iv) Prometheus' rights as a shareholder of Rosetta (including, without limitation, the right to receive any dividends, distributions, recoveries, or other payments made to Rosetta shareholders; provided, however, that Prometheus shall not initiate or participate as a named plaintiff in any Rosetta shareholder suit or derivative action related to events preceding this Settlement Agreement). In executing the foregoing release, the Parties expressly waive California Civil Code § 1542 (and any statute, rule, or legal doctrine of any other jurisdiction of similar import), which provides as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

12. **Dismissal of Action.** Within one (1) business day of the Effective Date of this Settlement Agreement, the Parties shall notify the tribunal in the Arbitration that the Parties have reached a settlement and that all actions in the Arbitration shall be suspended pending the dismissal contemplated by this Section. Within two (2) business days of the receipt of the payment described in Section 2(a), the Parties shall file an appropriate joint notice of voluntary dismissal with the ICC, dismissing all claims in the Arbitration by all Parties with prejudice. Each Party shall bear its own fees and costs incurred in the Arbitration and the negotiation of this Settlement Agreement, and each Party waives any claim for attorneys' fees arising during the Arbitration. In the event that the ICC refunds to the Parties any of the funds that the Parties have paid to the ICC, the Parties shall evenly split such refund(s).

13. **Non-disparagement.** The Parties shall not engage in any conduct or make any communication intended to disparage, or likely to have the effect of disparaging, any other Party or any of the other Parties' respective parents, subsidiaries, and affiliates and its and their respective predecessors, successors, assigns, directors, officers, employees, contractors, and agents.

14. **Publicity**. Promptly following the execution of this Settlement Agreement, the Parties shall be permitted to (i) issue a press release disclosing the material terms of this Settlement Agreement and/or (ii) make filings with the SEC disclosing the material terms of this Settlement Agreement, including a Form 6-K to be filed by Rosetta. Except as required by Law or court order, all other publicity, press releases and public announcements relating to this Settlement Agreement shall be reviewed in advance by, and shall be subject to the written approval (such approval not to be unreasonably conditioned, withheld or delayed) of the Parties. Each Party shall provide the other Party an opportunity to review and comment on the language of such press release or other public disclosure. Either Party may disclose the existence of this Settlement Agreement and the terms and conditions hereof, without the prior written consent of the other Party, as may be required by applicable Law (including, without limitation, disclosure requirements of the SEC, the New York Stock Exchange, or any other stock exchange or the Nasdaq Global Market), in which case the Party seeking to disclose the information shall give the other Party reasonable advance notice and review of any such disclosure.

15. **Joint and Several Liability For Payment**. Notwithstanding any provision herein designating which Rosetta entity should make a given payment, all Rosetta payment obligations set forth herein shall be the joint and several obligation of Rosetta Genomics, Inc. and Rosetta Genomics, Ltd.

16. **Taxes**.

(a) If, at any time prior to the date that is eighteen (18) months from the Effective Date, the Israeli tax authority (the "ITA") advises that Rosetta is (or was) obliged to withhold or pay taxes on account of the payments to be made by Rosetta to Prometheus under this Settlement Agreement, Rosetta shall pay such taxes to the Israeli tax authority and furnish Prometheus with satisfactory evidence of such payment, and Prometheus shall within ten (10) business days reimburse Rosetta for 50% of all such taxes paid by Rosetta to the ITA. In the event that the ITA does not advise that Rosetta withhold or pay taxes on the payments to be made by Rosetta to Prometheus under this Settlement Agreement prior to a date that is eighteen (18) months from the Effective Date, the Parties agree and acknowledge that Rosetta shall pay any such taxes to the ITA, and that Prometheus shall have no duty to reimburse Rosetta for any amount of the taxes so paid.

(b) If Rosetta is advised by the ITA that it must withhold or pay taxes on account of the payments to be made by Rosetta to Prometheus under this Settlement Agreement, then before making any payment to the ITA, Rosetta will first attempt to obtain an exemption from the payment of such taxes or an approval from the ITA that a reduced amount of taxes is payable in connection therewith (the "Tax Certificate"). Prometheus shall assist Rosetta and any of its legal advisors to take all reasonable actions and to execute such reasonable documents and instruments in the name of Prometheus as Rosetta deems reasonably required or advisable in connection with obtaining such Tax Certificate. Furthermore, Prometheus shall give all assistance reasonably requested by Rosetta in connection with its efforts to obtain said Tax Certificate including taking any action and providing Rosetta with such documents, statements, instruments and other documents that Rosetta may reasonably require and any other documents and statements requested by the ITA. Obtaining the Tax Certificate shall be at Rosetta's expense and accordingly Rosetta shall bear all its costs in connection with obtaining the Tax Certificate, including legal fees of its legal counsel, and Prometheus shall not be required to reimburse Rosetta for any of such costs. Except as may constitute wilful misconduct or gross negligence, Rosetta shall not have or incur any liability whatsoever by reason of any of its acts or omissions in connection with obtaining the Tax Certificate and Prometheus hereby waives any and all claims against Rosetta with respect to such acts or omissions.

(c) Rosetta shall give reasonable assistance to Prometheus in obtaining documentation required by Prometheus to support an application for (i) an exemption from or reduction of withholding taxes where available under applicable Law, or (ii) a foreign tax credit from the US Internal Revenue Service (or any successor agency thereto) on account of the payment of such taxes, in each case solely to the extent that Prometheus has borne the burden of such withholding taxes.

17. **Representations and Warranties**. Each person whose signature is affixed hereto on behalf of a Party represents and warrants that such person has full authority to execute this Settlement Agreement on behalf of that Party and to bind that Party to this Settlement Agreement. Each Party represents and warrants that it owns all right, title and interest in and to the claims released herein and has not assigned, transferred, conveyed or encumbered any claim or right of action that such Party has as against each other, that it has the legal capacity to enter into this Settlement Agreement, that it has read this Settlement Agreement, that it understands this Settlement Agreement, and that it intends to be legally bound thereby.

18. **Entire Agreement.** This Settlement Agreement is a fully integrated agreement. Along with the surviving provisions of the License Agreement, the Stock Purchase Agreement and Laboratory Services Agreement identified above, this Settlement Agreement contains the entire agreement of the Parties with respect to its subject matter, and all prior oral or written agreements, contracts, memoranda, negotiations, representations and discussions, if any, pertaining to this matter and the Parties hereto are merged into this Settlement Agreement. No Party to this Settlement Agreement has made any oral or written representation other than those set forth in this Settlement Agreement, and no Party has relied upon, or is entering into, this Settlement Agreement in reliance upon any representation other than those set forth in this Settlement Agreement.

19. **Binding Effect.** The obligations and rights under this Settlement Agreement shall be binding upon and inure to the benefit of, as the case may be, the Parties' successors, assigns, heirs and personal representatives.

20. **No Oral Modifications or Waivers.** No waiver, modification or amendment of any provision of this Settlement Agreement shall be effective unless executed in writing by the Parties to be bound by such waiver, modification or amendment. The failure of a Party to enforce the breach of any of the terms or provisions of this Settlement Agreement shall not be a waiver of any preceding or succeeding breach of the Settlement Agreement or any of its provisions, nor shall it affect in any way the obligation of the other Parties to fully perform their obligations hereunder.

21. **Interpretation; Severability; Voidability.** This Settlement Agreement will not be construed against either of the Parties on the grounds that such Party was the author or drafter of this Settlement Agreement or any provision thereof. Inapplicability or unenforceability for any reason of any provision of this Settlement Agreement shall neither limit nor impair the operation or validity of any other provision of this Settlement Agreement. Notwithstanding the foregoing sentence, if, for any reason whatsoever, the payment provided for under Section 2(a) above is not made within five (5) business days of December 2, 2010, at Prometheus's sole and exclusive option, this Settlement Agreement (including the exhibits hereto) may be declared null and void, and of no effect, and the Parties shall return to the status quo ante, reserving any and all rights they possessed before the execution of the Settlement Agreement.

22. **Execution in Counterparts.** This Settlement Agreement may be executed in one or more counterparts, each of which shall be considered to be an original, but all of which taken together shall constitute a single document. A photocopy or telecopy of an executed counterpart of this Settlement Agreement shall be sufficient to bind the Party or Parties whose signature(s) appear thereon.

23. **Advice of Counsel; Voluntariness**. The Parties acknowledge (a) that they have been separately represented by counsel and have received the benefit of the advice of counsel in connection with the negotiation and execution of this Settlement Agreement, (b) that, other than as stated in this Settlement Agreement, no party, agent, attorney or other person has made any promise or inducement to enter into this Settlement Agreement, and (c) that each Party hereto has entered into this Settlement Agreement of its own free will and without any threat of intimidation, coercion or undue influence.

24. **No Admission of Wrongdoing.** This Settlement Agreement, whether or not consummated, its execution or delivery, any negotiations relating thereto, and any actions taken pursuant to it, do not constitute, and shall not be offered or received against any Party as evidence of, or construed as, or deemed to be evidence of any presumption, concession or admission by any Party with respect to the truth of any fact involved in this dispute or the validity or invalidity of any claim, counterclaim or defense thereto that has been or could have been asserted, or of any liability, negligence, fault or wrongdoing in any proceeding.

25. **Confidentiality.** Except as provided by Section 14 of this Settlement Agreement, the Parties agree that neither they, nor any of their agents or attorneys, shall disclose, divulge or furnish to any person or entity the existence or contents of this Settlement Agreement, or the subject matter of, or any information or documents concerning, the Arbitration, except to the extent required by law or rules applicable to public financial filings; provided, however, that the Parties may disclose, if necessary, information to their respective accountants, auditors, attorneys, brokers, underwriters, insurers, or similar professionals (collectively, "business professionals"), who shall also agree to, and shall, keep such information confidential. If the Parties and/or their respective business professionals are asked about the Arbitration or about this Settlement Agreement, the Parties shall state only, and shall instruct their respective business professionals to state only, that the dispute has been settled and shall not disclose any other information. Nothing contained herein shall prohibit the Parties from making known the terms and conditions of this Settlement Agreement if the production of same is required by a subpoena issued by a lawfully constituted judicial body having jurisdiction over the Party; however, the Party receiving any such subpoena agrees to provide prompt written notice to the other Party prior to producing the subpoenaed information to afford the other Party the opportunity to move to quash the subpoena.

26. **Dispute Resolution**. Any dispute, controversy, claim or disagreement between the Parties arising from, relating to or in connection with this Settlement Agreement, including questions regarding the interpretation, meaning or performance of this Settlement Agreement, and including claims based on contract, tort, common law, equity, statute, regulation, order or otherwise, shall be resolved in accordance with the terms of Sections 11.2 and 11.4 of the License Agreement, which shall survive the termination of the License Agreement.

27. **Governing Law and Venue**. The Parties agree that the internal laws of the State of New York (without regard to choice of laws principles) will govern this Settlement Agreement and any disputes concerning the subject matter addressed herein.

28. **Survival of Settlement Agreement.** This Settlement Agreement shall survive the dismissal of the Arbitration.

By signing below, each Party agrees to be bound by this Settlement Agreement.

ROSETTA GENOMICS LTD.

By: /s/ Yoav Chelouche
<SIGNATURE>

Yoav Chelouche
<PRINT NAME>

Title: Chairman
Date: 11/22/2010

PROMETHEUS LABORATORIES INC.

By: /s/ Joseph M. Limber
<SIGNATURE>

Joseph M. Limber
<PRINT NAME>

Title: President, CEO
Date: 22 November 2010

ROSETTA GENOMICS INC.

By: /s/ Kenneth A. Berlin
<SIGNATURE>

Kenneth A. Berlin
<PRINT NAME>

Title: President & CEO
Date: 11/22/2010

Exhibit 4.21.1

PROMISSORY NOTE

$500,000November 22, 2010

FOR VALUE RECEIVED, Rosetta Genomics Ltd., a corporation organized under the laws of Israel and with its principal place of business at 10 Plaut St., Rehovot, Israel 76706, and Rosetta Genomics Inc., a Delaware corporate with its principal place of business at 3711 Market Street, Suite 740, Philadelphia, PA 19104 (each a "Maker" and together the "Makers"), hereby promise, jointly and severally, to pay to the order of Prometheus Laboratories Inc., a California corporation, having its principal place of business at 9410 Carroll Park Drive, San Diego, California 92121 ("Holder"), in lawful money of the United States of America the principal amount of Five Hundred Thousand Dollars ($500,000) on or before February 28, 2011. No interest shall accrue in the interim.

1. Prepayment. Makers may voluntarily prepay this Note in whole or in part at any time and from time to time without penalty.

2. Unsecured. This Note is unsecured.

3. Event of Default. Each of the following shall constitute an Event of Default under this Note:

(a) Failure by Makers to make any payment of principal under this Note on the due date; or

(b) A receiver, liquidator or trustee of a Maker or of any property of a Maker, shall be appointed by court order; or a Maker shall be adjudged bankrupt or insolvent; or any of the property of a Maker shall be sequestered by court order; or a petition to reorganize a Maker under any bankruptcy, reorganization or insolvency law shall be filed against a Maker and shall not be dismissed within sixty (60) days after such filing; or

(c) A Maker shall file a petition in voluntary bankruptcy or requesting reorganization under any provision of any bankruptcy, reorganization or insolvency law or shall consent to the filing of any petition against it under any such law; or

(d) A Maker shall make a formal or informal assignment for the benefit of its creditors or admit in writing its inability to pay its debts generally when they become due or shall consent to the appointment of a receiver, trustee or liquidator of a Maker or of all or any part of the property of a Maker.

4. Remedies Upon an Event of Default. Upon the occurrence and during the continuation of an Event of Default, following five (5) business days' prior written notice to Makers, Holder may, at its option, declare all outstanding amounts due hereunder, including, without limitation, the entire unpaid principal balance of this Note to be immediately due and payable. Holder may pursue all avenues of collection available to it, including without limitation by filing any consent judgments related hereto.

5. Waivers; Severability. Except as otherwise provided in this Note, Makers hereby waive presentment, demand, protest or notice of any kind in connection with this Note. No failure on the part of Holder in exercising any right or remedy hereunder, and no single, partial or delayed exercise by Holder of any right or remedy shall preclude the full and timely exercise by Holder at any time of any right or remedy of Holder hereunder without notice. In the event that any court of competent jurisdiction shall determine that any provision, or portion thereof, contained in this Note shall be unenforceable in any respect, then such provision shall be deemed limited to the extent that such court deems it enforceable, and the remaining provisions of this Note shall nevertheless remain in full force and effect.

6. Successors and Assigns. This Note shall be binding upon and enforceable against Makers and Makers' successors and assigns and shall inure to the benefit of Holder and Holder's successors, endorsees and assigns.

7. Governing Law. This Note shall be governed by, and construed and enforced in accordance with the laws of State of New York, without regard to its principles of conflicts of laws.

8. Headings. The headings in this Note are for convenience only and shall not affect the interpretation thereof.

IN WITNESS WHEREOF, Maker has caused this Note to be executed as of the date first above written.

Witness:

/s/ signature illegible
Name:

ROSETTA GENOMICS LTD.

By: /s/ Yoav Chelouche
Name: Yoav Chelouche
Title: Chairman

ROSETTA GENOMICS INC.

By: /s/ Yoav Chelouche
Name: Yoav Chelouche
Title: Chairman

Exhibit 4.21.2

PROMISSORY NOTE

$1,400,000November 22, 2010

FOR VALUE RECEIVED, Rosetta Genomics Ltd., a corporation organized under the laws of Israel and with its principal place of business at 10 Plaut St., Rehovot, Israel 76706, and Rosetta Genomics Inc., a Delaware corporate with its principal place of business at 3711 Market Street, Suite 740, Philadelphia, PA 19104 (each a "Maker" and together the "Makers"), hereby promise, jointly and severally, to pay to the order of Prometheus Laboratories Inc., a California corporation, having its principal place of business at 9410 Carroll Park Drive, San Diego, California 92121 ("Holder"), in lawful money of the United States of America the principal amount of One Million Four Hundred Thousand Dollars ($1,400,000), plus interest thereon according to the terms set forth below in Section 1.

1. Accrual and Payments, Principal and Interest. Interest on the outstanding principal balance of this Note shall accrue at an annual rate equal to twelve percent (12%). On November 22, 2011, a principal payment of $650,000, together with all accrued and unpaid interest, shall be due and payable. On May 22, 2012, the remaining principal balance of $750,000, together with all accrued and unpaid interest, shall be due and payable, after which this Note shall be paid in full.

2. Prepayment. Makers may voluntarily prepay this Note in whole or in part at any time and from time to time without penalty; provided, however, that no payment made by Makers shall be applied toward the balance of this Note unless and until the entire balance of the November 22, 2010 Promissory Note between Makers and Holder in the principal amount of $500,000 (the "No Interest Note") is paid in full.

3. Unsecured. This Note is unsecured.

4. Event of Default. Each of the following shall constitute an Event of Default under this Note:

(a) Failure by Makers to make any payment of principal under this Note or under the No Interest Note on the due date; or

(b) A receiver, liquidator or trustee of a Maker or of any property of a Maker, shall be appointed by court order; or a Maker shall be adjudged bankrupt or insolvent; or any of the property of a Maker shall be sequestered by court order; or a petition to reorganize a Maker under any bankruptcy, reorganization or insolvency law shall be filed against a Maker and shall not be dismissed within sixty (60) days after such filing; or

(c) A Maker shall file a petition in voluntary bankruptcy or requesting reorganization under any provision of any bankruptcy, reorganization or insolvency law or shall consent to the filing of any petition against it under any such law; or

(d) A Maker shall make a formal or informal assignment for the benefit of its creditors or admit in writing its inability to pay its debts generally when they become due or shall consent to the appointment of a receiver, trustee or liquidator of a Maker or of all or any part of the property of a Maker.

5. Remedies Upon an Event of Default. Upon the occurrence and during the continuation of an Event of Default, following five (5) business days' prior written notice to Makers, Holder may, at its option, declare all outstanding amounts due hereunder, including, without limitation, the entire unpaid principal balance of this Note and all accrued and unpaid interest thereon, to be immediately due and payable. Holder may pursue all avenues of collection available to it, including without limitation by filing any consent judgments related hereto.

6. Waivers; Severability. Except as otherwise provided in this Note, Makers hereby waive presentment, demand, protest or notice of any kind in connection with this Note. No failure on the part of Holder in exercising any right or remedy hereunder, and no single, partial or delayed exercise by Holder of any right or remedy shall preclude the full and timely exercise by Holder at any time of any right or remedy of Holder hereunder without notice. In the event that any court of competent jurisdiction shall determine that any provision, or portion thereof, contained in this Note shall be unenforceable in any respect, then such provision shall be deemed limited to the extent that such court deems it enforceable, and the remaining provisions of this Note shall nevertheless remain in full force and effect.

7. Maximum Legal Rate. It is the intent of Holder and of Makers that in no event shall interest be payable at a rate in excess of the maximum rate permitted by applicable law (the "Maximum Legal Rate"). Solely to the extent necessary to prevent interest under this Note from exceeding the Maximum Legal Rate, any amount that would be treated as excessive under a final judicial interpretation of applicable law shall be deemed to have been a mistake and automatically cancelled and, if received by Holder, shall be applied to the principal balance of this Note or, if no principal balance remains outstanding, then such amount shall be refunded to Makers.

8. Successors and Assigns. This Note shall be binding upon and enforceable against Makers and Makers' successors and assigns and shall inure to the benefit of Holder and Holder's successors, endorsees and assigns.

9. Governing Law. This Note shall be governed by, and construed and enforced in accordance with the laws of State of New York, without regard to its principles of conflicts of laws.

10. Headings. The headings in this Note are for convenience only and shall not affect the interpretation thereof.

IN WITNESS WHEREOF, Maker has caused this Note to be executed as of the date first above written.

Witness:

/s/ signature illegible
Name:

ROSETTA GENOMICS LTD.

By: /s/ Yoav Chelouche
Name: Yoav Chelouche
Title: Chairman

ROSETTA GENOMICS INC.

By: /s/ Yoav Chelouche
Name: Yoav Chelouche
Title: Chairman

Exhibit 8.1

SUBSIDIARIES

Subsidiary	Jurisdiction
Rosetta Genomics Inc.	Delaware
Rosetta Green Ltd.	Israel

Exhibit 12.1

CERTIFICATIONS

I, Kenneth A. Berlin, certify that:

1. I have reviewed this Annual Report on Form 20-F of Rosetta Genomics Ltd.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: March 31, 2011

/s/ Kenneth A. Berlin
Kenneth A. Berlin
Chief Executive Officer and President
(principal executive officer)

Exhibit 12.2

CERTIFICATIONS

I, Keren Givli, certify that:

1. I have reviewed this Annual Report on Form 20-F of Rosetta Genomics Ltd.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: March 31, 2011

/s/ Keren Givli
Keren Givli
Interim Vice President Finance
(principal accounting and financial officer)

Exhibit 13.1

CERTIFICATIONS UNDER SECTION 906

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Rosetta Genomics Ltd., an Israeli corporation (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report on Form 20-F for the year ended December 31, 2010 (the "Form 20-F") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 20-F fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 31, 2011

/s/ Kenneth A. Berlin
Kenneth A. Berlin
Chief Executive Officer and President
(principal executive officer)

Dated: March 31, 2011

/s/ Keren Givli
Keren Givli
Interim Vice President Finance
(principal accounting and financial officer)

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 15.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements on Form F-3 (Nos. 333-159955, 333-163063, 333-171203 and 333-172655) and the related prospectuses and Form S-8 (Nos. 333-141525, 333-147805 and 333-165722) of Rosetta Genomics Ltd. of our report dated March 31, 2011 with respect to the consolidated financial statements of Rosetta Genomics Ltd. and its subsidiaries, included in this Annual Report (Form 20-F) for the year ended December 31, 2010.

Tel-Aviv, Israel
March 31, 2011

/s/ Kost Forer Gabbay & Kasierer
A Member of Ernst & Young Global