As filed with the Securities and Exchange Commission on March 26, 2010

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, 2009

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, 2009, the issuer had 14,239,443 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"), 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, 2007, 2008 and 2009, for the period from March 9, 2000 (date of inception) through December 31, 2009 and as of December 31, 2008 and 2009 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, 2005 and 2006 and as of December 31, 2005, 2006 and 2007 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. 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,					Period from March 9, 2000 (date of inception) through December 31,
	2009	2008	2007	2006	2005	2009
	(In thousands, except share and per share data)					
Consolidated Statement of Income:						
Revenues:	$ 150	$ -	$ -	$ -	$ -	$ 150
Cost of revenues	339	-	-	-	-	339
Gross loss	189	-	-	-	-	189
Consolidated Statements of Operations:						
Operating expenses:						
Research and development	6,552	8,705	6,400	4,781	3,173	34,756
Marketing and business development	4,451	2,177	1,742	1,504	865	11,169
General and administrative	3,605	3,189	2,903	1,860	1,145	14,131
Total operating expenses	14,608	14,071	11,045	8,145	5,193	60,056
Operating loss	14,797	14,071	11,045	8,145	5,193	60,245
Financial expenses (income), net	(45)	(5,449)	3,616	(538)	660	(1,379)
Loss from continuing operations	14,752	8,622	14,661	7,607	5,843	58,866
Net loss from discontinued operations	1,753	841	-	-	-	2,594
Net loss	$ 16,505	$ 9,463	$ 14,661	$ 7,607	$ 5,843	$ 61,460
Basic and diluted net loss per ordinary share from continuing operations	$ 1.09	$ 0.72	$ 1.32	$ 2.98	$ 2.35	
Basic and diluted net loss per ordinary share from discontinued operations	$ 0.13	$ 0.07	$ -	$ -	$ -	
Basic and diluted net loss per ordinary share	$ 1.22	$ 0.79	$ 1.32	$ 2.98	$ 2.35	
Weighted average number of ordinary shares used to compute basic and diluted net loss per ordinary share	13,543,324	12,038,295	11,142,149	2,551,860	2,495,366	

	As of December 31,				
	2009	2008	2007	2006	2005
			(In thousands)		
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 3,329	$ 13,727	$ 13,590	$ 5,228	$ 4,917
Restricted cash	1,076	643	-	-	-
Short-term bank deposits	3,143	840	112	5,149	-
Marketable securities	2,756	426	8,251	386	-
Trade receivable	72	-	-	-	-
Working capital	8,628	14,004	20,385	11,141	3,645
Total assets	12,743	20,268	26,038	13,243	5,369
Convertible loan	1,500	750	-	-	6,230
Long-term liabilities	3,596	1,615	568	601	122
Total shareholders' equity (deficiency)	6,842	16,100	23,605	11,099	(2,323)
Capital stock	68,206	61,052	59,011	31,975	11,008

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 three diagnostic tests, miRview™ mets, miRview™ meso and miRview™ squamous, and 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, 2009, we had an accumulated deficit of $61.5 million. We had a net loss after discontinued operation of $16.5 million for the year ended December 31, 2009. Our net loss before discontinued operation for the year ended December 31, 2009 was $14.8 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 operating plans, we expect our existing funds, including the approximately $4.65 million of net proceeds from the sale of our ordinary shares in January 2010, will be sufficient to fund operations for at least the next twelve months. If, however, our estimates are incorrect, we may need to modify our operating plan. We will be required to seek additional funding in the future and intend to do so through collaborative arrangements and public or private equity offerings and debt financings. However, additional funds may not be available to us when needed on acceptable terms, or at all. 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.

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.

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 15, 2010, our patent portfolio included a total of six issued U.S. patents, 90 pending patent applications worldwide, consisting of 37 U.S. patent applications, eleven of which received notice of allowance, 17 PCT applications, eleven applications that were nationalized in Europe, ten applications nationalized in Israel, four applications nationalized in Japan and Canada, five applications nationalized in Australia, and one application that was nationalized in China 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. 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, such as applications filed prior to November 29, 2000, or applications filed after this date which 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. We are aware of a U.S. patent application, a license to which may become necessary in the future for one or more of our tests. Although we believe that we can design our tests around this patent application if a valid patent is issued, we are currently in the process of negotiating a license for this patent. However, we can provide no assurance that such a license or any license required under any other patent will be made available on commercially acceptable terms, if at all. In addition, such licenses may be non-exclusive and, therefore, our competitors may have access to the same technology licensed to us. 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 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, Pennsylvania, and Florida, and plan to obtain licenses from other states as required.

Failure to maintain state regulatory compliance, or changes in state regulatory schemes, could result in a substantial curtailment or even prohibition of the operations of our laboratory and could have a material adverse effect on our business. 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-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.

Clinical laboratory tests that are developed and validated by a CLIA–certified laboratory for its own use 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. We expect that any future LDTs will also be launched at our CLIA-certified laboratory. While *in vitro* diagnostic tests that are sold as test kits are subject to clearance or approval by the U.S. Food and Drug Administration, or FDA, most LDTs which are provided as a testing service currently are not subject to this type of FDA regulation.

Although our currently marketed tests were, and future clinical laboratory tests applying our microRNA technology are being, developed as LDTs, these tests may fall under more extensive FDA regulation in the future. In September 2006, the FDA issued draft guidance on a new class of tests called "In Vitro Diagnostic Multivariate Index Assays," or IVDMIAs. Under this draft guidance, some LDTs, including our currently marketed tests and other tests that we may develop, may be determined to be IVDMIAs and could be classified as Class II or Class III medical devices, which would require FDA pre-market review or approval. In July 2007, the FDA posted revised draft guidance on IVMDIAs. The FDA has indicated that it intends to finalize this guidance, but it is not clear when it will be finalized and whether it will remain a guidance document or be promulgated as a regulation.

We cannot provide any assurance that FDA regulation, including pre-market review or approval, will not be required in the future for LDTs applying our microRNA technology. If pre-market review or approval is required, our business could be negatively impacted because our CLIA-certified laboratory may be required to stop offering these LDTs pending pre-market clearance or approval.

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 regulatory marketing application. If we or laboratories licensing our microRNA technology are required to conduct pre-market 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 insufficient patient enrollment, 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 and 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 the 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 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

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. 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.

Changes in healthcare policy could subject us to additional regulatory requirements that may interrupt possible commercialization of our proposed products and increase our costs.

Healthcare policy has been a subject of extensive discussion in the executive and legislative branches of the United States federal and many state governments. We have developed our product development and commercialization strategy based on existing healthcare policies. Changes in healthcare policy, such as the creation of broad limits for diagnostic products, could substantially interrupt the sales of future diagnostic tests, increase costs and divert management’s attention.

There are a number of initiatives on the federal and state levels for comprehensive reforms affecting the payment for, the availability of, and the reimbursement for healthcare services in the United States. These initiatives range from proposals to fundamentally change federal and state healthcare reimbursement programs, including providing comprehensive healthcare coverage to the public under government funded programs, to minor modifications to existing programs. Government payors, such as Medicare and Medicaid, as well as private payors, have increased their efforts to control the cost, utilization and delivery of healthcare services. Cost containment measures and healthcare reforms could adversely affect our ability to sell our products and could adversely affect our revenues.

In late 2009, the House of Representatives and the Senate passed various health reform bills that, if enacted into law, would, among other things, require most individuals to have health insurance, establish new regulations on health plans, create insurance pooling mechanisms and a government health insurance option to compete with private plans and other expanded public health care measures. Various healthcare reform proposals have also emerged at the state level. We cannot predict what healthcare initiatives, if any, will be implemented at the federal or state level, or the effect any future legislation or regulation will have on us. However, an expansion in government's role in the U.S. healthcare industry may lower reimbursements for our product candidates, reduce medical procedure volumes and adversely affect our business. The ultimate content or timing of any future healthcare reform legislation, and its impact on us, is impossible to predict. If significant reforms are made to the healthcare system in the United States, or in other jurisdictions, those reforms may have an adverse effect on our business, financial condition and results of operations.

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 Prometheus and our distributors for the success of commercialization of our three current diagnostic tests, miRview™ mets, miRview™ meso and miRview™ squamous.

In April 2009, we entered into a license and collaboration agreement with Prometheus Laboratories Inc. pursuant to which Prometheus has the exclusive right to develop and commercialize miRview™ mets, miRview™ meso and miRview™ squamous tests in the United States. These tests are now offered by Prometheus in the United States under the brand names ProOnc TumorSource^{Dx}™, ProOnc Mesothelioma^{Dx}™ and ProOnc Squamous^{Dx}™. In addition, we currently have the following distribution agreements relating to these tests:

- with Teva Pharmaceutical Industries Ltd., pursuant to which Teva has the exclusive 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 Super Religare Laboratories Limited (SRL), pursuant to which SRL has the exclusive right to distribute these tests in India, Saudi Arabia, Qatar and the United Arab Emirates;
- with AXA Diagnostics, pursuant to which AXA has the exclusive right to distribute these tests in Italy; 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 Prometheus and our distributors for the commercial success of these tests.

The potential revenues from these agreements consist of contingent payments, including milestone and royalty payments. These payments will depend upon our collaborators' ability to devote the necessary resources to successfully commercialize these tests. In addition, if either Prometheus or any one of our 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. Under our agreement with Prometheus, Prometheus can terminate the agreement (either entirely or as to one or more licensed tests) by providing six months' written notice to us.

If Prometheus or any one of our distributors does not devote sufficient time and resources to the collaboration or if either 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 face a number of risks related to our license and collaboration arrangement with Prometheus.

In addition to the risks described above relating to our dependence on Prometheus for the commercialization of certain diagnostic tests in the United States, we face some additional risks relating to our agreement with Prometheus. Under the terms of the agreement, we have agreed not to participate in the commercialization of any directly competitive diagnostic tests in the United States. We share decision making authority with Prometheus with respect to all matters pertaining to the development of diagnostic tests by Rosetta outside the United States that would affect the tests licensed to Prometheus inside the United States, which could potentially include certain regulatory and development matters. If Prometheus or we become aware of third party patents that could block the commercialization of the licensed diagnostic tests in the United States, we may be required either to modify the tests to avoid potential infringement or obtain, or assist Prometheus in obtaining, a patent license. Prometheus may be permitted to reduce its royalty payments to us if Prometheus must make payments to a third party in connection with the licensed diagnostic tests. In addition, while Prometheus has commercially launched three of the licensed diagnostic tests in the United States, we have not yet finalized the plan for, and have not begun, the development program contemplated in our license and collaboration agreement with Prometheus.

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 would 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 LDTs 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 insurance for our cancer programs covering liability in an amount up to $1 million per incident and up to $3 million in the aggregate. We also have product liability insurance covering our current commercial tests 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 any new tests or 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-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 or our auditors 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 and annual auditor attestation reports, which will be required starting next year, regarding the effectiveness of our internal control over financial reporting.

Risks Related to Israeli Law and Our Operations in Israel

If we are deemed a passive foreign investment company, or PFIC, for U.S. federal income tax purposes, and 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, but not in 2004 or 2005. We were a PFIC in 2003, 2006 and 2007. We believe that we should not be treated as a PFIC for 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 2006 or 2007, 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 and 2007) 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.

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, and recently some of our employees have been called up in connection with armed conflicts. 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. 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 tax 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. 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. If these tax benefits were reduced or eliminated, the amount of taxes that we pay would likely increase, which could adversely affect our results of operations. See “Israeli Tax Considerations and Government Programs” for additional information concerning these tax benefits.

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.

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. Furthermore, if a foreign judgment is enforced by an Israeli court, it will be payable in Israeli currency.

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, in November 2007, our Board of Directors authorized an increase of 500,000 ordinary shares for issuance under our Global Share Incentive Plan (2006), or 2006 Plan. Generally, under NASDAQ’s continued listing requirements, such an increase would require shareholder approval. However, we chose to follow our home country practice, which does not require shareholder approval, and did not seek or receive shareholder approval for the increase in shares under the 2006 Plan. 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

Insiders own a significant percentage of our outstanding ordinary shares and could delay or prevent a change in corporate control.

Our directors and executive officers, together with their affiliates, currently hold, in the aggregate, approximately 10.8% of our outstanding ordinary shares. This concentration of ownership may harm the market price of our ordinary shares by:

- delaying, deferring or preventing a change in control of our company;
- entrenching our management and/or board of directors;
- impeding a merger, consolidation, takeover or other business combination involving our company; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company.

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. 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. On February 4, 2010, we established Rosetta Green Ltd., an Israeli Company, which is a controlled subsidiary. 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 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 $245,000 in 2009, $421,000 in 2008, and $784,000 in 2007. Our capital expenditures during 2009, 2008, and 2007 consisted primarily of laboratory equipment, computer equipment and leasehold improvements. We have financed our capital expenditures with cash generated from financing activities. During 2010, we established a new unit in our CLIA-approved laboratory in Philadelphia to process tests based on microarray technology. The capital expenditure for this unit was approximately $360,000.

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 April 2009, we entered into a license and collaboration agreement with Prometheus Laboratories Inc. pursuant to which Prometheus has the exclusive right to commercialize these tests in the United States. These tests are now offered by Prometheus in the United States under the brand names ProOnc TumorSource^{Dx}™, ProOnc Squamous^{Dx}™ and ProOnc Mesothelioma^{Dx}™. In addition, we currently have distribution agreements with respect to these tests covering Australia, Canada, India, Israel, Italy, 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 have recently prioritized the development of five new microRNA-based tests, including the following three tests being developed for launch potentially within the next two years:

- *Second-generation miRview mets*. We are working to expand the utility of our current test for cancer of unknown primary. The current version of this test has a tumor panel of 25 cancers. We are developing a test that is designed to identify a much larger panel of cancer origins. This test is being developed for potential commercial launch in the second half of 2010.

- *FNA (Fine Needle Aspirate) lung cancer*. We are developing another lung cancer diagnostic for potential commercial launch in the second half of 2011 to differentiate small cell lung cancer from non-small cell lung cancer and to further sub-classify non-small cell lung cancer into squamous or non-squamous. 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.

- *Bladder cancer*. This test is being developed to predict the risk of superficial bladder cancer becoming invasive with a potential target date for commercialization in late 2011.

In addition, we are developing body fluid-based diagnostic tests, for other potential indication as part of our longer-term pipeline.

MicroRNAs also represent potential targets for the development of novel drugs. We have been working with Regulus Inc. on the development of a therapeutic for the treatment of liver cancer based on inhibiting a microRNA. We have identified a microRNA target, and have shown in *in-vivo* studies that inhibiting this microRNA significantly reduces tumor growth. We are currently focusing on further analysis of the *in-vivo* studies and elucidating the relevant cellular pathways of this target microRNA. The second research period of the collaboration agreement with Regulus expired, and we are currently negotiating with Regulus regarding the structure of this collaboration moving forward.

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.

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 three diagnostic tests based on our platforms and have published several papers demonstrating how our methods can be used to develop such diagnostics (E.g.: Rosenfeld et. al., *Nature Biotechnology* 26 2008; Rosenfeld et. al., *Brain Pathology*, July 2008).

We believe that microRNAs are stable, sensitive and specific markers, and we are advancing diagnostic development programs in cancer, 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 five new microRNA-based tests in the near term, and body fluids based diagnostic tests in the long term.* We have recently prioritized five new microRNA-based tests that we plan to bring to market during the next two years. We believe all five 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 five tests. Additionally, we intend to leverage our knowledge and experience to potentially develop body fluids-based diagnostic tests. We believe body-fluid-based tests have the potential to be an important part of our longer-term pipeline.

- *Maximize sales of our first three commercial tests through geographic partners.* We plan to maximize revenues from our three current commercial tests via corporate relationships. In April 2009, we entered into a license and collaboration agreement with Prometheus pursuant to which they have the exclusive right to commercialize miRview^{TM} mets, miRview^{TM} squamous and miRview^{TM} meso in the United States. In addition, to date we have entered into distribution agreements with five distributors, pursuant to which these distributors have the exclusive 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 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. MicroRNA-based tests may prove 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 clinical validation of diagnostics products, evaluation of clinical samples is critical. Accordingly, we have entered into collaborations with several institutions in Israel and in the United States that provide us high quality clinical samples. These relationships provide us the opportunity to study thousands of well-characterized samples of lung, colorectal, breast, brain, bladder, lymphoma, leukemia, liver and others. The sample collections include solid tumor samples, healthy tissue samples, and various body fluids such as blood, urine and sputum, 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 relevant microRNA 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

In late 2008, we launched the following three 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 and a poor median survival of 6-10 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™ 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 the 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.

In April 2009, we entered into a license and collaboration agreement with Prometheus pursuant to which it has the exclusive right to commercialize these tests in the United States. In addition, we currently have the following distribution agreements relating to these tests:

- with Teva Pharmaceutical Industries Ltd., pursuant to which Teva has the exclusive 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 Super Religare Laboratories Limited (SRL), pursuant to which SRL has the exclusive right to distribute these tests in India, Saudi Arabia, Qatar and the United Arab Emirates;
- with AXA Diagnostics, pursuant to which AXA has the exclusive right to distribute these tests in Italy; 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 currently focusing on the development and commercialization of new diagnostic tests based on microRNAs. A substantial part of our research and development efforts is focused on the development of miRveiw™ lung, a microRNA-based test which will be performed on cytology and pathology samples to sub-classify lung cancer. We are also developing a new, improved, miRview™ mets test which will offer a substantial increase in the number of cancer origins it is able to identify. In parallel, we are developing a microRNA-based prognostic test for the risk stratification of patients with non-muscle invasive bladder cancer.

- *miRview™ lung* - We are developing a microRNA-based lung cancer classification test for cytology samples, mainly FNA samples. This test would potentially target all newly diagnosed lung cancer patients, estimated to be more than 210K people in the United States annually. 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 FFPE 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 are currently in the process of developing a microRNA-based differential diagnosis test for primary lung cancer.

Lung cancer is the leading cause of cancer-related death in both men and women worldwide and in the United States. In the United States, 219,440 new cases of lung cancer were predicted in 2009 and approximately 159,390 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, Small Cell Lung Cancer (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.

Should we be successful in developing this test, we believe it could be commercially available in the United States. through our CLIA-certified lab by late 2011 after studying an independent validation set. Within this timeframe we also expect to publicly present scientific data on the accuracy of this test.

- *miRview™ mets* - We are developing a second generation microRNA-based diagnostic test for the identification of the primary site of metastatic cancer of unknown primary (CUP). CUP accounts for 3-5% of all new cancer cases, and as a group is usually a very aggressive disease with a poor prognosis. The concept of CUP comes from the limitation of present methods to identify cancer origin, despite an often complicated and costly process which can significantly delay proper treatment of such patients. Determining tumor tissue of origin is thus an important clinical application of molecular diagnostics. In this new test we intend to largely extend the number of potential cancer origin in the test, using a microarray-based platform.

  Should we be successful in developing this test, we believe it could be commercially available in the United States through our CLIA-certified lab by late third quarter 2010 after studying an independent validation set. Within this timeframe we also expect to publicly present scientific data on the accuracy of this test.

- *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 a year in the United States. 20-30% diagnosed as a muscle invasive disease and 70-80% 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, Rosetta has 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.

  Should we be successful in developing this test, we believe it could be commercially available in the United States through our CLIA-certified lab by late 2011 after studying an independent validation set. Within this timeframe we also expect to publicly present scientific data on the accuracy of this test.

Long-term pipeline

We believe that body fluid-based tests for cancer 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 develop body fluids based tests for other potential indications.

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 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 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 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.

Liver Cancer

Market opportunity. According to Pharmaceutical and Diagnostic Innovation, 2005, hepatocellular carcinoma, or HCC, more commonly referred to as liver cancer, is the fifth most common cancer in the world. The 2009 ACS Report estimated that in 2009, approximately 22,620 new cases would be diagnosed in the United States and approximately 18,160 people would die of the disease. The incidence of HCC is rising principally as a result of the spread of chronic hepatitis C infection, or HCV. The World Health Organization estimates that more than 180 million people in the world, including 3.9 million in the United States, are infected with HCV.

Current treatment. HCC patients have a very low survival rate. Aside from a liver transplant, the best available treatment for liver cancer is to surgically remove the tumor. However, this option is available only to 5- 10% of HCC patients. In November 2007, the FDA approved Nexavar (sorafenib) for use in patients with inoperable HCC. In clinical trials, patients who received Nexavar survived about 3 months longer comparing to control patients. All other available medical treatments remain disappointing. As a consequence of the increasing incidence of the disease, the market for novel HCC drugs represents a high unmet need.

Our strategy. To develop a microRNA-based treatment for HCC, we entered into a collaboration with Isis Pharmaceuticals in January 2006 that had an initial research period of two years. In August 2008, Isis assigned the agreement to Regulus Therapeutics LLC, and we signed an amendment to the agreement in which the initial research period was extended until June 30, 2009. Isis and Regulus have significant intellectual property rights and expertise relating to technologies for inhibiting RNA molecules, including microRNAs. In the first step of this program we identified candidate microRNA targets for inhibition by studying microRNA expression in HCC samples. We have identified a total of 100 microRNAs which were tested in vitro. The best 8 potential candidates were chosen for further experiments.

In addition, we established two different mouse models of HCC (subcutaneous xenograft & orthotropic xenograft models) and conducted in vivo experiments resulting in positive results for 3 out of 4 tested microRNA inhibitors. We are currently concentrating on one microRNA inhibitor as our lead candidate, aiming at understanding the underlying pathway of its activity. This program is still in the early stages of development, and we can provide no assurance that we will be successful in developing, receiving regulatory approval for and commercializing a therapeutic product for the treatment of liver cancer. The initial research period of the collaboration agreement expired on June 30, 2009. We are discussing with Regulus various alternatives for the future of this collaboration, however, we can provide no assurance as to the outcome of such discussions.

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 2009 are estimated to be 21,550, and [Missing Graphic Reference]14,600, respectively. In 2008 there were around 22,000 cases in the US and 61,000 cases in Europe. More than half of ovarian cancer patients are diagnosed at advanced-stage disease (stage III or IV), and the 5-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, to potentially be used as an IP treatment for ovarian cancer patients after salpingo-oophorectomy. Such a microRNA inhibitor would be developed to specifically inhibit 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. We chose microRNAs that were over-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.

Rosetta Green

Rosetta Green Ltd. is a subsidiary we have 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. 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. To date, the investors have invested a total amount of $1,500,000, in two tranches. The notes are convertible upon the establishment of a subsidiary by us for the Rosetta Green project. We established Rosetta Green Ltd. in February 2010, and we are now in the process of converting the convertible notes we issued to the investors into a number of Rosetta Green Ltd. ordinary shares as is obtained by dividing the principal amount of the note by a price per share reflecting a fully-diluted pre-money valuation equal to $5,000,000. Once the shares are issued, we will own approximately 61.0% of Rosetta Green Ltd. on a fully diluted basis.

Collaborations and Partnerships

License and Collaboration Agreement with Prometheus Laboratories Inc.

On April 10, 2009, we entered into a license and collaboration agreement with Prometheus Laboratories Inc., under which we agreed to exclusively license and sublicense to Prometheus certain rights related to our current microRNA-based cancer diagnostic tests: miRview™ mets, miRview™ squamous and miRview™ meso (hereinafter referred to as the "Cancer Diagnostic Tests"), including the rights to certain software developed by us and related to the miRview ™ mets product. 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 (hereinafter referred to as the "GI Products"). Prometheus has commercially launched the Cancer Diagnostic Tests in the United States under the brand names ProOnc TumorSource^{Dx}™, ProOnc Mesothelioma^{Dx}™ and ProOnc Squamous^{Dx}™. We continue to work with Prometheus to finalize the development plan for the further development of the Cancer Diagnostic Tests and the development of the GI Products under the development program contemplated in the license and collaboration agreement.

Under this agreement, Prometheus has the exclusive right to develop and commercialize the Cancer Diagnostic Tests and the GI Products in the United States, and we have agreed not to participate in the commercialization of any directly competitive products in the United States. The license agreement also gives Prometheus a right of first negotiation to take a license for certain diagnostic tests or products that are under development by us.

Prometheus will contribute to a development fund that will be used to further develop the Cancer Diagnostic Tests and to develop the GI Products. In addition, Prometheus will pay us additional amounts upon reaching certain publication requirements for the Cancer Diagnostic Tests and achieving certain product profiles for the GI Products. We are also entitled to receive certain payments upon the achievement of commercial milestones. The total amount potentially payable to us under these provisions is $17.0 million.

We are also entitled to royalties on the sale of the Cancer Diagnostic Tests and the GI Products, subject to reductions in certain instances.

We control the prosecution, maintenance and enforcement of all the licensed patent rights owned by us, and we will use commercially reasonable efforts in order to obtain prosecution and maintenance rights from our licensors of certain patent rights sublicensed to Prometheus. Prometheus will contribute a partial amount of past and future associated patent prosecution costs. Also, if we or our licensor elect not to take action against an infringement of the licensed or sublicensed patent rights, Prometheus may undertake such action at its own expense with relation to our licensed patents and we will use commercially reasonable efforts to obtain for Prometheus equivalent enforcement rights from our licensors.

We are obligated to indemnify Prometheus against any liabilities arising from (i) our breach of a representation, warranty or a covenant of the agreement; (ii) any third party claim that we have made available to Prometheus any intellectual property right in violation of an obligation owed to such third party; (iii) the exploitation by us outside the United States of a product that is licensed to Prometheus within the United States; (iv) certain claims arising under our upstream licenses covering the products sublicensed to Prometheus and (v) certain potential contractual obligations to third parties. Prometheus is obligated to indemnify us against any liabilities arising from (i) Prometheus' breach of a representation, warranty or covenant of the agreement; and (ii) the exploitation by Prometheus of the licensed products.

The agreement will terminate upon the later of the expiration or abandonment of the last licensed patent to expire or become abandoned, or, if a licensed product involves certain sublicensed technical information, until the end of such additional period as is required under the applicable upstream license. Either party has the right to terminate the agreement if the other party is in material breach and has not cured such material breach within 60 days as of the receipt of a written notice notifying it of such breach, except for payment obligations, in which case the notice period is 30 days. Prometheus can terminate the agreement for convenience (either entirely or as to one or more licensed products) by providing six months' written notice to us. Under certain circumstances, Rosetta must make payments to Prometheus if Rosetta commercializes the licensed products in the United States after Prometheus has terminated the agreement.

In addition, effective April 10, 2009, we also entered into a laboratory services agreement with Prometheus. Under this agreement, we perform the Cancer Diagnostic Tests and the GI Tests (hereinafter referred to collectively as the "Diagnostic Tests") on behalf of Prometheus. The laboratory services for the Diagnostic Tests are performed in Rosetta's CLIA-certified laboratory in Philadelphia, Pennsylvania. Prometheus is responsible for marketing, sales and most customer service activities relating to the Diagnostic Tests. The services agreement has an initial term of one year and can be renewed by Prometheus. Either party can terminate the services agreement if the other party is in material breach and has not cured such material breach within 60 days as of the receipt of a written notice notifying it of such breach, except for payment obligations, in which case the notice period is thirty days. Prometheus can terminate the services agreement for convenience (either entirely or as to one or more Diagnostic Tests) by providing 60 days' written notice to us. After the third anniversary of the effective date of the services agreement, we can terminate the agreement for convenience (either entirely or as to one or more Diagnostic Tests) by providing 90 days' written notice to Prometheus.

On April 10, 2009, we also entered into a stock purchase agreement with Prometheus. Under this agreement, on April 27, 2009, Prometheus purchased 2,000,000 of our ordinary shares at a price of $4.00 per share in a private placement transaction. In addition, under the terms of the purchase agreement, so long as Prometheus or its affiliates continue to hold at least 50% of these shares, Prometheus is entitled to information rights, pre-emptive rights and board observer rights. Pursuant to the pre-emptive rights, Prometheus has the right to participate in future offerings of our securities to purchase up to its *pro rata* share in any such offering on the same terms and conditions as other investors.

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 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 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 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 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 15, 2010, we had six issued U.S. patents and 90 pending patent applications in the microRNA field: 37 U.S. applications, eleven of which have received a notice of allowance, seventeen PCT applications, eleven applications that were nationalized in Europe, ten applications nationalized in Israel, four applications nationalized in Japan, and Canada, five applications nationalized in Australia, and one application that was nationalized in China, and India. Of these patent applications, 68 claim human microRNAs, 12 claim viral microRNAs, seven contain claims related to our discovery process, and three plant applications. Thirty-five 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 ten contain claims directed to glioblastoma, liver cancer, hematopoietic malignancies therapeutic applications.

Nucleic acids related to genes are patentable under U.S. and generally under foreign patent laws. 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 Patents on Informatically Identified MicroRNAs

We have filed a first tier of “master” patent applications claiming composition-of-matter for microRNAs that we have predicted and identified by nucleotide sequences using our discovery process. Our patent applications claim approximately 10,000 microRNAs that were identified using this approach and that we believe are microRNA candidates. For each of the potential microRNAs claimed in these patent applications, a specific function and utility are described based on informatically identified targets of these potential microRNAs that are known to be associated with a disease. Based on our understanding of their sequences and identified targets, we have applied for patent protection on each of our predicted proprietary microRNAs and their variants.

Second Tier: Composition-of-Matter Patents on Biologically Validated MicroRNAs

We have filed a second 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 35 patent applications with composition-of-matter claims related to validated microRNAs 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. In the future, we expect that this tier of patent applications will include applications which we will file ourselves and those that we will file jointly with academic, medical and commercial partners with whom we collaborate. We have filed 45 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, 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 sublicenses, 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 $562,000 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 $346,000 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, 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 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 claimed that it has the regulatory authority to regulate laboratory-developed tests that are validated by the developing laboratory and has imposed labeling requirements for the results of tests utilizing analyte-specific reagents, it has generally exercised enforcement discretion in not otherwise regulating most tests developed, validated and performed by high complexity CLIA-certified laboratories. In recent years, the FDA indicated that it was reviewing the regulatory requirements that will apply to laboratory-developed tests, and in September 2006, the FDA published a draft guidance document, which it revised in September 2007, or the Draft Guidance, that may be relevant to tests we develop. The Draft Guidance describes the FDA's current position regarding potential regulation of *In Vitro* Diagnostic Multivariate Index Assays, or IVDMIAs, and the revision provided additional examples of the types of tests that would be subject to the Draft Guidance. If the Draft Guidance is finalized in its current form, manufacturers of laboratory-developed IVDMIAs that were being marketed at the time of publication of the final guidance document would be required to submit a 510(k) or PMA within 12-months of that publication. An IVDMIA is a test system that employs data, derived in part from one or more *in vitro* assays, and an algorithm that usually, but not necessarily, runs on software, to generate a result that diagnoses a disease or condition or is used in the cure, mitigation, treatment, or prevention of disease.

The first version of the Draft Guidance and related discussions about IVDMIAs attracted the attention of the U.S. Congress, and in March 2007, the Laboratory Test Improvement Act was introduced in the U.S. Senate. The bill, which was not enacted into law, would have mandated that all providers of laboratory-developed tests provide evidence to the FDA that verifies the analytical validity of such tests. It would also have required the development of a mechanism for the enhanced reimbursement of cleared and approved IVD products and laboratory-developed tests. It is possible that Congress will consider similar bills in the future.

In December 2008, Genentech, Inc. submitted a Citizen Petition to the FDA in which it argued that all in vitro diagnostic tests intended for use in therapeutic decision making be held to the same scientific and regulatory standards regardless of where the test is performed. Since that time, a number of other companies and organizations have submitted comments supporting or opposing the Citizen Petition. The FDA is required to rule upon each appropriately filed petition within 180 days of receipt and may approve it in whole or in part, deny it, or provide a tentative response indicating why it has been unable to reach a decision on the petition. To date, the FDA has not taken any public action with respect to this Citizen Petition, but if it grants the petition, it will likely promulgate regulations which could increase the amount of FDA regulation to which laboratory-developed tests will be subjected.

In Vitro Diagnostics

The type of regulation to which our tests and diagnostics will 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 will be 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.

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. Most *in vitro* diagnostic kits are regulated as Class I or II devices and are either exempt from pre-market notification or require a 510(k) submission as described below.

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 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 are 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) 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 FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and implementing regulations. 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.

HIPAA and Other Privacy 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. Additionally, some state laws impose privacy protections more stringent than 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 not presently a Covered Entity subject to HIPAA; however, we may become a Covered Entity in the future. Presently, we serve as a "business associate" to certain Covered Entities and as a subcontractor of certain business associates. "Business associates" are organizations providing services to Covered Entities involving the use and disclosure of protected health information. Business associate subcontractors provide services to business associates, also involving the use and disclosure of protected health information. HIPAA requires a business associate to sign a specific agreement (called a "Business Associate Agreement") and to provide assurances that it will safeguard protected health information in accordance with HIPAA standards in the course of providing services. Business associate subcontractors must agree in writing to abide by the same standards applicable to business associates.

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. Additionally, HITECH expands and strengthens HIPAA enforcement, imposes new penalties for noncompliance and establishes new breach notification requirements for Covered Entities and business associates.

HITECH requires business associates to comply with HIPAA security standards in the same way and to the same extent as a Covered Entities. HITECH also requires business associates to notify Covered Entities upon discovery of a breach of protected health information that has not been secured in accordance with standards set by the U.S. Department of Health and Human Services, or HHS. In the event of a breach, Covered Entities must notify affected individuals, report the breach to HHS, and in some cases, publish information about the breach in local or prominent media outlets. Consequently, business associates and business associate subcontractors must ensure that breaches of PHI are promptly detected and reported in order to provide timely notification facilitating required Covered Entity disclosures.

Under HITECH, both Covered Entities and business associates are directly subject to prosecution or administrative enforcement and increased civil and criminal penalties for HIPAA violations and both Covered Entities and business associates are subject to audit by the Office of Civil Rights, the agency responsible for HIPAA enforcement. Business associate subcontractors face contractual liability for noncompliance.

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 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 could significantly impact our business and our future business plans.

European Regulations

In addition to regulations in the United States, we will be 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.

Compliance with Fraud and Abuse Laws

In the future, we will 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, Medicaid, Veterans Administration health programs, workers' compensation programs and TRICARE.

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 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). Although we do not currently bill any U.S. payors for our diagnostic tests, we may do so in the future.

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, particular 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 meets regularly to assess:

- 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. Moshe Hod, M.D., Chairman	Professor Moshe Hod is Director of the Maternal Fetal Medicine Division at the Helen Schneider Women's Hospital, Rabin Medical Center and Professor of Obstetrics and Gynecology at the Sackler Faculty of Medicine, Tel-Aviv University, Israel. Professor Hod was trained in Obstetrics and Gynecology in Israel and later in Perinatal Medicine in leading world-known medical institutions: Hamersmith Hospital, the Royal Postgraduate Medical School, London, UK, and Northwestern University Medical School in Chicago, and the University of Texas in San-Antonio. Professor Hod serves as a member of the Executive Board of Directors, the European Association of Perinatal Medicine (EAPM) and as the Chairman of the Working Group on Diabetes and Pregnancy of the EAPM. He's also the treasurer and a member of the board of directors of the International Association of Diabetes in Pregnancy Study Groups. Professor Hod was the Chairman of the Board of the Diabetic Pregnancy Study Group (DPSG) of the European Association for the Study of Diabetes (EASD) and as a member of the postgraduate educational committee of the EASD. Professor Hod is a Member of the Steering Committee and Regional Director of the Hyperglycemia and Adverse Pregnancy Outcome (HAPO), a National Institutes of Health (NIH) funded study. Professor Hod is the editor of the recently published second edition of the *Textbook of Diabetes and Pregnancy*, Publishers: Informa Healthcare, London, UK as well as the author of more than 200 scientific publications. Professor Hod has organized and chaired 15 international congresses and given workshops on various aspects of perinatal medicine.
Prof. Harvey I. Pass, M.D., Vice Chairman	Dr. Pass, is Professor of Cardiothoracic Surgery and Surgery, Director of Surgical Research, and Division Chief for Thoracic Surgery and Thoracic Oncology for the NYU School of Medicine. Professor Pass received his undergraduate education from Johns Hopkins University and graduated from 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/NIH 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 for Wayne State University and the Karmanos Cancer Institute. 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 is Professor of Oncology, Otolaryngology, Cellular & Molecular Medicine, Urology, Genetics, and Pathology at John Hopkins University and Hospital. Dr. Sidransky has written over 300 peer-reviewed publications, and has contributed more than 40 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 Alfacell and serves on the Board of Directors of Xenomics. He is serving and has served on scientific advisory boards of MedImmune, Roche, Amgen 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 bachelor's degree from Brandeis University and his medical degree 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.
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 an Israeli Company.

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 2010. Our wholly owned subsidiary, Rosetta Genomics Inc., rents approximately 4,000 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, 2009, we had an accumulated deficit of $61.5 million. We funded our operations through December 31, 2009 primarily through proceeds received from the sale of equity securities to investors in the aggregate amount of approximately $69 million, including $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. On April 10, 2009, we also entered into a stock purchase agreement with Prometheus. Under this agreement, on April 27, 2009, Prometheus purchased 2,000,000 of our ordinary shares at a price of $4.00 per share in a private placement transaction resulting in gross proceeds to us of $8 million. In addition, in January 2010, we completed a $5.1 million registered direct offering with certain institutional investors. The investors purchased an aggregate of 2,530,000 units for $2.00 per unit, with each unit consisting of one ordinary share and a warrant to purchase 0.50 ordinary shares. The warrants are exercisable at $2.50 per share and expire in five years. Net proceeds to us after fees and expenses were approximately $4.65 million. We are a development-stage company, and as such, 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 $10.3 million as of December 31, 2009 (out of which approximately $1.1 million is classified as restricted cash), 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 45%, 62% and 58% of our total operating expenses for the years ended December 31, 2009, 2008 and 2007, 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 $6.6 million in research and development expenses for the year ended December 31, 2009 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. Operating results for Parkway have been classified as discontinued operations for all presented periods.

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, and as of December 31, 2009, we have generated revenues from continuing operations in an amount of $150,000.

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; therefore we believe that we are still in the development stage.

In 2010, we expect our revenues to increase as sales of our diagnostic tests increase, and we believe we will cease to be a development stage company.

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 and we will continue to initiate such studies in 2010. 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. We expect to continue to devote substantial resources to research and development, and as a result, we expect such expenses to increase substantially in the future.

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. We also expect an increase in marketing and business development expenses in 2010 following the launch of the first diagnostic products using our microRNA technology and launch of additional products in 2010.

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 increase as a result of the expected expansion of our operations (both in Israel and in the United States), an increase in legal and other professional fees in connection with general corporate matters and additional costs associated with our continued operation as a public company.

Financial Expenses (Income)

Financial expenses consist of interest and fees payable on a bank loan and losses related to the sale of investment in marketable securities. Financial income includes interest income, which interest is earned on deposits and marketable securities we maintain with banks and realized gains on marketable securities. 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.

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 Accounting Standards Codification (“ASC”) 605-25 "Multiple-Element Arrangements" (formerly EITF Issue No. 00-21, "Accounting for Revenue Arrangements with Multiple Deliverables" ("EITF 00-21")).

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.

As of December 31, 2009, we had recognized $150,000 as revenues from continuing operations.

Royalties from licensing the right to use our 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 our 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 not all revenue recognition criteria are met. As of December 31, 2009, we have deferred revenue in an amount of $ 1.9 million.

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 95.84% of our options will actually vest, and therefore have applied an annual forfeiture rate of 4.16% to all options that are not vested as of December 31, 2009. 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, 2009 and 2008 was between 61%-75% and between 75%-85%, 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 $1.3 million, $1.0 million and $1.0 million for the years ended December 31, 2009, 2008 and 2007, respectively. As of December 31, 2009, the total amount of unrecognized stock-based compensation expense was $2.0 million, which will be recognized over a weighted average period of 3.0 years.

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, 2009, 2008 and 2007 and our determination of the fair value of our ordinary shares, we have recorded stock-based compensation expense of approximately $52,000, $70,000 and $155,000 and, respectively, which represents the fair value of non-employee grants. 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, 2009, 2008 and 2007 may not be indicative of future compensation charges.

Impairment of Long-Lived Assets

The long-lived assets of us and of our subsidiary 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, 2009 and 2008, no impairment losses have been identified.

Convertible Notes

On September 24, 2008, we signed a convertible note agreement with certain private investors in order to provide separate funding for our Rosetta Green project. Under this agreement, the investors may purchase convertible notes in an amount up to $ 2.5 million. To date, the investors have invested a total amount of $1,500,000, in two tranches. The notes are convertible upon the establishment of a subsidiary by us for the Rosetta Green project. We established Rosetta Green Ltd. in February 2010, and we are now in the process of converting the convertible notes we issued to the investors into a number of Rosetta Green Ltd. ordinary shares as is obtained by dividing the principal amount of the note by a price per share reflecting a fully-diluted pre-money valuation equal to $5,000,000. Please see “Item 4. Information on the Company — B. Business Overview — Rosetta Green” for a description of this project.

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 October 2009, the FASB issued ASU 2009-13, "Revenue Recognition (ASC Topic 605)-Multiple-Deliverable Revenue Arrangements" (ASU 2009-13). ASU 2009-13 amends the criteria in ASC Subtopic 605-25, "Revenue Recognition-Multiple-Element Arrangements", for separating consideration in multiple-deliverable arrangements. This Update addresses the accounting for multiple-deliverable arrangements to enable vendors to account for products or services (deliverables) separately rather than as a combined unit. ASU 2009-13 modifies the requirements for determining whether a deliverable can be treated as a separate unit of accounting by removing the criteria that verifiable and objective evidence of fair value exists for the undelivered elements. This guidance eliminates the residual method of allocation and requires that arrangement consideration be allocated at the inception of the arrangement to all deliverables using the relative selling price method. This guidance establishes a selling price hierarchy for determining the selling price of a deliverable, which is based on: a) vendor-specific objective evidence; b) third-party evidence; or c) estimates of selling price. In addition, this guidance significantly expands required disclosures related to a vendor's multiple-deliverable revenue arrangements. ASU 2009-13 is effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010, with early adoption permitted. We have chosen not to early adopt ASU 2009-13.

In June 2009, FASB issued ASC Topic No. 105 "Generally Accepted Accounting Principles" ("the Codification"). The Codification was effective for interim and annual periods ended after September 15, 2009 and became the single official source of authoritative, nongovernmental U.S. generally accepted accounting principles (U.S. GAAP), other than guidance issued by the Securities and Exchange Commission. All other literature is non-authoritative. The adoption of the Codification did not have a material impact on our consolidated financial statements and notes thereto. We have appropriately updated its disclosures with the appropriate Codification references for the year ended December 31, 2009. As such, all the notes to the consolidated financial statements have been updated with the appropriate Codification references.

In May 2009, FASB issued ASC Topic No. 855, "Subsequent Events" ("FASB ASC No. 855"). FASB ASC No. 855 is intended to establish general standards of accounting for and disclosures of events that occur after the balance sheet date but before financial statements are issued or are available to be issued. Specifically, FASB ASC No. 855 sets forth the period after the balance sheet date during which management of a reporting entity should evaluate events or transactions that may occur for potential recognition or disclosure in the financial statements, the circumstances under which an entity should recognize events or transactions occurring after the balance sheet date in its financial statements, and the disclosures that an entity should make about events or transactions that occurred after the balance sheet date. FASB ASC No. 855 was effective for fiscal years and interim periods ended after June 15, 2009. The adoption did not have a material effect on our consolidated financial statements.

In April 2009, the FASB issued an update to ASC 820, "Fair Value Measurements and Disclosures" (formerly FSP FAS 157-4, "Determining Whether a Market Is Not Active and a Transaction Is Not Distressed"). The update provides guidelines for making fair value measurements more consistent with the principles presented in ASC 820, and provides additional authoritative guidance in determining whether a market is active or inactive, and whether a transaction is distressed, is applicable to all assets and liabilities (i.e. financial and nonfinancial) and will require enhanced disclosures. The update is effective for periods ending after June 15, 2009. The adoption did not have a material effect on our consolidated financial statements.

A. OPERATING RESULTS

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. We expect research and development expenses to increase in 2010 as we add more products to our pipeline.

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. We expect marketing and business development expenses to increase in 2010 as we search for distributors and partners and in preparation for the potential launch of additional products.

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.

Years Ended December 31, 2008 and 2007 - Continuing Operations

Revenues. For the years ended December 31, 2008 and 2007, we did not recognize any revenues from continuing operations.

Research and development expense, net Research and development expenses were $8.7 million for the year ended December 31, 2008, including $288,000 of non-cash stock-based compensation, as compared to $6.4 million for the year ended December 31, 2007, which included $260,000 of non-cash deferred stock-based compensation. Research and development expenses for the year ended December 31, 2008 increased as we made progress with our proprietary diagnostic pipeline, and as a result of an increase in costs related to salaries due to an increase in employees, and expenses related to the opening of our new laboratory.

Marketing and business development expenses. Marketing and business development expenses were $2.2 million for the year ended December 31, 2008, including $239,000 of non-cash stock-based compensation, as compared to $1.7 million for the year ended December 31, 2007, including $225,000 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.

General and administrative expenses. General and administrative expenses were $3.2 million for the year ended December 31, 2008, including $481,000 of non-cash stock-based compensation, as compared to $2.9 million for the year ended December 31, 2007, which included $550,000 of non-cash stock-based compensation. This increase resulted primarily from costs associated with the acquisition of Parkway in addition to an increase in expenses to operate as a public company.

Financial expenses (income), net. Net financial income was $5.5 million for the year ended December 31, 2008, as compared to net financial expense of $3.6 million for the year ended December 31, 2007. Financial income in 2008 included $5.6 million related to the reversal of impairment of marketable securities. Financial expenses in 2007 included $5 million impairment charge of marketable securities offset by $1.4 million derived from interest income on bank deposits and realized income from 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. As of December 31, 2009, we had an accumulated deficit of $61.5 million. We have funded our operations primarily through the proceeds from the sales of our equity securities. Through December 31, 2009, we had received aggregate gross proceeds of approximately $69 million from the sales of our equity securities. As of December 31, 2009, we had cash, cash equivalents, short-term bank deposit and marketable securities of $10.3 million (out of which approximately $1.1 million is classified as restricted cash), compared to $15.6 million (out of which $0.6 million was classified as restricted cash) as of December 31, 2008. In addition, in January 2010, we completed a $5.1 million registered direct offering with certain institutional investors. The investors purchased an aggregate of 2,530,000 units for $2.00 per unit, with each unit consisting of one ordinary share and a warrant to purchase 0.50 ordinary shares. The warrants are exercisable at $2.50 per share and expire in five years. Net proceeds to us after fees and expenses were approximately $4.65 million.

As of December 31, 2007, we had $7.4 million of principal invested in Auction Rate Securities, or 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 had experienced multiple failed auctions due to a lack of liquidity in the market for these securities, we revalued our ARS portfolio. As a result, we recorded an impairment charge of $5.0 million in our statement of operations to reflect other than temporary decline in the value of the investment in ARS. During 2008, we recorded an additional impairment of $631,000 related to the ARS.

During the fourth quarter of 2008, we received $7.4 million from the repurchase of the ARS following an unexpected offer to settle the ARS and recorded gain in the amount of $5.6 million upon receiving the funds.

On April 10, 2009, we entered into a stock purchase agreement and license collaboration agreement with Prometheus. Pursuant to the stock purchase agreement, Prometheus purchased 2,000,000 of our ordinary shares at a price of $ 4.00 per share in a private placement transaction, resulting in gross proceeds of $8 million to us.

Cash Flows

Net cash used in operating activities. Net cash used in operating activities was $11.8 million in 2009, compared to $11.9 million in 2008 and $8 million in 2007. 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 provided by operating activities from discontinued operations in 2009 was $458,000 compared to net cash used in operating activities from discontinued operations of $26,000 in 2008 and $0 in 2007.

Net cash used in investing activities. Net cash used in investing activities was $5.2 million in 2009, compared to net cash provided by investing activities of $11.4 million in 2008 and net cash used in investing activities of $11.1 million in 2007. Net cash used in investing activities in 2009 is primarily from 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 in 2007 consisted primarily of investment of our cash in marketable securities and the purchase of property and equipment. Net cash used in investing activities from discontinued operations in 2009 was $12,000 compared to net cash used in investing activities from discontinued operations of $2.1 million in 2008 and $0 in 2007.

Net cash provided by financing activities. Net cash provided by financing activities was $6.4 million in 2009, compared to $0.8 million in 2008 and $27.5 million in 2007. 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. The principal sources of net cash provided by financing activities in 2007 was net proceeds from the sale and issuance of equity securities, including our initial public offering, and proceeds from the exercise of warrants. Net cash provided by financing activities from discontinued operations in 2009 was $24,000 compared to net cash provided by financing activities from discontinued operations of $25,000 in 2008 and $0 in 2007.

Funding Requirements

We expect to incur continuing and increasing losses from operations for at least the next several years. In particular, as described above, we expect to incur increasing 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. We believe that our existing cash, cash equivalents, 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 for at least the next twelve months. However, 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;
- the timing, receipt and amount of sales, if any, by us of any approved products.

We anticipate that 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 1,265,000 ordinary shares we issued in the January 2010 offering, we have approximately $66.8 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. 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; or
- pursue merger or acquisition strategies.

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

Our research and development expenditures were $6.6 million, $8.7 million and $6.4 million, in the years ended December 31, 2009, 2008 and 2007, 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, 2009. 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	2010	2011	2012	2013	2014	Thereafter
Operating and capital lease obligations	$ 1,708	$ 791	$ 391	$ 296	$ 230	$ -	$ -
Other long-term liabilities	$ 4,854	$ 190	$ 230	$ 255	$ 255	$ 255	$ 3,669

Under our license agreements as of December 31, 2009, we are obligated to pay an aggregate amount of approximately $255,000 annually after 2015 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, 2009 was $122,000, of which $92,000 was funded through deposits into severance pay funds, leaving a net obligation of $30,000. In addition, the table does not include obligations for convertible notes on the amount of $1,500,000 as of December 31, 2009, which were issued in connection with our Rosetta Green project. The notes are convertible upon the establishment of a subsidiary by us for the Rosetta Green project. We established Rosetta Green Ltd. in February 2010, and we are now in the process of converting the convertible notes into ordinary shares of Rosetta Green Ltd.

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

A. DIRECTORS AND SENIOR MANAGEMENT

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

Name	Age	Position
Kenneth A. Berlin	45	Chief Executive Officer, President and Director
Ronen Tamir	43	Chief Commercialization Officer
Dalia Cohen, Ph.D.	57	Chief Scientific Officer
Ranit Aharonov, Ph.D.	40	Executive Vice President, R&D, Head of Computational Biology
Ayelet Chajut, Ph.D.	47	Executive Vice President, R&D, Head of Molecular Biology
Limor Zur-Stoller	41	Vice President Finance
Tami Fishman Jutkowitz	34	General Counsel
Tina Edmonston, M.D.	44	Medical Director, Director of Clinical Laboratory
Tzipora Shoshani Kupitz, Ph.D.	45	Senior Director, Intellectual Property
Racheli Vizman	29	Senior Director of Regulatory Affairs and Quality Assurance
Yoav Chelouche(2)(3)	56	Chairman of the Board
Isaac Bentwich, M.D.	48	Director
Prof. Moshe Many, M.D.(1)	81	Director
Dr. David Sidransky M.D..	49	Director
Joshua Rosensweig, Ph.D.	57	Director
Gerald Dogon(1)(2)(3)	70	External Director
Tali Yaron-Eldar(1)(2)	46	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. 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.

Ronen Tamir has served as our Chief Commercialization Officer since September 2008. Mr. Tamir joined us in December 2007 and held the position of Vice President, Marketing and Communication until September 2008. Prior to joining us, he was Vice President, Investor Relations for North America at Novartis AG. While Mr. Tamir was at Novartis, Novartis significantly increased its North American shareholder base and his team won numerous awards, including the "Best European IR Team in North America for 2005" by IR magazine, the "Silver Anvil" award by the Public Relations Society of America, and the "Big Apple - Best of the Best" award by the Institution of Public Relations, for an investor relations campaign in 2006. Prior to joining Novartis in 2004, Mr. Tamir held several key positions at Serono, including Director of Business Intelligence for North America and Global Product Manager, Neurology, in Geneva, Switzerland, where he oversaw the global launch of Rebif, the leading therapy for Multiple Sclerosis. In addition, Mr. Tamir was the Regional Product Manager for Neurology and Metabolism for Serono's Intercontinental Business Operations. Ronen holds a degree in Biology from Bar-Ilan University in Israel and an M.B.A. from Warwick Business School in the UK.

Dalia Cohen, Ph.D. has served as our Chief Scientific Officer since February 2008. Dr. Cohen joined us in August 2006 and held the position of Executive Vice President, Global Head of Research and Development until February 2008. Prior to joining us, Dr. Cohen served in several executive positions at Novartis AG. From May 2005 to June 2006, Dr. Cohen served as Vice President and Global Head for Strategic and Enabling Technologies and Molecular Medicine, at the Novartis Institute for Biomedical Research. From October 1998 to April 2005, Dr. Cohen established and served as Vice President and Global Head of the Functional Genomics Department at the Novartis Institute for Biomedical Research. From 1997 to 1998, Dr. Cohen served as Executive Director and Senior Expert of Molecular and Cellular Biology at Novartis Pharma Research. From 1992 to 1996, Dr. Cohen was a Research Fellow in the Oncology Department at Sandoz Pharmaceutical Corporation, and from 1986 to 1992, Dr. Cohen was a Research Associate in the Department of Molecular Pharmacology at the Albert Einstein College of Medicine. In addition, Dr. Cohen is an Adjunct Professor at the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School. Dr. Cohen received her Ph.D. in Cell Biology from the Faculty of Medicine at Technion, Israel Institution of Technology and has published more than 70 scientific articles.

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 nine papers published in peer reviewed journals and the co-author of 31 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 Diagnostics. 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 ten papers published in peer reviewed journals and the co-author of 4 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.

Limor Zur-Stoller has served as our Vice President of Finance since November 2008. Prior to joining us, Ms. Zur-Stoller served as GammaCan International Inc.'s Chief Financial Officer from March 2008 until November 2008. From November 2001 until March 2008, Ms. Zur-Stoller worked at RadView Software Ltd., including as Vice President of Finance (August 2006 - March 2008), Director of Finance (July 2004 - August 2006) and Controller (November 2001 -July 2004). From December 1997 until June 2001, Ms. Zur-Stoller served as the International Controller at Check Point Software Technologies Ltd. From June 1994 until December 1997, Ms. Zur-Stoller was an auditor with the accounting firm of Deloitte Brightman Almagor, a member of Deloitte Touche Tohmatsu. Ms. Zur-Stoller received a B.A. in accounting and economics from Tel Aviv University and an M.B.A. in finance and accounting from The College of Management in Israel 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 Inc, 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 Tulchinski 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 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, MD, U.S.A.

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 has served as Chairman of the Research and Development Committee of Teva Pharmaceutical'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 is Professor of Oncology, Otolaryngology, Cellular & Molecular Medicine, Urology, Genetics, and Pathology at John Hopkins University and Hospital. Dr. Sidransky has written over 300 peer-reviewed publications, and has contributed more than 40 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 Alfacell and serves on the Board of Directors of Xenomics. He is serving and has served on scientific advisory boards of MedImmune, Roche, Amgen 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 bachelor's degree from Brandeis University and his medical degree from the Baylor College of Medicine.

Joshua Rosensweig has served as a member of our board of directors since May 2004. From September 2003 to September 2006, Dr. Rosensweig served as the Chairman of the board of directors of the First International Bank of Israel. Since 2003, he has also served as member of the board of directors of Plastro Irrigation Systems Ltd. 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, and where he now serves as of counsel. 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.

Gerald Dogon has served as a member of our board of directors since February 2007. Since December 2007, Mr. Dogon has served as a member of the board of directors of Fundtech Ltd. and also serves as member of its Audit and Nominating Committees. 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 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. From 1994 to 1998, Mr. Dogon served as Executive Vice President and Chief Financial Officer of DSPC Inc., and from November 1997 until December 1999, he served as a director of DSPC Inc. 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 January 2004, Ms. Yaron-Eldar has served as the Chief Executive Officer of Arazim Investment Company. In addition, since March 2007, she has been a partner with the law firm of Tadmor & Co. From January 2004 to March 2007, Ms. Yaron-Eldar was a partner with the law firm Cohen, Yaron-Eldar & Co. Ms. Yaron-Eldar, 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

The aggregate direct compensation we paid to our executive officers as a group (twelve persons) for the year ended December 31, 2009 was approximately $2,103,000 of which approximately $410,000 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. We also paid a one-time bonus to two of our executive officers in the amount of $225,000. As of the filing of this Annual Report on Form 20-F bonuses for 2009 had not yet been determined or awarded. During 2009, we paid $81,000 in direct compensation to Dr. Isaac Bentwich, our founder and a member of our board of directors, of which approximately $32,000 was set aside or accrued to provide for pension, retirement, severance or similar benefits. As of May 2009, Dr. Isaac Bentwich was no longer employed by the Company. He continues to serve as a director and receives director's fees.

During 2009, we granted to one of our executive officers:

- options to purchase 1,000,000 ordinary shares, at an exercise price of $2.05 per share with an expiration date of November 2, 2019, of which options to purchase 200,000 ordinary shares were vested as of December 31, 2009; and

- 65,000 ordinary shares having a total value of $133,250 at the grant date.

We paid an aggregate of $100,000 in direct compensation to our directors other than our Chairman, Yoav Chelouche, for their services as directors for the year ended December 31, 2009. We paid $84,000 to Mr. Chelouche in 2009 for services rendered in 2009 as the Chairman of our board of directors. 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, and to denominate Mr. Chelouche's monthly compensation to 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). Each of our directors, other than Mr. Chelouche, receives an annual fee of $10,000. An additional annual fee of $10,000 is paid to each non-executive director for serving on one of our committees.

During 2009, we granted to two of our directors options to purchase a total of 25,364 ordinary shares, at an exercise price of $1.65 per share with an expiration date of December 22, 2019.

As of December 31, 2009, there were outstanding options to purchase 1,653,940 ordinary shares that were granted to our 17 directors and officers, at a weighted average exercise price of $2.94 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 independent directors, the audit committee and the internal auditor. These matters are in addition to the requirements of The NASDAQ Global Market and other relevant provisions of U.S. securities laws. Under The NASDAQ Global Market rules, a foreign private issuer may generally follow its home country rules of corporate governance in lieu of the comparable NASDAQ Global 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 Global 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 Israeli Companies Law, 5759-1999, as amended (the "Companies Law"), we are required to appoint at least two external directors, and this appointment must be confirmed by our shareholders no later than three months after the closing of an initial public offering. We have appointed Gerald Gogon and Tali Yaron-Eldar as our external directors, each of whom is also independent under the rules of The NASDAQ Global Market. The appointment of Mr. Dogon and Ms. Yaron-Eldar was confirmed by our shareholders at an extraordinary general meeting held on May 30, 2007, and their terms expire at the annual general meeting of shareholders to be held in 2010.

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 provide that we may have no less than two and up to 11 directors.

Each director holds office until the annual general meeting of our shareholders for the year in which his or her term expires or until his or her successor is elected and qualified. 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. A simple majority of our shareholders at a general meeting may elect directors in their stead or fill any vacancy, however 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 of association. A director so chosen or appointed holds office until the next general meeting of our shareholders. See "— External Directors" below for a description of the procedure for election of external directors.

In accordance with our amended and restated articles of association, our board of directors, apart from our external directors, are divided into three classes with staggered three-year terms. At each annual general meeting of shareholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors are divided among the three classes as follows:

- the Class I director are Yoav Chelouche, and Kenneth A. Berlin and their 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 2010.

In addition, our two external directors, Gerald Dogon and Tali Yaron-Eldar, were appointed by our shareholders on May 30, 2007 for three-year terms, and their terms expire at the annual general meeting of shareholders to be held in 2010. 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 of association 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 approval of a majority of the other directors in a written resolution or at the next meeting of the board of directors) and may cancel such appointment. The term of appointment of an alternate director may be for one meeting of the Board of Directors, or for a specified period, or until notice is given of the termination of the appointment. However, 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, the appointment shall be for a period of time concurrent with the term of the appointing director. To our knowledge, no director currently intends to appoint any other person as an alternate director. 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.

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 Global 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 appointment of our external directors was confirmed by our shareholders at an extraordinary general meeting held on May 30, 2007. 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 any entity under the person's control, has or had during the two years preceding the date of appointment any affiliation with the company or any entity controlling, controlled by or under common control with the company.

The term affiliation includes:

- an employment relationship;
- a business or professional relationship maintained on a regular basis;

- control; and

- 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, general manager, chief business manager, deputy general manager, vice general manager, executive vice president, vice president, any other manager directly subordinate to the general manager or any other person assuming the responsibilities of any of the foregoing positions, without regard to such person's title.

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 an external director or may otherwise interfere with the person's ability to serve as an external 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.

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. In addition, at least one of the external directors must have accounting and financial expertise. In determining the number directors required to have such expertise, the members of the board of directors must consider, among other things, the type and size of the company and the scope and complexity of its operations.

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.

The board of directors has determined that our company requires at least one director with the requisite accounting and financial expertise, who is Mr. Dogon, 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.

Election of External Directors

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

- at least one-third of the shares of non-controlling shareholders that voted at the meeting, vote in favor 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.

The initial term of an external director is three years and he or she may be reelected to one additional term of three years. Thereafter, he or she may be reelected by our shareholders 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(s) 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 may only be removed by the same percentage of shareholders as is required for his or her election, or by a court, and then only if the external director ceases to meet the statutory requirements for his or her appointment or if the external director violates his or her duty of loyalty to the company. If an external directorship becomes vacant, 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 our audit committee is required to include all of the external directors. 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.

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 Global 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 Global 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 Global 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.

Our audit committee provides assistance to the board of directors in fulfilling its legal and fiduciary obligations in matters involving our accounting, auditing, financial reporting, internal control and legal compliance functions by pre-approving the services performed by our independent accountants and reviewing their reports regarding our accounting practices and systems of internal control over financial reporting. The audit committee also oversees the audit efforts of our independent accountants and takes those actions as it deems necessary to satisfy itself that the accountants are independent of management. Under the Companies Law, the audit committee is also required to identify deficiencies in the administration of the company, including by consulting with the internal auditor, and recommending remedial actions with respect to such deficiencies, and is responsible for reviewing and approving related party transactions.

The approval of the audit committee is required to effect certain specified actions and transactions with office holders and controlling shareholders. A controlling shareholder is a shareholder who has the ability to direct the activities of a company, including a shareholder that owns 25% or more of the voting rights if no other shareholder owns more than 50% of the voting rights, 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. The audit committee may not approve an action or a transaction with a controlling shareholder or with an office holder 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.

Our written audit committee charter, a copy of which is available on the "Corporate Governance" section of our website, states that in fulfilling this role, the committee is entitled to rely on interviews and consultations with our management, our internal auditor and our independent public accountant. However, it is not obligated to conduct any independent investigation or verification.

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 Global 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 recommends policies relating to compensation and benefits of our officers and employees. The compensation committee reviews corporate goals and objectives set by our board that are relevant to compensation of the Chief Executive Officer and other executive officers, evaluates the performance of these officers in light of those goals and objectives, and sets the compensation of these officers based on such evaluations. The compensation committee also administers the issuance of options and other awards under our stock plans. The compensation committee reviews and evaluates, at least annually, the goals and objectives of our incentive compensation plans and monitors the results against the approved goals and objectives. 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. Our board of directors has determined that all members of our compensation committee are independent under the applicable NASDAQ Global Market rules.

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 size and composition of our board. In addition, the nominating and corporate governance committee is responsible for overseeing our corporate governance guidelines and reporting 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 Global Market rules.

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 the Company as required under the Company's articles of incorporation.

Internal Auditor

Under the Companies Law, the board of directors must appoint an internal auditor nominated 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 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 affiliate, or a relative of an interested party or an office holder, nor may the internal auditor be the company's independent accountant or its representative. An interested party is defined in the Companies Law as a 5% or greater shareholder, 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 also can not 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 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, 2009, 2008 and 2007, we had 72, 74 and 70 full-time employees, respectively. Of the 72 full-time employees as of December 31, 2009, 56 were engaged in research and development and our CLIA lab activities, and 16 were engaged in management, administration, business development, marketing and finance. Of the 72 full-time employees as of December 31, 2009, 11 were located in the United States and 61 were located in Israel.

The Israeli labor law governs the length of the workday, minimum daily wages for workers, procedures for hiring and dismissing employees, determination of severance pay, annual leave, sick days and other conditions of employment. Israeli law generally requires severance pay upon the retirement or death of an employee or termination of employment without cause (as defined in the law). Severance pay may be funded by Managers' Insurance described below. The payments to Managers' Insurance on account of severance pay amount to approximately 8.33% of the employee's wages. Furthermore, Israeli employees and employers are required to pay predetermined sums to the National Insurance Institute, which is similar to the U.S. Social Security Administration. Such amounts also include payments by the employee for national health insurance. The total payments to the National Insurance Institute are equal to approximately 17.4% of the wages (up to a specified amount), of which the employee contributes approximately 12% and the employer contributes approximately 5.4%.

We contribute funds on behalf of all our employees (typically following a trial period of three months) to a fund known as "Managers' Insurance." This fund provides a combination of savings plan, insurance and severance pay benefits to the employee, giving the employee payments upon retirement or death and securing the payment of severance pay, if legally required, upon termination of employment. We decide whether each employee is entitled to participate in the plan and each employee who agrees to participate contributes an amount equal to 5% of his or her salary and we, the employer, contribute between 13.3% and 15.8% of his or her salary.

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, 2010, the number of our ordinary shares beneficially owned by (i) each of our directors and executive officers and (ii) our directors and executive officers as a group. The information in this table is based on 16,769,443 ordinary shares outstanding as of March 1, 2010. 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, 2010 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)	265,000	1.6%
Ronen Tamir (2)	66,809	*
Dalia Cohen, Ph.D. (3)	28,095	*
Ranit Aharonov, Ph.D. (4)	42,873	*
Ayelet Chajut, Ph.D. (5)	28,312	*
Limor Zur-Stoller (6)	7,812	*
Tami Fishman Jutkowitz (7)	15,188	*
Tina Edmonston, M.D.	-	-
Tzipora Shoshani Kupitz, Ph.D. (8)	4,124	*
Racheli Vizman (9)	3,521	*
Yoav Chelouche (10)	238,786	1.4%
Isaac Bentwich, M.D. (11)	1,556,457	9.3%
Prof. Moshe Many, M.D. (12)	46,522	*
Dr. David Sidransky (13)	9,491	*
Joshua Rosensweig (14)	157,849	*
Gerald Dogon (15)	12,682	*
Tali Yaron-Eldar (16)	12,682	*
Directors and executive officers as a group (17 persons) (17)	2,496,203	14.3%

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

(1) Consists of (i) 65,000 ordinary shares (ii) options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 200,000 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, 2010: options to purchase 800,000 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, 2010 to purchase 66,809 ordinary shares (which have an exercise price of $5.45 per share and expire in December 2017). Does not include the following options that become exercisable after April 30, 2010: options to purchase 51,968 shares (which have an exercise price of $5.45 per share and expire in December 2017).

(3) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 28,095 ordinary shares (which have an exercise price of $6.59 per share and expire in August 2016). Does not include the following options that become exercisable after April 30, 2010: options to purchase 9,366 shares (which have an exercise price of $6.59 per share and expire in August 2016).

(4) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 3,516 ordinary shares (which have an exercise price of $0.00 per share and expire in June 2013), 251 ordinary shares (which have an exercise price of $0.00 per share and expire in January 2014), 1,308 ordinary shares (which have an exercise price of $0.00 per share and expire in May 2014), 4,771 ordinary shares (which have an exercise price of $0.00 per share and expire in December 2014), 659 ordinary shares (which have an exercise price of $0.00 per share and expire in June 2015), 18,589 ordinary shares (which have an exercise price of $3.50 per share and expire in January 2016) and 13,779 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018). Does not include the following options that become exercisable after April 30, 2010: options to purchase 17,721 shares (which have an exercise price of $4.16 per share and expire in June 2018).

(5) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 5,650 ordinary shares (which have an exercise price of $4.37 per share and expire in June 2016), 1,883 ordinary shares (which have an exercise price of $4.37 per share and expire in January 2017), 20,779 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018). Does not include the following options that become exercisable after April 30, 2010: (i) options to purchase 1,884 shares (which have an exercise price of $4.37 per share and expire in June 2016), (ii) options to purchase 628 shares (which have an exercise price of $4.37 per share and expire in January 2017) and (iii) options to purchase 26,721 shares (which have an exercise price of $4.16 per share and expire in June 2018).

(6) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 7,812 ordinary shares (which have an exercise price of $2.31 per share and expire in December 2018). Does not include the following options that become exercisable after April 30, 2010: options to purchase 17,188 shares (which have an exercise price of $2.31 per share and expire in December 2018).

(7) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 7,534 ordinary shares (which have an exercise price of $3.50 per share and expire in April 2016) and 7,654 ordinary shares (which have an exercise price of $4.70 per share and expire in July 2018). Does not include the following options that become exercisable after April 30, 2010: options to purchase 9,846 shares (which have an exercise price of $4.70 per share and expire in July 2018).

(8) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 1,874 ordinary shares (which have an exercise price of $7.10 per share and expire in March 2017), 875 ordinary shares (which have an exercise price of $4.16 per share and expire in June 2018) and 1,375 ordinary shares (which have an exercise price of $2.23 per share and expire in March 2019). Does not include the following options that become exercisable after April 30, 2010: (i) options to purchase 626 shares (which have an exercise price of $7.10 per share and expire in March 2017), (ii) options to purchase 1,125 shares (which have an exercise price of $4.16 per share and expire in June 2018) and (iii) options to purchase 4,125 shares (which have an exercise price of $2.23 per share and expire in March 2019).

(9) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 1,685 ordinary shares (which have an exercise price of $6 per share and expire in November 2017) and 1,836 ordinary shares (which have an exercise price of $4.7 per share and expire in July 2018). Does not include the following options that become exercisable after April 30, 2010: (i) options to purchase 1,315 shares (which have an exercise price of $6.00 per share and expire in November 2017) and (ii) options to purchase 2,364 shares (which have an exercise price of $4.70 per share and expire in July 2018).

(10) 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, 2010 to purchase 10,288 ordinary shares (which have an exercise price of $0.00 per share and expire in April 2012) and 197,133 ordinary shares (which have an exercise price of $3.50 per share and expire in July 2016).

(11) Consists of (i) 1,035,870 ordinary shares directly owned by Dr. Bentwich, (ii) 519,531 ordinary shares held by Harmonia 2000 and (iii) options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 1,056 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, 2010: options to purchase 11,626 shares (which have an exercise price of $1.65 per share and expire in December 2019).

(12) Consists of (i) 26,932 ordinary shares held by Prof. Many and (ii) options currently exercisable or exercisable within 60 days of March 1, 2010 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 $6.15 per share and expire in July 2016).

(13) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 8,435 ordinary shares (which have an exercise price of $5.70 per share and expire in January 2018) and 1,056 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, 2010: (i) options to purchase 6,565 shares (which have an exercise price of $5.70 per share and expire in January 2018) and (ii) options to purchase 11,626 shares (which have an exercise price of $1.65 per share and expire in December 2019).

(14) Consists of (i) 138,259 ordinary shares held by Dr. Rosensweig and (ii) options currently exercisable or exercisable within 60 days of March 1, 2010 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 $6.15 per share and expire in July 2016).

(15) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 12,682 ordinary shares (which have an exercise price of $8.80 per share and expire in March 2017).

(16) Consists of options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 12,682 ordinary shares (which have an exercise price of $8.80 per share and expire in March 2017).

(17) See notes 1 through 16 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, 2010, options to purchase 279,662 ordinary shares have been granted and are still outstanding under the 2003 Plan and 241,450 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. Out of these 1,500,000 shares, 500,000 shares will be available for grant under the Israeli appendix of the plan, and 1,000,000 shares will be available under the US appendix of the plan. As of March 1, 2010, there were 788,311 shares available for grant under the 2006 Plan, 8,164 shares have been issued pursuant to the exercise of options granted under the 2006 Plan and options to purchase 2,101,238 ordinary shares have been granted and are outstanding under the 2006 Plan. The 2006 Plan, and its corresponding sub-plans 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 service providers, and to the directors, employees, consultants and service providers 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 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 expire ten years from the date of grant. If we terminate an employee for cause, all of the employee's vested and unvested options expire no later than five days from the time of delivery of the notice of discharge, unless determined otherwise by the compensation committee. Upon termination of employment for any other reason, including due to death or disability of the employee, vested options may be exercised within three months of the date of termination, unless otherwise determined by the compensation committee. Vested options not exercised within the prescribed period and unvested options are available for future grants under the 2006 plan.

In the event of a merger, consolidation, reorganization or similar transaction in which our ordinary shares are exchanged for shares of another corporation, each option holder will be entitled to purchase the number of shares of the other corporation as it would have received if he or she had exercised its option immediately prior to such transaction. 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 assets, the options will be cashed out, assumed or substituted by the acquiring entity, or be subject to acceleration as of the closing of the transaction.

ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

A. MAJOR SHAREHOLDERS

The following table sets forth, as of March 1, 2010, 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 16,769,443 ordinary shares outstanding as of March 1, 2010. 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, 2010 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 (1)	Number of Shares Beneficially Owned	Percentage of Outstanding Ordinary Shares
Prometheus Laboratories Inc. (2)	2,000,000	11.9%
Isaac Bentwich, M.D. (3)	1,556,457	9.3%
Far West Capital Management (4)	1,637,130	9.8%

(1) Unless otherwise noted, the address for each of the individuals noted above is c/o Rosetta Genomics Ltd., 10 Plaut Street, Science Park, Rehovot 76706 Israel.

(2) Based solely on a Schedule 13G filed by Prometheus with the SEC on May 4, 2009. Prometheus' address is 9410 Carroll Park Drive, San Diego, California 92121.

(3) Consists of (i) 1,035,870 ordinary shares directly owned by Dr. Bentwich, (ii) 519,531 ordinary shares held by Harmonia 2000 and (iii) options currently exercisable or exercisable within 60 days of March 1, 2010 to purchase 1,056 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.

(4) 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 January 2010 registered direct offering. Far West Capital Management's address is 4749 Nicasio Valley Road, Nicasio, California 94946.

Our ordinary shares are traded on the NASDAQ Global 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, 2008	Percentage of Outstanding Ordinary Shares Owned as of June 1, 2009	Percentage of Outstanding Ordinary Shares Owned as of March 1, 2010
Amir Avniel	5.6%	1.0%	*
Isaac Bentwich, M.D.	15.9%	11.7%	9.3%
Highbridge International LLC (1)	6.7%	-	1.7%
Entities and Persons affiliated with Davidson Kempner Partners (2)	5.3%	-	-
Prometheus Laboratories Inc. (3)	-	14.1%	11.9%
Far West Capital Management (4)	-	6.0%	9.8%

* Less than one percent.

(1) Percentage of outstanding shares owned as of June 1, 2008 is based solely on a Schedule 13G/A filed with the SEC on January 30, 2008. Percentage of outstanding shares owned as of March 1, 2010 is based solely on a Schedule 13G/A filed with the SEC on February 3, 2010. Highbridge did not file a Schedule 13G to report its share ownership as of December 31, 2008.

(2) Percentage of outstanding shares owned as of June 1, 2008 is based solely on a Schedule 13G filed with the SEC on January 17, 2008. On February 17, 2009, Davidson Kempner Partners filed a Schedule 13G/A with the SEC reporting it no longer owned any ordinary shares.

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

(4) 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 January 2010 registered direct offering.

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, 2010, our officers and directors as a group beneficially owned 2,496,203 ordinary shares, or 14.3% 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 has served as Vice Chairman and Chairman of the Research and Development Committee of Teva's board of directors since 1991. In 2009 we received $24,000 under this agreement.

Exculpation, Indemnification and Insurance

Our articles of association permit us to exculpate, indemnify and insure our directors and officers to the fullest extent permitted by the Companies Law. We have entered into agreements with certain of our office holders undertaking to indemnify them to the fullest extent permitted by law, including with respect to liabilities resulting from our initial public offering to the extent that these liabilities are not covered by insurance. We intend to enter into similar agreements with all of our office holders as soon as approved by our shareholders. We have obtained director and officer insurance for each of our officers and directors.

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

We are currently not a party to any legal proceedings.

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 15. 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, 2009.

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." Prior to that time, there was no established public trading market for our ordinary shares. The high and low sales prices per share of our ordinary shares on The NASDAQ Global Market for the periods indicated are set forth below:

	High	Low
Year Ended		
December 31, 2007	$ 10.33	$ 4.75
December 31, 2008	$ 6.25	$ 1.08
December 31, 2009	$ 3.80	$ 1.18
Quarter Ended		
March 31, 2008	$ 6.25	$ 3.41
June 30, 2008	$ 5.44	$ 4.00
September 30, 2008	$ 5.07	$ 2.46
December 31, 2008	$ 3.00	$ 1.08
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
Month Ended		
September 30, 2009	$ 3.29	$ 2.26
October 31, 2009	$ 2.63	$ 2.02
November 30, 2009	$ 2.50	$ 2.00
December 31, 2009	$ 2.61	$ 1.65
January 31, 2010	$ 3.48	$ 1.69
February 28, 2010	$ 1.78	$ 1.59

B. PLAN OF DISTRIBUTION

Not applicable.

C. MARKETS

Our ordinary shares are traded only in the United States on The NASDAQ Global 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 of association 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, general manager, chief business manager, deputy general manager, vice general manager, executive vice president, vice president, any other manager directly subordinate to the general manager or any other person assuming the responsibilities of any of the foregoing positions, without regard to such person's title.

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 level of care 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 on the appropriateness of a given action brought for his approval or performed by him by virtue of his position; and
- all other important information pertaining to the previous actions.

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

- refrain from any conflict of interest between the performance of his duties in the company and his personal affairs;
- refrain from any activity that is competitive with the company;
- refrain from exploiting any business opportunity of the company to receive a personal gain for himself or others; and
- disclose to the company any information or documents relating to a company's affairs which the office holder has received due to his position as an office holder.

Each person 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 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", as defined by the Companies Law, includes a personal interest of any 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 5% or greater shareholder, a holder of 5% or more of a company's outstanding shares or voting rights, 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. The Companies Law defines a relative as a spouse, sibling, parent, grandparent, descendent, spouse's descendant and the spouse of any of the foregoing.

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

Under the Companies Law, once an office holder complies with the above disclosure requirement, the board of directors may approve the transaction, between the company and that office holder, or a third party in which the office holder has a personal interest, unless the company's articles of association provide otherwise. A transaction that is adverse to the company's interest may not be approved. If the transaction is an extraordinary transaction, then it also must be approved by the audit committee, before the board approval, and under certain circumstances, by the shareholders of the company. Exculpation, indemnification, insurance or compensation of a director would generally require shareholder approval. 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 has a personal interest in a transaction, shareholder approval is also required.

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 company's actions, including any shareholder holding 25% or more of the voting rights if no other shareholder owns more than 50% of the voting rights in the company. Extraordinary transactions of a public company with a controlling shareholder or in which a controlling shareholder has a personal interest, and the terms of compensation of a controlling shareholder who is an office holder, require the approval of the audit committee, the board of directors and the shareholders of the company. The 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.

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' Compensation

Under the Companies Law, all arrangements as to compensation of office holders who are not directors require approval of the board of directors, unless the articles of association provide otherwise. Arrangements as to compensation of directors, as well as indemnification and insurance of directors, also generally require audit committee approval, before board approval, and shareholder approval. Our compensation committee generally is required to approve the compensation of office holders.

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. Such borrowing powers may be exercised by a majority of the board in accordance with our articles of association.

Rights Attached to Our Shares

Dividend Rights. Our articles of association 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. Under the Companies Law, a company may distribute a dividend only if the distribution does not create a reasonable risk 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 risk 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. However, external directors are elected by a majority vote at a shareholders' meeting, on the condition that either:

- the majority of shares voted for the election includes at least one-third of the shares of non-controlling shareholders voted at the meeting (excluding abstaining votes); or

- the total number of shares of non-controlling shareholders voted against the election of the external director does not exceed one percent of the aggregate voting rights in the company.

Liquidation Rights. In the event of our liquidation, 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, issue redeemable preference shares and redeem the same.

Capital Calls. Under our articles of association and the Companies Law, the liability of our shareholders is limited to the 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 of association, unless such transfer is restricted or prohibited by another instrument and subject to applicable securities laws.

Modification of Rights

If at any time the share capital of the Company is divided into different classes of shares, the rights attached to any class, unless otherwise provided by the Company's articles of incorporation, 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

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, unless otherwise required by applicable rules. 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.

Under the Companies Law and our articles of association, 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 of association which require a majority of at least 75% of the voting power of the Company represented at the shareholder meeting.

Under the Companies Law, each and every shareholder has a duty to act in good faith in exercising his rights and fulfilling his obligations towards us and other shareholders, and refrain from abusing his 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 certain actions and transactions that require shareholder approval.

In addition, each and every shareholder has the general duty to refrain from depriving other shareholders of their rights as a shareholder. 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 shall be 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 a extraordinary general meeting upon the demand of two of the directors, one fourth of the nominated directors, one or more shareholders having at least 5% of 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 presides 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

The ownership of our ordinary shares by nonresidents of Israel is not restricted in any way by our articles of association or the laws of the State of Israel, except for citizens of countries, which are in a state of war with Israel, who may not be recognized as owners of our ordinary shares.

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 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 our shares present, in person or by proxy, at a general meeting and voting on the transaction. In addition, under our articles of association, 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 at least 25% of the outstanding voting shares or 25% 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 or by such person, or anyone acting on behalf of either of them, is sufficient to reject the merger transaction. If the transaction would have been approved but for the 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. 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. 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 tender offer if as a result of the acquisition the purchaser would become a 25% shareholder of the company and there is no existing 25% or greater shareholder 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 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 shareholder that holds more than 45% of the voting rights in the company.

If following any acquisition of shares, the acquirer will hold 90% or more of the company's shares or of a class of shares, the acquisition may not be made other than through 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 class of shares, all the shares that the acquirer offered to purchase will be transferred to the acquirer by operation of law. If the dissenting shareholders hold more than 5% of the issued and outstanding share capital of the company, 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. However, the tendered shareholders may seek to alter the consideration by court order.

C. MATERIAL CONTRACTS

Please see "Item 4. Information on the Company — B. Business Overview — Collaborations and Partnerships" and "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

Under Israeli Law, Israeli non-residents who purchase ordinary shares with certain non-Israeli currencies (including U.S. dollars) may freely repatriate in such non-Israeli currencies all amounts received in Israeli currency in respect of the ordinary shares, whether as a dividend, as a liquidating distribution, or as proceeds from any sale in Israel of the ordinary shares, provided in each case that any applicable Israeli income tax is paid or withheld on such amounts. The conversion into the non-Israeli currency must be made at the rate of exchange prevailing at the time of conversion. Under Israeli law, both residents and non-residents of Israel may freely hold, vote and trade ordinary shares.

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.

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.

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

The Law for the Encouragement of Capital Investment, 1959 (the “Investment Law”) 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.

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 "Amendment"). The Investment Law provides that terms and benefits included in any certificate of approval that was granted before the Amendment came into effect will remain subject to the provisions of the Investment Law as they were on the date of such approval.

The amendment to the Investments Law, which was published on April 1, 2005 (the "Amendment"), has changed certain provisions of the Law. As a result of the 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 remains 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 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 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 Amendment states that the company must make an investment which meets all the conditions set out in the Amendment for tax benefits and exceeds a minimum amount specified in the Law. Such investment allows the company to receive a "Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited 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 Benefited Enterprise (or out of dividends received from a company whose income is derived from a Benefited 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 Benefited Enterprise during the benefits period and actually paid at any time up to 12 years thereafter. A company qualifying for tax benefits under the Amendment which pays a dividend out of income derived by its Benefited 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 Amendment changes the definition of "foreign investment" in the Investments 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 Amendment, tax-exempt income generated under the provisions of 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.

As of December 31, 2009, the Company 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 the Company.

Taxation of our Shareholders

Israeli law generally imposes a capital gains tax on the sale of capital assets located in Israel, including shares in Israeli resident companies, unless a specific exemption is available or unless a treaty between Israel and the country of the non-resident provides otherwise.

On January 1, 2006, an amendment to the Israeli tax regime became effective (the "2006 Tax Reform"). The 2006 Tax Reform significantly changed the tax rates applicable to income derived from shares. According to the 2006 Tax Reform, an individual is subject to a 20% tax rate on real capital gains derived from the sale of shares, unless such shareholder claims a deduction for financing expenses in connection with such shares in which case the gain will generally be taxed at a rate of 25%. Additionally, if such shareholder is considered a "substantial shareholder" (generally a shareholder who holds directly or indirectly 10% or more of the right to profits, right to nominate a director or voting rights) of the company issuing the shares, the tax rate is 25%.

The determination of whether the individual is a substantial shareholder will be made on the date that the securities are sold. In addition, the individual will be deemed to be a substantial shareholder if at any time during the 12 months preceding this date he had been a substantial shareholder. However, the foregoing tax rates will not apply to dealers in securities.

Corporations are subject to corporate tax rates in respect of capital gains from the sale of shares in Israeli companies, and are currently taxed at a rate of 25%.

Non-residents of Israel, including corporations, will generally be exempt from any capital gains tax from the sale of shares traded on a recognized stock exchange outside of Israel (including NASDAQ), provided that such shareholders did not acquire their shares prior to an initial public offering and that the gains are not derived through a permanent establishment that the non-resident maintains in Israel. However, non-Israeli corporations will not be entitled to such exemption if an Israeli resident (i) has a controlling interest of 25% or more in such non-Israeli corporation, or (ii) is the beneficiary or is entitled to 25% or more of the revenues or profits of such non-Israeli corporation, whether directly or indirectly. In any case, these tax rates are subject to the provisions of any applicable tax treaty.

In addition, pursuant to the Convention Between the U.S. Government and the Government of Israel with Respect to Taxes on Income, as amended (the "United States-Israel Tax Treaty"), the sale, exchange or disposition of ordinary shares by a person who qualifies as a resident of the United States within the meaning of the United States-Israel Tax Treaty and who is entitled to claim the benefits afforded to such person by the United States-Israel Tax Treaty (a "United States Treaty Resident") generally will not be subject to the Israeli capital gains tax unless such United States Treaty Resident holds, directly or indirectly, shares representing 10% or more of our voting power during any part of the 12-month period preceding such sale, exchange or disposition, subject to certain conditions. However, under the United States-Israel Tax Treaty, such United States Treaty Resident would be permitted to claim a credit for such taxes against the U.S. federal income tax imposed with respect to such sale, exchange or disposition, subject to the limitations in U.S. laws applicable to foreign tax credits. The United States-Israel Tax Treaty does not relate to U.S. state or local taxes.

Non-residents of Israel are subject to income tax on income accrued or derived from sources in Israel. These sources of income include passive income, including dividends, royalties and interest. On the distribution of dividends by a publicly traded company, income tax is withheld at source, at the rate of 20% for dividends paid to an individual or foreign corporation, and 15% for dividends generated by an Approved Enterprise, unless in each case a different rate is provided in a treaty between Israel and shareholder's country of residence. Under the U.S.-Israel tax treaty, the maximum tax on dividends paid to a holder of ordinary shares who is a U.S. resident will be 25%. However, the maximum tax rate on dividends not generated by an approved enterprise paid to a U.S. corporation holding at least 10% of our voting power is 12.5%.

A non-resident of Israel who receives dividends from which tax was withheld is generally exempt from the duty to file returns in Israel in respect of such income, provided such income was not derived from a business conducted in Israel by the taxpayer, and the taxpayer has no other taxable sources of income in Israel.

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 thereofor 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, 2010, 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, 2010, 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 were a "passive foreign investment company," or PFIC, for the years ended December 31, 2003, 2006 and 2007. We do not believe we were a PFIC in 2004 or 2005, nor do we believe that we should be treated as a PFIC for 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 2007, 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%) 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 U.S. money markets and government grade securities, 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,					
	2007		2008		2009	
	Actual	At 2006 Exchange rates (1)	Actual	At 2007 Exchange rates (1)	Actual	At 2008 Exchange rates (1)
	(In thousands)					
Operating loss	$ 11,045	$ 9,676	$ 14,071	$ 12,814	$ 14,797	$ 15,794

(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 second amended articles of association also became effective upon the completion of our initial public offering. The material provisions of our second amended articles of association are described under "Item 10. Additional Information — B. Memorandum and Articles of Association." Since our initial public offering, no instruments defining the rights of holders of our ordinary shares have been modified.

Use of Proceeds

The Registration Statement on Form F-1 (Reg. No. 333-137095) in connection with our initial public offering was declared effective by the SEC on February 26, 2007. In the initial public offering, we sold 4,312,500 ordinary shares at an initial public offering price per share of $7.00. The net offering proceeds to us after deducting total expenses were $26,008,011. As of December 31, 2009, all of the net proceeds of the offering had been used to fund operations and capital expenditures.

ITEM 15T. 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, 2009. 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, 2009, our internal control over financial reporting is effective at a reasonable assurance level based on those criteria.

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. Management's report was not subject to attestation by our registered public accounting firm pursuant to temporary rules of the SEC that permit us to provide only management's report in this Annual Report.

C. CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in our internal control over financial reporting, identified in connection with the evaluation of such internal control that occurred during the fourth quarter of our last fiscal year 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, including our principal executive officer and principal accounting and financial officer, and our 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, 2009 and December 31, 2008 and fees billed for other services rendered by Kost Forer Gabbay & Kasierer during those periods.

	2009	2008
Audit fees (1)	$ 104,000	$ 105,000
Audit-related fees	40,762	18,560
Tax fees (2)	10,000	10,000
All other fees (3)	17,731	-
Total	$ 172,493	$ 133,560

(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 of association 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.

- In November 2007, our Board of Directors authorized an increase of 500,000 ordinary shares for issuance under our Global Share Incentive Plan (2006), or 2006 Plan. Generally, under NASDAQ's requirements, such an increase would require shareholder approval. However, we chose to follow our home country practice, which does not require shareholder approval, and did not seek or receive shareholder approval for the increase in shares under the 2006 Plan.

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(6)	Second Amended and Restated Articles of Association, as amended.
2.1(1)	Form of Share Certificate for Ordinary Shares.
2.2(1)	Investor Rights Agreement dated April 4, 2006.
2.3(9)	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(7)	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.
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(4)	Lease, dated December 2, 2007, between 15 Exchange Place Corp. and Rosetta Genomics Inc.
4.5(7)	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(8)@	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(4)@	License Agreement, dated effective as of January 8, 2008, by and between Rosetta Genomics Ltd. and The Rockefeller University.
4.14(7)@	Exclusive Testing and Administrative Services Agreement between Rosetta Genomics Ltd. And Teva Pharmaceutical Industries Ltd.

4.15(7)@	License Agreement by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd., dated April 10, 2009.
4.16(7)@	Laboratory Services Agreement, effective as of April 10, 2009, by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd.
4.17(5)	Stock Purchase Agreement by and between Prometheus Laboratories Inc. and Rosetta Genomics Ltd., dated April 10, 2009.
4.18(7)	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(7)	Stock Purchase Agreement by and among Sanra Laboratories, LLC, Parkway Clinical Laboratories, Inc. and Rosetta Genomics Inc., dated May 15, 2009.
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 Registration Statement on Form S-8 (Reg. No. 333-147805), filed with the SEC on December 3, 2007.
(4)	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.
(5)	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.
(6)	Incorporated by reference from the Registrant's Form 6-K dated December 2009 (Reg. No. 001-33042), filed with the SEC on January 5, 2010.
(7)	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 June 30, 2009.
(8)	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.
(9)	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.
*	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 26, 2010

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

ROSETTA GENOMICS LTD. AND ITS SUBSIDIARY
(A development stage company)

CONSOLIDATED FINANCIAL STATEMENTS

AS OF DECEMBER 31, 2009

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.
(A development stage company)

We have audited the accompanying consolidated balance sheets of Rosetta Genomics Ltd. (a development stage company) ("the Company") and its subsidiary as of December 31, 2009 and 2008, and the related consolidated statements of operations, changes in shareholders' equity (deficiency) and cash flows for each of the three years in the period ended December 31, 2009 and for the period from March 9, 2000 (date of inception) through December 31, 2009. 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 subsidiary 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 subsidiary 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 subsidiary as of December 31, 2009 and 2008, and the consolidated results of their operations and cash flows for each of the three years in the period ended December 31, 2009 and for the period from March 9, 2000 (date of inception) through December 31, 2009 in conformity with accounting principles generally accepted in the United States.

/s/ Kost Forer Gabbay & Kasierer
KOST FORER GABBAY & KASIERER
A Member of Ernst & Young Global

Tel-Aviv, Israel
March 25, 2010

CONSOLIDATED BALANCE SHEETS

U.S. dollars in thousands

	Note	December 31, 2009	December 31, 2008
ASSETS			
CURRENT ASSETS:			
Cash and cash equivalents		$ 3,329	$ 13,727
Restricted cash	10a	1,076	643
Short-term bank deposit	4	3,143	840
Marketable securities	5	2,756	426
Trade receivables		72	-
Other accounts receivable and prepaid expenses	6	557	290
Current assets of discontinued operation		-	631
Total current assets		10,933	16,557
LONG-TERM ACCOUNTS RECEIVABLES	1e	502	-
SEVERANCE PAY FUND		92	131
PROPERTY AND EQUIPMENT, NET	7	1,216	1,366
ASSETS OF DISCONTINUED OPERATION		-	2,214
		1,810	3,711
Total assets		$ 12,743	$ 20,268

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, 2009	December 31, 2008
LIABILITIES AND SHAREHOLDERS' EQUITY			
CURRENT LIABILITIES:			
Short-term bank loan, current maturities of capital lease and of long-term bank loan	10b	$ 125	$ 103
Trade payables		654	664
Other accounts payable and accruals	8	1,526	1,214
Liabilities of discontinued operations		-	572
Total current liabilities		2,305	2,553
LONG-TERM LIABILITIES:			
Long-term bank loan and capital lease	10b	46	117
Convertible loan	9	1,500	750
Deferred revenue	2j	1,928	228
Accrued severance pay		122	520
Total long-term liabilities		3,596	1,615
COMMITMENTS AND CONTINGENT LIABILITIES	10		
SHAREHOLDERS' EQUITY:			
Share capital:	11		
Ordinary shares of NIS 0.01 par value: 27,578,370 and 17,578,370 shares authorized at December 31, 2009 and 2008, respectively; 14,434,814 and 12,367,303 shares issued at December 31, 2009 and 2008, respectively, and 14,239,443 and 12,171,932 shares outstanding at December 31, 2009 and 2008, respectively		32	27
Additional paid-in capital		68,174	61,025
Other comprehensive income		96	3
Deficit accumulated during the development stage		(61,460)	(44,955)
Total shareholders' equity		6,842	16,100
Total liabilities and shareholders' equity		$ 12,743	$ 20,268

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, 2009	2008	2007	Period from March 9, 2000 (date of inception) through December 31, 2009
Revenues		$ 150	$ -	$ -	$ 150
Cost of revenues		339	-	-	339
Gross loss		189	-	-	189
Operating expenses:					
Research and development, net		6,552	8,705	6,400	34,756
Marketing and business development		4,451	2,177	1,742	11,169
General and administrative		3,605	3,189	2,903	14,131
Total operating expenses		14,608	14,071	11,045	60,056
Operating loss		14,797	14,071	11,045	60,245
Financial expenses (income), net	13	(45)	(5,449)	3,616	(1,379)
Loss from continuing operations		14,752	8,622	14,661	58,866
Net loss from discontinued operations	1e	1,753	841	-	2,594
Net loss		$ 16,505	$ 9,463	$ 14,661	$ 61,460
Basic and diluted net loss per Ordinary share from continuing operations		$ 1.09	$ 0.72	$ 1.32	
Basic and diluted net loss per Ordinary share from discontinuing operations		$ 0.13	$ 0.07	$ -	
Basic and diluted net loss per Ordinary share		$ 1.22	$ 0.79	$ 1.32	
Weighted average number of Ordinary shares used to compute basic and diluted net loss per Ordinary share		13,543,324	12,038,295	11,142,149	

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

STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY (DEFICIENCY)

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

	Number of Ordinary shares	Number of Preferred shares	Number of Ordinary A shares	Share capital	Additional paid-in capital	Receipts on account of shares	Accumulated other comprehensive income	Deferred stock compensation	Deficit accumulated during the development stage	Total
Balance as of March 9, 2000 (date of inception)	-	-	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance of shares, net	2,522,496	-	-	6	34	-	-	-	-	40
Net loss	-	-	-	-	-	-	-	-	(145)	(145)
Balance as of December 31, 2000	2,522,496	-	-	6	34	-	-	-	(145)	(105)
Issuance of shares, net in July-December 2001	38,421	-	-	*) -	153	-	-	-	-	153
Treasury shares	(195,371)	-	-	*) -	-	-	-	-	-	*) -
Net loss	-	-	-	-	-	-	-	-	(367)	(367)
Balance as of December 31, 2001	2,365,546	-	-	6	187	-	-	-	(512)	(319)
Exercise of stock options	10,184	-	-	*) -	-	-	-	-	-	*) -
Deferred stock compensation	-	-	-	-	196	-	-	(196)	-	-
Amortization of deferred stock compensation	-	-	-	-	-	-	-	72	-	72
Forfeiture of options granted to employees	-	-	-	-	(6)	-	-	6	-	-
Net loss	-	-	-	-	-	-	-	-	(1,582)	(1,582)
Balance as of December 31, 2002	2,375,730	-	-	6	377	-	-	(118)	(2,094)	(1,829)
Issuance of series A Preferred shares, net in July 2003	-	535,084	-	1	2,652	-	-	-	-	2,653
Conversion of convertible loan to series A Preferred shares in October 2003	-	621,835	-	2	2,689	-	-	-	-	2,691
Exercise of warrants to series A Preferred shares	-	180,850	-	*) -	660	-	-	-	-	660
Exercise of stock options	37,816	-	-	-	-	-	-	-	-	-
Deferred stock compensation	-	-	-	-	174	-	-	(174)	-	-
Amortization of deferred stock compensation	-	-	-	-	-	-	-	177	-	177
Forfeiture of options granted to employees	-	-	-	-	(22)	-	-	22	-	-
Expenses related to warrants granted to non-employees	-	-	-	-	194	-	-	-	-	194
Net loss	-	-	-	-	-	-	-	-	(2,305)	(2,305)
Balance as of December 31, 2003	2,413,546	1,337,769	-	9	6,724	-	-	(93)	(4,399)	2,241

*) Represents an amount lower than $ 1.

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

STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY (DEFICIENCY)

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

	Number of Ordinary shares	Number of Preferred shares	Number of Ordinary A shares	Share capital	Additional paid-in capital	Receipts on account of shares	Accumulated other comprehensive income	Deferred stock compensation	Deficit accumulated during the development stage	Total
Balance as of December 31, 2003	2,413,546	1,337,769	-	9	6,724	-	-	(93)	(4,399)	2,241
Issuance of series B Preferred shares, net in September 2004	-	265,747	-	1	1,394	-	-	-	-	1,395
Issuance of Ordinary shares in May 2004	56,914	-	-	*)	-	-	-	-	-	*) -
Exercise of stock options	17,033	-	-	-	-	-	-	-	-	-
Deferred stock compensation	-	-	-	-	239	-	-	(239)	-	-
Amortization of deferred stock compensation	-	-	-	-	-	-	-	92	-	92
Forfeiture of options granted to employees	-	-	-	-	(25)	-	-	25	-	-
Receipts on account of shares	-	-	-	-	-	493	-	-	-	493
Expenses related to shares and warrants granted to non-employees	-	-	-	-	52	-	-	-	-	52
Net loss	-	-	-	-	-	-	-	-	(2,982)	(2,982)
Balance as of December 31, 2004	2,487,493	1,603,516	-	10	8,384	493	-	(215)	(7,381)	1,291
Issuance of series B Preferred shares, net in February 2005	-	392,087	-	1	2,164	(493)	-	-	-	1,672
Conversion of shareholders loan to series B Preferred shares	-	20,802	-	*)	122	-	-	-	-	122
Exercise of stock options	55,394	-	-	-	-	-	-	-	-	-
Deferred stock compensation	-	-	-	-	32	-	-	(32)	-	-
Amortization of deferred stock compensation	-	-	-	-	-	-	-	124	-	124
Forfeiture of options granted to employees	-	-	-	-	(16)	-	-	16	-	-
Cost related to shares and warrants granted to non-employees	-	-	-	-	161	-	-	-	-	161
Cost related to warrants granted as finders' fee	-	-	-	-	138	-	-	-	-	138
Expenses related to accelerations of vesting of stock options	-	-	-	-	12	-	-	-	-	12
Net loss	-	-	-	-	-	-	-	-	(5,843)	(5,843)
Balance as of December 31, 2005	2,542,887	2,016,405	-	11	10,997	-	-	(107)	(13,224)	(2,323)

*) Represents an amount lower than $ 1.

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

STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY (DEFICIENCY)

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

	Number of Ordinary shares	Number of Preferred shares	Number of Ordinary A shares	Share capital	Additional paid-in capital	Accumulated other comprehensive income	Deferred stock compensation	Deficit accumulated during the development stage	Total
Balance as of December 31, 2005	2,542,887	2,016,405	-	11	10,997	-	(107)	(13,224)	(2,323)
Conversion of convertible loan into series B Preferred shares	-	1,033,382	-	2	6,228	-	-	-	6,230
Issuance of series C Preferred shares, net	-	1,822,422	-	4	13,292	-	-	-	13,296
Exercise of warrants to purchase series B Preferred shares in April 2006	-	76,395	-	*) -	447	-	-	-	447
Exercise of stock options	11,148	-	-	*) -	-	-	-	-	*) -
Amortization of deferred stock compensation	-	-	-	-	-	-	59	-	59
Issuance of shares to non-employee	9,240	-	-	*) -	61	-	-	-	61
Unrealized gain from marketable securities	-	-	-	-	-	3	-	-	3
Cancellation of restricted Ordinary shares	(1,581)	-	-	*) -	-	-	-	-	*) -
Compensation related to shares and warrants granted to non-employees	-	-	-	-	177	-	-	-	177
Stock-based compensation to employees	-	-	-	-	756	-	-	-	756
Net loss	-	-	-	-	-	-	-	(7,607)	(7,607)
Balance as of December 31, 2006	2,561,694	4,948,604	-	17	31,958	3	(48)	(20,831)	11,099
Conversion of Ordinary shares into Ordinary A shares	(2,159,126)	-	2,159,126	-	-	-	-	-	-
Adjustment from conversion into Ordinary shares	-	306,962	(306,962)	-	-	-	-	-	-
Conversion into Ordinary shares in March 2007	7,107,730	(5,255,566)	(1,852,164)	-	-	-	-	-	-
Issuance of Ordinary shares, net of $ 4,180 issuance costs in March 2007	4,312,500	-	-	10	25,998	-	-	-	26,008
Exercise of stock options	83,999	-	-	-	41	-	-	-	41
Exercise of warrants	3,947	-	-	-	-	-	-	-	-
Amortization of deferred stock compensation	-	-	-	-	-	-	33	-	33
Forfeiture of options granted to employees	-	-	-	-	(15)	-	15	-	-
Stock-based compensation to non-employees	-	-	-	-	155	-	-	-	155
Stock-based compensation to employees	-	-	-	-	847	-	-	-	847
Unrealized gain from hedging activities	-	-	-	-	-	83	-	-	83
Net loss	-	-	-	-	-	-	-	(14,661)	(14,661)
Balance as of December 31, 2007	11,910,744	-	-	27	58,984	86	-	(35,492)	23,605

*) Represents an amount lower than $ 1.

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

STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY (DEFICIENCY)

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

	Number of Ordinary shares	Number of Preferred shares	Number of Ordinary A shares	Share capital	Additional paid-in capital	Accumulated other comprehensive income	Deficit accumulated during the development stage	Total
Balance as of December 31, 2007	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	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

Accumulated other comprehensive income

	Year ended December 31,	
	2009	2008
Accumulated unrealized gains from available-for-sale marketable securities	$ 96	$ 3
	$ 96	$ 3

*) Represents an amount lower than $ 1.
**) Net of issuance expenses in an amount of $ 570 and deferred revenues in an amount of $ 1,700 (see Note 1f (3)).

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,			Period from March 9, 2000 (date of inception) through December 31,
	2009	2008	2007	2009
Cash flows from operating activities:				
Net loss	$ (16,505)	$ (9,463)	$ (14,661)	$ (61,460)
Loss from discontinued operations	1,753	841	-	2,594
Loss from continuing operations	(14,752)	(8,622)	(14,661)	(58,866)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation	344	316	179	1,445
Foreign currency adjustments	8	(39)	12	(41)
Amortization of discount on convertible loan and income related to embedded derivative	-	-	-	529
Interest on short-term bank deposit	(28)	(5)	-	(182)
Capital loss from sale of property and equipment	4	2	4	59
Increase (decrease) in accrued severance pay, net	(359)	209	(66)	30
Stock-based compensation to employees	1,372	938	880	4,482
Compensation related to shares and warrants granted to non-employees	52	70	155	999
Gain from marketable securities	(31)	(5,676)	(98)	(5,823)
Impairment of investments in marketable securities	-	631	5,009	5,640
Increase in trade receivables	(72)	-	-	(72)
Decrease (increase) in other accounts receivable and prepaid expenses	(769)	7	(80)	(1,059)
Increase (decrease) in trade payables	(10)	148	248	654
Increase in other accounts payable and accruals	312	112	352	1,526
Increase in deferred revenue	1,700	-	-	1,928
Net cash used in operating activities from continuing operations	(12,229)	(11,909)	(8,066)	(48,751)
Net cash provided by (used in) operating activities from discontinued operations	458	(26)	-	432
Net cash used in operating activities	(11,771)	(11,935)	(8,066)	(48,319)
Cash flows from investing activities:				
Purchase of property and equipment	(199)	(431)	(975)	(2,783)
Proceeds from sale of property and equipment	1	-	-	63
Decrease (increase) in bank deposits	(2,275)	(723)	5,037	(2,961)
Purchase of marketable securities	(4,497)	(8,491)	(68,430)	(82,168)
Proceeds from sale of marketable securities	2,291	23,755	53,263	79,691
Increase in restricted cash	(433)	(643)	-	(1,076)
Proceeds from sale of Parkway	(35)	-	-	(35)
Net cash provided by (used in) investing activities from continuing operations	(5,147)	13,467	(11,105)	(9,269)
Net cash used in investing activities from discontinued operations	(12)	(2,115)	-	(2,127)
Net cash provided by (used in) in investing activities	(5,159)	11,352	(11,105)	(11,396)

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,			Period from March 9, 2000 (date of inception) through December 31,
	2009	2008	2007	2009
Cash flows from financing activities:				
Repayment of capital lease	(119)	(239)	(70)	(465)
Receipt of long-term bank loan and capital lease	73	249	261	848
Repayment of long-term bank loan	(10)	(14)	(17)	(119)
Proceeds from convertible loans	750	750	-	10,040
Issuance of shares, net	5,730	-	27,318	51,510
Exercise of warrants and options	-	33	41	1,181
Net cash provided by financing activities from continuing operations	6,424	779	27,533	62,995
Net cash provided by financing activities from discontinued operations	24	25	-	49
Net cash provided by financing activities	6,448	804	27,533	63,044
Increase (decrease) in cash and cash equivalents	(10,482)	221	8,362	3,329
Cash and cash equivalents at beginning of period	*) 13,811	13,590	5,228	-
Cash and cash equivalents at end of period	$ 3,329	$ *) 13,811	$ 13,590	$ 3,329
Supplemental disclosure:				
(a) Non-cash transactions:				
Conversion of convertible loan	$ -	$ -	$ -	$ 6,230
(b) Cash paid during the year for:				
Income taxes	$ 40	$ 72	$ 36	$ 223
Interest	$ -	$ 3	$ 4	$ 20

*) 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.

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

NOTE 1:- GENERAL

a. Rosetta Genomics Ltd. ("the Company") commenced operations on March 9, 2000. The Company develops microRNA-based diagnostic and therapeutic products. The Company is focused on developing and commercializing these products, establishing strategic alliances with leading biotechnology and pharmaceutical companies, and establishing and maintaining a strong intellectual property position in the microRNA field.

b. The Company holds a wholly-owned subsidiary in the U.S., Rosetta Genomics Inc. The principal business activity of the subsidiary is to expand the research, development and 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 million (see also Note 11a).

d. The Company's accumulated deficit during the development stage totaled $ 61,460 for the period from March 9, 2000 (date of inception) to December 31, 2009.

The Company is in the development stage and, as such, its ability to continue to operate is dependent on the completion of the development of its products, the ability to market and sell its products and additional financing until profitability is achieved.

e. Acquisition and sale of 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.

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

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

NOTE1:- GENERAL (Cont.)

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, "Noncontrolling 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 2009, the Company received an amount of $ 76 in respect of this consideration.

As of December 31, 2009, the Company revalued the fair value of the estimated future consideration to $ 773 out of which $ 292 is recorded as short-term other accounts receivable and $ 481 is recorded as long-term other accounts receivable. As a result of the revaluation, the Company recorded a gain of $ 79, attributed to discontinued operations, and an amount of $ 11 which was attributed to financial income.

The following table sets forth the loss from discontinued operations of Parkway in the amount of $ 1,753 as of the year ended December 31, 2009:

Fair value of estimated future consideration as of May 18, 2009 (the transaction date):	$ 759
Investment in Parkway as of May 18, 2009:	
Working capital	(143)
Property and equipment, net	58
Intangible assets:	
Backlog	36
CLIA certification	144
Goodwill	1,905
Loss	1,241
Operating loss	*) 591
Loss as of the transaction date	1,832
Updating of fair value of estimated future consideration as of December 31, 2009	(79)
Loss from discontinued operations	$ 1,753

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

NOTE 1:- GENERAL (Cont.)

*) The following table sets forth the operating loss from discontinued operations:

Revenues	$	(976)
Cost of revenues		606
General and administrative and Marketing		984
Income tax		(23)
Operating loss	$	591

Parkway's results have been classified as discontinued operations for all presented periods.

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.

f. 1. License and collaboration agreement with Prometheus:

On April 10, 2009, the Company entered into a license and collaboration agreement ("the License Agreement") with Prometheus Laboratories Inc. ("PL") 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 has the exclusive right to develop and commercialize the Cancer Diagnostics Products and the GI Products in the U.S. The License Agreement also gives PL a right of first negotiation to take a license for certain diagnostic tests or products that are under development by the Company.

PL will contribute to a development fund that will be used to further develop the Cancer Diagnostic Products and to develop the GI Products. In addition, PL will 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 is also entitled to receive certain payments upon the achievement of commercial milestones. The total amount potentially payable to the Company under these provisions is $ 17,000.

NOTE 1:- GENERAL (Cont.)

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

The License Agreement will terminate upon the later of the expiration or abandonment of the last licensed patent to expire or become abandoned, or, if a licensed product involves certain sublicensed technical information, until the end of such additional period as is required under the applicable upstream license. PL can terminate the License Agreement (either entirely or as to one or more licensed products) by providing a six months' written notice to the Company.

Under the Company's services agreement with PL, from the fees that the Company receives from PL, in consideration for performing the services, the Company deducts the COGS, royalties to third parties, and the remaining amounts are transferred to a separate account ("Development Fund"). The amounts in the Development Fund will then be used by the Company to develop improvements to the Company's products, according to an agreed upon development plan, with PL.

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 continue to hold at least 50% of these Shares, PL is entitled to information rights, pre-emptive rights and board observer rights. Pursuant to the pre-emptive rights, PL has 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.

Under the terms of the Purchase Agreement, the Company is also required to prepare and file with the Securities and Exchange Commission ("SEC") a registration statement on Form F-3 ("the registration statement") covering the resale of the Shares. The registration statement should be filed within 45 days from the closing date and should be declared effective within 90 days of the closing date if it is not reviewed by the SEC or within 180 days of the closing date if it is reviewed by the SEC. If the registration statement is not declared effective within the required timeframe, the Company will be required to pay liquidated damages equal to 1% of the aggregate purchase of the Shares for each month that effectiveness is delayed, up to a maximum of 8% of the aggregate purchase price. The registration statement was filed on June 12, 2009, it was declared effective on June 22, 2009. As such, no liquidation damages were paid.

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.

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 wholly-owned subsidiary. 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. The accrued interest is included in other receivables and prepaid expenses.

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" ("SFAS 115") 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.

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

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

At December 31, 2009 and 2008, all marketable securities are designated as available-for-sale. Accordingly, these securities are stated at fair value, with unrealized gains and losses reported in accumulated other comprehensive income, a separate component of shareholders' equity, realized gains and losses on sales of investments, 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 operation 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

h. Impairment of long-lived assets:

The long-lived assets of the Company and its subsidiary 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 Statements" (formerly: Statement of Financial Accounting Standards No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets" ("SFAS No. 144")), 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, 2009 and 2008, no impairment losses have been identified.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

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.

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" (formerly EITF Issue No. 00-21, "Accounting for Revenue Arrangements with Multiple Deliverables" ("EITF 00-21")).

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.

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, 2009, the Company has deferred revenue in an amount of $ 1,928 (see also Note 1f (3)).

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, 2009, 2008 and 2007, the Company charged to research and development expense $ 135, $ 162 and $ 253 of costs associated with license fees, respectively. (See also Note 10f-10k).

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

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

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 10l). The Company received grants in an amount of $ 297, $ 143 and $ 143, in the years 2009, 2008 and 2007, 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.

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, 2009, 2008 and 2007 was $ 1.24, $ 3.14 and $ 5.12, respectively per share using the Black-Scholes option pricing model with the following weighted-average assumptions (annualized percentages):

	Year ended December 31,		
	2009	**2008**	**2007**
Dividend yield	0%	0%	0%
Expected volatility	61%-75%	75%-85%	85%-90%
Risk-free interest	2.35%	3.53%	4.17%
Expected life	5-6.25 years	6.25 years	6.25 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, 2009 and 2008 was 0%.

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.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

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" ("SFAS No. 128")).

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, 2009, 2008 and 2007, 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 subsidiary account for income taxes in accordance with ASC 740, "Income Taxes" (formerly: Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes" ("SFAS No. 109")). This Statement 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.

The Company and its subsidiary provide a valuation allowance, if necessary, to reduce deferred tax assets to the amounts that are more likely-than-not to be realized.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

On January 1, 2007, 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" ("FIN 48")). 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 Israeli employees are entitled only to monthly deposits, at a rate of 8.33% of their monthly salary, made on their behalf with insurance companies. Payments in accordance with Section 14 release the Israeli subsidiary 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, 2009, 2008 and 2007 were $ 138, $ 478 and $ 171, respectively, and $ 1,430 from March 9, 2000 (date of inception) through December 31, 2009.

The 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 2009, 2008, and 2007, the subsidiary recorded an expense for matching contributions in the amount of $ 22, $ 24 and $ 14, respectively.

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.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

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, 2009, 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.

Effective January 1, 2008, the Company adopted ASC 820, "Fair Value Measurements and Disclosures" (formerly issued as Statement of Financial Accounting Standards No. 157, "Fair Value Measurements" ("SFAS 157") and, effective October 10, 2008, adopted FSP 157-3, "Determining the Fair Value of a Financial Asset When the Market for That Asset Is Not Active", except as it applies to the nonfinancial assets and nonfinancial liabilities subject to FSP 157-2 " Effective Date of FASB Statement No. 157"). 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.

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.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

r. Derivative instruments:

The Company sometimes uses derivative financial instruments to manage its exposure to fluctuations in foreign exchange rates. The Company accounts for derivative financial instruments in accordance with ASC 815 "Derivatives and Hedging" (Formerly SFAS 133, "Accounting for Derivative Instruments and Hedging Activities" ("SFAS No. 133")). Under ASC 815, all derivatives are recorded as either assets or liabilities in the consolidated balance sheet, and periodically adjusted to fair value. The classification of gains and losses resulting from changes in the fair value of derivatives is dependent on the intended use of the derivative and its resulting designation. Adjustments to reflect changes in fair of values of derivatives not designated as hedging instruments are reflected in earnings. For derivative instruments that are designated and qualify as a cash flow hedge, the effective portion of the gain or loss on the derivative instrument is reported as a component of other comprehensive income and reclassified into earnings in the same line item associated with the forecasted transaction in the same period during which the hedge transaction affects earnings.

During 2009 and 2008, the Company recognized income from derivative instruments of $ 0 and $ 182, respectively, which was offset against the payroll expenses in the statement of income and recorded financial expenses from derivative instruments of $ 0 and $ 87, respectively. As of December 31, 2009, the Company has no unrecognized income from derivative instruments.

s. Impact of recently issued Accounting Standards:

In October 2009, the FASB issued ASU 2009-13, "Revenue Recognition (ASC Topic 605) Multiple-Deliverable Revenue Arrangements" (ASU 2009-13). ASU 2009-13 amends the criteria in ASC Subtopic 605-25, "Revenue Recognition-Multiple-Element Arrangements", for separating consideration in multiple-deliverable arrangements. This Update addresses the accounting for multiple-deliverable arrangements to enable vendors to account for products or services (deliverables) separately rather than as a combined unit. ASU 2009-13 modifies the requirements for determining whether a deliverable can be treated as a separate unit of accounting by removing the criteria that verifiable and objective evidence of fair value exists for the undelivered elements. This guidance eliminates the residual method of allocation and requires that arrangement consideration be allocated at the inception of the arrangement to all deliverables using the relative selling price method. This guidance establishes a selling price hierarchy for determining the selling price of a deliverable, which is based on: a) vendor-specific objective evidence; b) third-party evidence; or c) estimates. In addition, this guidance significantly expands required disclosures related to a vendor's multiple-deliverable revenue arrangements. ASU 2009-13 is effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010, with early adoption permitted. The Company has chosen not to early adopt ASU 2009-13.

In June 2009, FASB issued Accounting Standards Codification ("ASC") Topic No. 105 "Generally Accepted Accounting Principles" ("the Codification"). The Codification was effective for interim and annual periods ended after September 15, 2009 and became the single official source of authoritative, nongovernmental U.S. generally accepted accounting principles (U.S. GAAP), other than guidance issued by the Securities and Exchange Commission. All other literature is non-authoritative. The adoption of the Codification did not have a material impact on the Company's consolidated financial statements and notes thereto. The Company has appropriately updated its disclosures with the appropriate Codification references for the year ended December 31, 2009. As such, all the notes to the consolidated financial statements have been updated with the appropriate Codification references.

NOTE 2:- SIGNIFICANT ACCOUNTING POLICIES (Cont.)

In May 2009, FASB issued ASC Topic No. 855, "Subsequent Events" ("FASB ASC No. 855"). FASB ASC No. 855 is intended to establish general standards of accounting for and disclosure of events that occur after the balance sheet date but before financial statements are issued or are available to be issued. Specifically, FASB ASC No. 855 sets forth the period after the balance sheet date during which management of a reporting entity should evaluate events or transactions that may occur for potential recognition or disclosure in the financial statements, the circumstances under which an entity should recognize events or transactions occurring after the balance sheet date in its financial statements, and the disclosures that an entity should make about events or transactions that occurred after the balance sheet date. FASB ASC No. 855 was effective for fiscal years and interim periods ended after June 15, 2009. The adoption did not have a material effect on the Company's consolidated financial statements.

In April 2009, the FASB issued an update to ASC 820, "Fair Value Measurements and Disclosures" (formerly: FSP FAS 157-4, "Determining Whether a Market Is Not Active and a Transaction Is Not Distressed"). The update provides guidelines for making fair value measurements more consistent with the principles presented in ASC 820, and provides additional authoritative guidance in determining whether a market is active or inactive, and whether a transaction is distressed, is applicable to all assets and liabilities (i.e. financial and nonfinancial) and will require enhanced disclosures. The update is effective for periods ending after June 15, 2009. The adoption did not have a material effect on the Company's consolidated financial statements.

t. Reclassification:

Certain amounts from prior years have been reclassified to conform to the current year presentation. The reclassification had no effect on previously reported net income.

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 2. This is because these assets are valued using quoted market prices for similar assets or alternative pricing sources and models utilizing market observable inputs. 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 Company valued the level 3 convertible loan based on the fair value (see Note 9).

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

NOTE 3: - FAIR VALUE MEASUREMENTS (Cont.)

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, 2009:

	Fair value measurements using input type			
	Level 1	Level 2	Level 3	Total
Assets:				
Marketable securities	$ -	$ 2,756	$ -	$ 2,756
Other accounts receivable resulting from fair value of Parkway's estimated future consideration	-	-	773	773
Total assets	$ -	$ 2,756	$ 773	$ 3,529
Liabilities:				
Convertible loan	$ -	$ -	$ 1,500	$ 1,500
Total liabilities	$ -	$ -	$ 1,500	$ 1,500

NOTE 4:- SHORT-TERM BANK DEPOSIT

As of December 31, 2009, the Company holds deposits as follows:

Amount	Maturity date	Annual interest
$ 3,023	June 2, 2010	1.3%
$ 120	December 3, 2010	0.8%

NOTE 5:- MARKETABLE SECURITIES

As of December 31, 2009 and 2008, the Company holds $ 2,756 and $ 426 in marketable securities, respectively, designated as available-for-sale.

Accordingly, the balance of these available-for-sale securities as of December 31, 2009 and 2008 is stated at fair value, with unrealized gains and losses reported in accumulated other comprehensive income (loss).

	Amortized cost	Accrued interest	Unrealized gains	Market value
Available-for-sale:				
December 31, 2009:				
Israeli government bonds	$ 2,629	$ 31	$ 96	$ 2,756
December 31, 2008:				
US Government and Agencies Securities	$ 422	$ 1	$ 3	$ 426

Proceeds from maturity and sales of available-for-sale securities during 2009, 2008 and 2007 were $ 2,291, $ 23,755and $ 53,263, respectively. Net realized gains from the sales of available-for-sale securities in the years 2009, 2008 and 2007 are $ 16, $ 62 and $ 0, respectively.

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

NOTE 6:- OTHER ACCOUNTS RECEIVABLES

	December 31,	
	2009	2008
Prepaid expenses	$ 265	$ 290
Other accounts receivable (*)	292	-
	$ 557	$ 290

(*) Other accounts receivable result from the fair value of Parkway's estimated future consideration (see Note 1e).

NOTE 7:- PROPERTY AND EQUIPMENT

	December 31,	
	2009	2008
Cost:		
Computer equipment	$ 534	$ 459
Office furniture and laboratory equipment	1,577	1,463
Leasehold improvements	257	256
	2,368	2,178
Accumulated depreciation:		
Computer equipment	408	333
Office furniture and laboratory equipment	658	421
Leasehold improvements	86	58
	1,152	812
Depreciated cost	$ 1,216	$ 1,366

Depreciation expenses for the years ended December 31, 2009, 2008 and 2007 were $ 344, $ 316 and $ 179, respectively, and $ 1,445 from March 9, 2000 (date of inception) through December 31, 2009. Those expenses include depreciation expenses of capital lease equipment for the years ended December 31, 2009, 2008 and 2007 of $ 88, $ 51 and $ 17, respectively.

NOTE 8:- OTHER ACCOUNTS PAYABLE AND ACCRUALS

	December 31,	
	2009	2008
Employees salaries and payroll accruals	$ 932	$ 698
Accrued expenses and other	527	516
Joint development fund	67	-
	$ 1,526	$ 1,214

NOTE 9:- CONVERTIBLE LOAN

On September 24, 2008, the Company signed a convertible note agreement with private investors ("Purchasers") in an initiative for development of microRNA-based algae feedstocks for biofeuls. Under the agreement, the Purchasers may purchase convertible notes in an amount up to $ 2,500. The notes will convert to Rosetta Green Ltd. ("RG") Ordinary shares, nominal value NIS 0.01, once RG is 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 is not established, the notes shall convert 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 shall not 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.

In September 2008, the Company issued a convertible loan in a principal amount of $ 750.

On March 11, 2009, the Company issued the second tranche for the convertible note of an additional $ 750 from the private investors.

In January 2010, the Company's board of directors approved the establishment of Rosetta Green. On February 4, 2010, the Company established Rosetta Green Ltd., an Israeli Company, which is a controlled subsidiary.

The convertible loan is 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. As of December 31, 2009, the value of the loan is $ 1,500 which is equal to the amount invested.

NOTE 10: - COMMITMENTS AND CONTINGENT LIABILITIES

a. Restricted cash:

Restricted cash consists of two elements:

1. Accumulated cash balance in an amount of $ 1,064, which is 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.

b. Capital lease and operating lease:

During 2009 and 2008, the Company leased laboratory equipment and computer equipment under several capital and operating lease agreements in a total amount of $ 87 and $ 341, respectively, to be paid in 10 to 24 monthly payments.

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

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

The commitments under the lease and loan agreements are as follows:

	December 31, 2009
Due until December 31, 2010	$ 167
Due until December 31, 2011	49
	$ 216

c. The facilities and motor vehicles of the Company are rented under operating leases. Aggregate minimum rental commitments under the non-cancelable rent and lease agreements as of December 31, 2009, are as follows:

2010	$ 624
2011	342
2012	296
2013	230
Total	$ 1,492

Total rent and lease expenses for the years ended December 31, 2009, 2008 and 2007, were $ 706, $ 583 and $ 333, respectively, and $ 2,135 for the period from March 9, 2000 (date of inception) through December 31, 2009.

d. As of December 31, 2009 and 2008, the Company provided a bank guarantee for the fulfillment of its lease commitments in the amount of approximately $ 138 and $ 137, respectively.

e. In June 2003, the Company entered into a license agreement with a related party to use its intellectual property for a period of 20 years in consideration of up to $ 100. According to the agreement, the Company is obligated to pay an aggregate consideration of up to $ 100, of which $ 20 was paid in cash and $ 80 shall be paid as quarterly royalties equal to 5% of the net income of the Company resulting from this agreement. During 2009, the Company recorded expenses of $ 80.

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 will be approximately $ 960, of which $ 800 will be paid after December 31, 2009. During the years ended December, 31, 2009, 2008 and 2007, the Company paid fees in the amount of $ 47, $ 40 and $ 72, respectively, to the third party. The Company recorded the payments as research and development expenses.

During the year ended December 31, 2009, the Company paid fees due to the grant of a sublicense under this agreement in the amount of $ 16.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

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 will be approximately $ 562, of which $ 548 will be paid after December 31, 2009. During the years ended December 31, 2009, 2008 and 2007, the Company paid fees in the amount of $ 13, $ 0 and $ 0, respectively, to the third party. The Company recorded the payments as research and development expenses.

During the year ended December 31, 2009, the Company accrued fees due to the grant of a sublicense under this agreement in the amount of $ 322.

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 will be approximately $ 2,275, of which $ 2,225 will be paid after December 31, 2009, respectively. During the years ended December 31, 2009, 2008 and 2007, the Company paid fees in the amount of $ 25, $ 15 and $ 43, 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 will be approximately $ 346, of which $ 281 will be paid after December 31, 2009. During the years ended December 31, 2009, 2008 and 2007, the Company paid fees in the amount of $ 19, $ 22 and $ 20, respectively under this agreement. The Company recorded the payments as research and development expenses.

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 will be approximately $ 690, of which $ 600 will be paid after December 31, 2009. During the years ended December 31, 2009 and 2008, 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.

NOTE 10:- COMMITMENTS AND CONTINGENT LIABILITIES (Cont.)

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 will be approximately $ 440, of which $ 400 will be paid after December 31, 2009. During the year ended December, 31, 2009, the Company paid fees in the amount of $ 24, 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 works 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, 2009, the Company had received $ 484 from BIRD, which was offset against research and development expenses. As of December, 31 2009, no liability was recorded since the Company did not reach technological feasibility for this project.

The Company participated in a program sponsored by the Israeli Government for the support of research and development activities. As of December 31, 2009, the Company had obtained a grant from the Office of the Chief Scientist of Israel's Ministry of Industry, Trade and Labor ("the OCS") aggregating to $ 171 for certain of the Company's research and development projects. The Company is obligated to pay royalties to the OCS, amounting to 3% - 3.5% o f 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, 2009, the Company did not generate any revenues.

NOTE 11:- SHARE CAPITAL

a. Initial public offering:

On March 2, 2007, the Company completed the initial public offering ("IPO") of its Ordinary shares. The IPO consisted of the sale of 4,312,500 Ordinary shares at a price of $ 7.00 per share, including 562,500 shares pursuant to the exercise of the over-allotment option granted by the Company to the underwriters. Net proceeds from the initial public offering were $ 26 million. In addition, upon completion of the IPO, all outstanding Preferred shares were converted into 7,107,730 Ordinary shares.

NOTE 11:- SHARE CAPITAL (Cont.)

b. Reverse stock split:

On August 31, 2006, the Company's Board of Directors approved, subject to shareholder approval which occurred on September 3, 2006, a 1-for-3.9822 reverse stock split and, accordingly, all shares, options, warrants and earnings (losses) per share amounts have been retroactively adjusted for all periods presented to reflect this reverse stock split. On September 3, 2006, the shareholders also approved a recapitalization of the Company's authorized share capital so that each share has a par value of NIS 0.01. The reverse stock split and the recapitalization became effective on October 4, 2006.

c. 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.

In March 2007, all the Preferred shares were converted into Ordinary shares by dividing the applicable original issue price of such Preferred share by the applicable conversion price of such Preferred share, as defined in the Amended and Restated Articles of Association of the Company. The original issue prices of series A Preferred shares are $ 3.65, $ 4.08 and $ 5.29, of series B Preferred shares is $ 5.86 and of series C Preferred shares is $ 7.68. The initial conversion price of each of the series A, B and C Preferred shares is identical to the original issue price of such series, and is subject to adjustment for stock splits and other reclassifications and will also be adjusted in accordance with the standard weighted-average anti-dilution provisions contained in the Company's Amended and Restated Articles of Association in the event of a subsequent issuance of securities, subject to certain exceptions, at a price per share less than the applicable original issue price. The conversion ratio for each Preferred share was 1:1.

d. Investment agreements:

1. During 2000, the Company signed investment agreements and issued 2,522,496 Ordinary shares to investors and founders, in consideration of $ 40. The Company repurchased 195,371 of those shares and holds them as treasury shares.

2. During 2001, the Company signed investment agreements and issued 38,421 Ordinary shares in consideration of $ 153.

3. In July 2003, the Company signed an investment agreement with existing and new investors, pursuant to which the Company issued 535,084 Preferred A shares, at a price per share of $ 5.29, for consideration of $ 2,653, net of issuance expenses of $ 177.

4. In October 2003, the Company issued 457,952 Preferred A shares at a price per share of $ 3.65 upon conversion of a convertible loan made available in 2002, and an additional 180,850 Preferred A shares were issued to the lenders of the loan upon exercise of warrants.

   In addition, 163,883 Preferred A shares were issued upon conversion of a convertible loan received by the Company in March 2003 at a price per share of $ 4.08.

NOTE 11:- SHARE CAPITAL (Cont.)

5. In May 2004, the Company issued 56,914 restricted Ordinary shares to four of its board members at no consideration, to be held by a trustee. Each director is entitled to 1/36 of the shares for each month starting September 2003, in which he serves as a board member. In the event that a board member ceases to serve as a board member prior to the end of three years, the shares will remain with the trustee. As of December 31, 2007, two of those board members still serve as directors. Compensation expenses related to this grant amounted to $ 49 for the year ended December 31, 2006. No compensation expenses related to this grant were recorded during 2009 and 2008.

   In May 2006, 1,581 restricted Ordinary shares were canceled.

6. In September 2004, the Company signed an investment agreement with existing and new investors, pursuant to which the Company issued 265,747 Preferred B shares, at a price per share of $ 5.86, for total consideration of $ 1,395, net of issuance expenses of $ 162.

   In addition, the Company granted the investors warrants to purchase 80,492 Preferred B shares at an exercise price of $ 5.86 per share, exercisable upon the earlier of June 30, 2006 or the closing of a financing of at least $ 5,000 at a pre-money valuation of at least $ 40,000.

   76,395 warrants were exercised into Preferred B shares in 2006. The remaining warrants were cancelled on April 23, 2006.

7. Pursuant to the investment agreement signed in September 2004, in February 2005, the Company issued 392,087 Preferred B shares, for total consideration of $ 2,165, net of issuance expenses of $ 132. In addition, $ 122 of the shareholder's loan was converted into 20,802 Preferred B shares.

8. On January 15, 2006, the Company issued 1,033,382 series B Preferred shares at a price of $ 5.86 from the conversion of the 2005 convertible loan.

9. In January 2006, the Company paid a finder's fee of $ 31 by issuing to a non-employee 5,335 Ordinary shares at a price of $ 5.86 per share, for services rendered to the Company.

10. In March 2006, the board of directors and the shareholders of the Company approved an increase of 9,668,104 shares to the authorized share capital and a recapitalization of the authorized share capital of the Company as follows: the authorized share capital of the Company shall be 17,578,370 shares divided into: (i) 12,304,859 Ordinary shares; (ii) 1,381,157 Preferred A shares; (iii) 1,883,397 Preferred B shares and (iv) 2,008,957 Preferred C shares.

11. In April 2006, the Company issued 1,822,422 Preferred C shares at a price per share of $ 7.68 for gross proceeds of $ 14,000 ("the Series C Financing").

12. In connection with the Series C Financing, the Company paid $ 30 by issuing 3,905 Ordinary shares at a price of $ 7.68 per share.

NOTE 11:- SHARE CAPITAL (Cont.)

13. On March 2, 2007, the Company consummated an initial public offering ("IPO") on the NASDAQ Global Market and issued an aggregate of 4,312,500 Ordinary shares at price per share of $ 7 for net proceeds of $ 26 million. (Refer to Note 11a for further information).

14. In July 2008, as a part of the consideration of Parkway's acquisition (see also Note 1e), 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.

15. On April 10, 2009, the Company entered into a stock purchase agreement with Prometheus Laboratories ("the Purchase Agreement" and "PL", 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 1f(2)).

16. 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.

17. 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 is 27,578,370 Ordinary shares.

e. Finders' fee warrants:

Under finders' fee agreements, no warrants are outstanding as of December 31, 2009.

During 2007, 8,432 warrants with expiration date of January 31, 2008, were exercised using a cashless method, into 3,947 of Ordinary shares. Additional 25,683 and 39,660 warrants with January 31, 2008 and July 15, 2008, respectively, expiration date, expired on those dates. 33,585 warrants with April 23, 2009 expiration date, expired on that date (see also Note 15).

f. 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.

   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.

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

NOTE 11:- SHARE CAPITAL (Cont.)

In March 2005, the Company's board of directors approved an increase in the shares available under the 2003 Plan of 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 officers, directors, employees and consultants. 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 board of directors of the Company approved an additional 500,000 shares for the 2006 Plan.

In December 2009, the board of directors and the shareholders of 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, 2009, an aggregate of 736,504 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.

3. A summary of the Company's stock option activity and related information for the year ended December 31, 2009, is as follows:

	Number of options	Weighted-average exercise price	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value
Outstanding at January 1, 2009	1,211,735	$ 4.19		
Granted	1,068,364	$ 2.05		
Exercised	-	$ -		
Forfeited	(105,241)	$ 4.28		
Outstanding at December 31, 2009	2,174,858	$ 3.14	7.94	$ 243
Vested or expected to vest	2,045,264	$ 3.29	8.33	$ 243
Exercisable at December 31, 2009	1,012,155	$ 3.61	7.35	$ 240

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

NOTE 11:- SHARE CAPITAL (Cont.)

The weighted-average grant-date fair value of options granted during the twelve months ended December 31, 2009, 2008 and 2007 was $ 1.24, $ 3.14 and $ 5.12, 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, 2009 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, 2009. This amount changes based on the fair market value of the Company's shares. No options were exercised during the year ended on December 31, 2009. As of December 31, 2009, there was $ 1,963 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 2.99 years.

The following table summarizes information about options to employees outstanding at December 31, 2009 under the plans:

Exercise price	Options outstanding at December 31, 2009	Weighted average remaining contractual life (years)	Weighted average exercise price	Options exercisable at December 31, 2009	Average exercise price of options exercisable
$ 0	137,372	3.97	$ 0	137,372	$ 0
$ 1.65-2.05	1,025,364	9.85	$ 2.04	200,000	$ 2.05
$ 2.23-4.70	636,481	6.14	$ 3.82	413,804	$ 3.91
$ 5.45-6.59	330,703	7.27	$ 5.84	223,847	$ 5.91
$ 7.099-8.80	44,938	6.98	$ 8.06	37,132	$ 8.16
	2,174,858			1,012,155	

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 (see Note 11d(16)).

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:

	Year ended December 31,	
	2009	2008
Research and development cost, net	$ 269	$ 218
Marketing and business development expenses	584	239
General and administrative expenses	519	481
Total stock-based compensation expense	$ 1,372	$ 938

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

NOTE 11:- SHARE CAPITAL (Cont.)

g. Options issued to non-employees:

1. The Company's outstanding options to non-employees as of December 31, 2009, 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	21,900	July 2017
July 2007	10,000	$ 6.84	5,620	July 2017
November 2007	25,000	$ 5.96	12,498	November 2017
January 2008	15,000	$ 5.70	6,561	January 2018
August 2008	25,000	$ 3.80	7,812	August 2018
	207,582		148,033	

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 $ 52 and $ 70 for the years ended December 31, 2009 and 2008, 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.

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.

NOTE 12:- INCOME TAXES (Cont.)

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.

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, 2009, 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.

NOTE 12:- INCOME TAXES (Cont.)

On April 1, 2005, an amendment to the Investment Law came into effect ("the Amendment") and has significantly changed the provisions of the Investment 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 Investment 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 extend 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 Beneficiary Enterprise owned by a "foreign investor's company" during all or part of the benefit period.

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, 2009, the Company did not generate income under the Law prior to and after 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,	
	2009	2008
Tax asset in respect of:		
Operating loss carryforward and deductions	$ 14,309	$ 12,228
Reserves, allowances and other	49	85
Net deferred tax asset before valuation allowance	14,358	12,313
Valuation allowance	(14,358)	(12,313)
Net deferred tax asset	$ -	$ -

As of December 31, 2009 and 2008, the Company has provided valuation allowances of $ 14,358 and $ 12,313, 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, 2009, in the amount of approximately $ 50,734 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 carry-forward tax losses as of December 31, 2009 of approximately $ 4,735 to offset against future tax profits for periods of 20 years.

h. Income taxes for the twelve months ended December 31, 2009 and 2008:

The Company and its subsidiary in the United States have not recorded any tax expenses during the twelve months ended December 31, 2009 and 2008, as the Company has losses.

i. The Company adopted the provisions of FIN 48 as of 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 FIN 48. The Company did not record a liability deriving from the implementation of FIN 48.

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

NOTE 13:- FINANCIAL EXPENSES (INCOME)

	Year ended December 31,		
	2009	2008	2007
Financial income:			
Interest income on short-term deposits	$ (87)	$ (185)	$ (380)
Interest and realized gain on marketable securities	(45)	(6,115)*)	(1,230)
Foreign currency adjustments gains and other	(33)	-	-
	(165)	(6,300)	(1,610)
Financial expenses:			
Bank and interest expenses	107	109	24
Foreign currency adjustments losses	-	11	50
Realized loss on marketable securities	13	13	-
Impairment of investment in marketable securities	-	631	5,009
Loss related to derivative instruments	-	87	143
	120	851	5,226
	$ (45)	$ (5,449)	$ 3,616

*) Including the reversal of impairment of the ARS securities in the amount of $ 5,640.

NOTE 14:- 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 (see Note 10e). During the years 2009, 2008 and 2007, expenses of $ 80, $ 0 and $ 0 were recorded, respectively.

As of December 31, 2009, 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 of the other company's board of directors since 1991. In 2009 the Company received $24 under this agreement.

NOTE 15:- SUBSEQUENT EVENTS

In January 2010, the Company completed a registered direct offering with several institutional investors. The Company has received proceeds of approximately $ 4.65 million net of placement agent fees and other offering expenses. Under the terms of the financing the Company has 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 warrant to purchase 0.50 of an Ordinary share, was sold for a purchase price of $ 2.00.

The warrants to purchase additional shares are exercisable at an exercise price of $ 2.50 per share immediately and will expire on January 19, 2015.

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