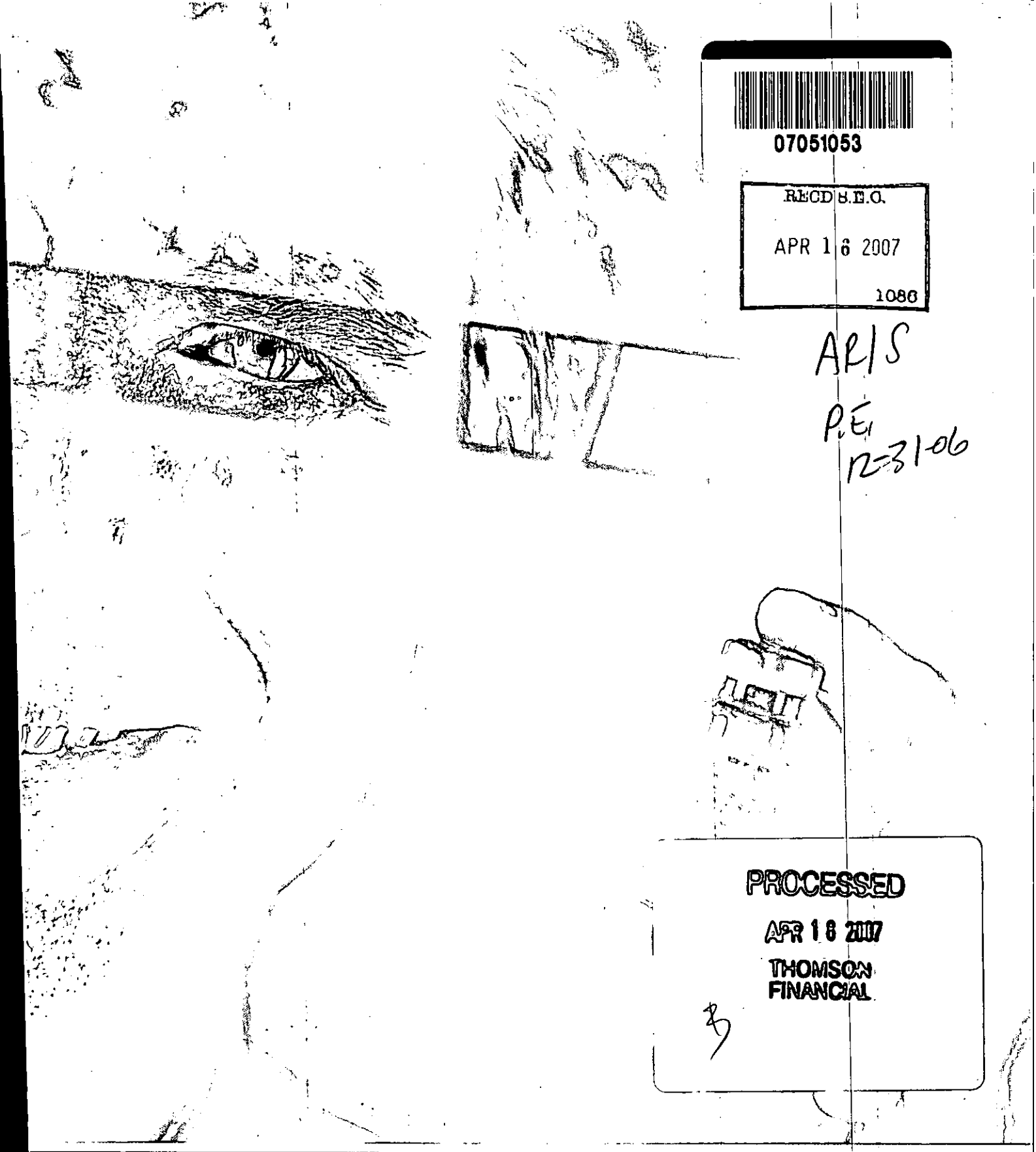

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CURAGEN ANNUAL REPORT 2006

CORP

NEW LEADERSHIP. FORMULA FOR SUCCESS.

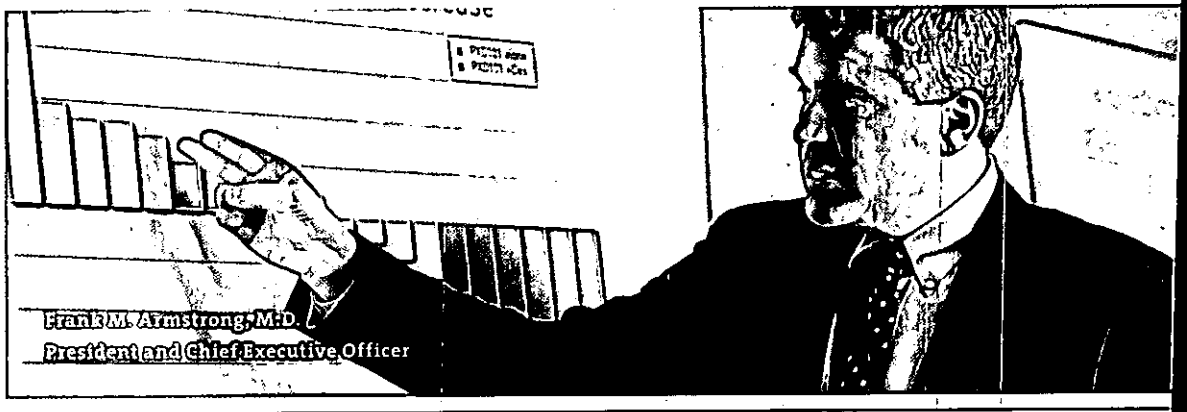
WITH THE IMPORTANT TRANSITION TO NEW LEADERSHIP FOLLOWING THE APPOINTMENT OF FRANK M. ARMSTRONG, M.D., AS PRESIDENT AND CHIEF EXECUTIVE OFFICER, CURAGEN SUSTAINED THE ORGANIZATIONAL AND INVESTIGATIONAL MOMENTUM NECESSARY TO ACHIEVE ITS 2006 GOALS.

2006 was a year of great accomplishment for CuraGen, one that featured significant clinical progress in the advancement of our lead oncology products – velafermin, belinostat and CR011-vcMMAE – as well as continued growth at 454 Life Sciences. Finally, and critically, CuraGen is working diligently to realize the full potential of its three defining corporate assets: an advanced clinical oncology pipeline, a portfolio of earlier-stage drugs, including multiple antibodies, proteins and small molecules for cancer and inflammatory diseases, and a majority investment in 454 Life Sciences.

CuraGen's management team incorporates deep and extensive experience from across the pharmaceutical and biotech industry. With the appointment of Dr. Armstrong, CuraGen has solidified a strong infrastructure of talented people with the expertise and experience to advance CuraGen's products through clinical development and toward the market.

As a trained physician and a seasoned pharmaceutical executive, Dr. Armstrong is keenly aware not only of the unmet medical needs in the oncology arena, but of the challenges surrounding the development and introduction of new products into the market. He is applying his more than 20 years of experience in major pharmaceutical and leading biotech companies to steer CuraGen's lead oncology drugs toward market, and to implement a corporate and scientific context for the creation of shareholder value from all of the Company's assets.

Dr. Armstrong received his medical degree from the University of Edinburgh. He was elected a Fellow of the Royal College of Physicians, Edinburgh, in 1993 and elected a Fellow of the Faculty of Pharmaceutical Physicians in 1994.



Frank M. Armstrong, M.D.
President and Chief Executive Officer

HIGHLIGHTS

VELAFERMIN

- INITIATED A POTENTIALLY PIVOTAL PHASE II RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL EVALUATING A SINGLE DOSE OF VELAFERMIN FOR THE PREVENTION OF ORAL MUCOSITIS

BELINOSTAT

- 15 TRIALS WITH INTRAVENOUS BELINOSTAT IN 10 INDICATIONS AND 5 DIFFERENT CHEMOTHERAPY COMBINATIONS
- FILED AN IND AND INITIATED A PHASE I TRIAL WITH ORAL BELINOSTAT FOR THE TREATMENT OF SOLID TUMORS

DEAR SHAREHOLDER,

2006 WAS A TRANSFORMATIONAL YEAR AT CURAGEN, DRIVEN BY THE EFFORTS OF OUR EMPLOYEES, RESEARCHERS AND THE PATIENT-PARTICIPANTS IN CLINICAL TRIALS EVALUATING OUR DRUGS. I AM PLEASED TO REPORT ON OUR SUBSTANTIAL PROGRESS TO CURAGEN SHAREHOLDERS, PARTICULARLY SINCE IT IS ALREADY CLEAR THAT 2007 WILL BE A PIVOTAL YEAR FOR CURAGEN, FOR OUR PRODUCTS AND FOR OUR ONGOING DEVELOPMENT AS A BIOPHARMACEUTICAL COMPANY.

Looking back at 2006, we can document substantial progress in the research into and clinical development of our three advanced oncology products, velafermin, belinostat and CR011-vcMMAE, and we are gratified to report on their individual development programs and potential in subsequent sections of this report.

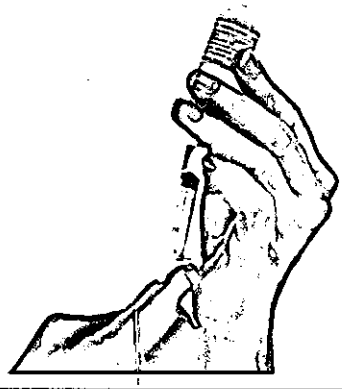
In March 2006, I joined CuraGen as President and Chief Executive Officer after serving for one year as an independent director on the board, and the past year has amply confirmed my earlier impressions of the depth of expertise and knowledge of the management, board and staff of CuraGen, and of the value of our multiple assets. Our responsibility is now to apply those assets to achieve advances in oncology that will benefit cancer patients, the healthcare community, and our shareholders.

CuraGen's impressive management team, with its extensive and deep experience in bringing pharmaceutical products to market, has focused its efforts on exploiting our three key assets:

- Our advanced clinical pipeline focused on treatments for cancer and cancer supportive care.

- An earlier-stage portfolio of potential proteins, antibody-drug conjugates and small molecules for cancer and inflammatory diseases.

- And our investment in 454 Life Sciences, our majority-owned subsidiary that was established in 2000. We believe that 454 Life Sciences' technology and its Genome Sequencer system are transforming the way genomic research is performed.



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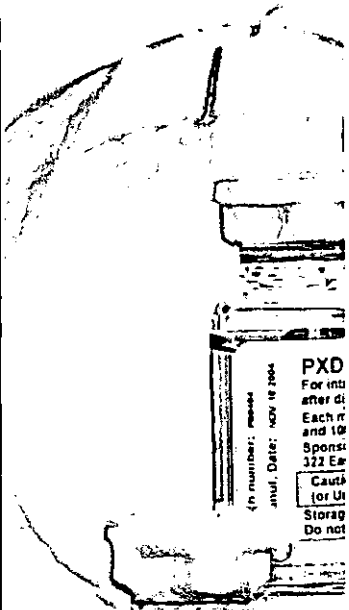
CR011-vcMMAE

- FILED AN IND AND INITIATED A PHASE I/II CLINICAL TRIAL EVALUATING CR011-vcMMAE FOR THE TREATMENT OF METASTATIC MELANOMA

454 LIFE SCIENCES

- MORE THAN 60 GENOME SEQUENCER SYSTEMS INSTALLED WORLDWIDE
- LAUNCHED THE GENOME SEQUENCER FLX WITH ROCHE APPLIED SCIENCE
- ACHIEVED REVENUE OF $37.3 MILLION, NEARLY DOUBLE THAT OF 2005

PROVEN PROGRESS, FROM THEORY TO THERAPY.



2006 WAS AN IMPORTANT YEAR IN ANCHORING AND ADVANCING CLINICAL DEVELOPMENT PROGRAMS NOW POISED TO DELIVER CLINICAL RESULTS THROUGHOUT 2007 AND LEAD TO THE INITIATION OF PHASE III PROGRAMS IN 2008.

As a trained physician, with more than 20 years spent successfully developing new drugs in the pharmaceutical and biotechnology industry, I have extensive experience in evaluating and identifying drugs in development that have real potential to reach and benefit patients and physicians, experience that I see mirrored among my colleagues, many of whom have also implemented and executed all of the components necessary for bringing a product to the market. I see enormous potential throughout CuraGen's pipeline—not only in velafermin, belinostat and CR011-vcMMAE, our advanced therapeutics, but also in our earlier-stage pipeline.

I am confident that CuraGen, drawing on the infrastructure of talented people now in place, will generate important clinical trial results during 2007 from this strong portfolio of late-stage products.

BELINOSTAT (PXD101): HDAC INHIBITOR FOR THE TREATMENT OF CANCER.

A newly approved class of drugs in the United States, HDAC inhibitors have emerged as an intriguing and promising mechanism for the treatment of cancer, demonstrating anticancer activity both as single agents and in combination with other commonly used chemotherapy drugs. Preclinical studies have shown that belinostat as monotherapy can lead to cancer cell death, and, importantly, that it has potential to enhance the activity of other chemotherapeutic agents in combination. Based on this work, CuraGen, TopoTarget and the National Cancer Institute (NCI) are conducting a broad clinical development program evaluating the promising indications and chemotherapeutic regimens, which encompass 15 clinical trials in 10 indications and with 5 different chemotherapy regimens by the end of 2006.

Belinostat is being evaluated in a Phase II trial for the treatment of T-cell lymphomas, including cutaneous T-cell (CTCL) and peripheral T-cell lymphomas (PTCL). Expansion of the CTCL to full enrollment was assured in 2006 when a sufficient number of patients with CTCL achieved an objective response, and we look

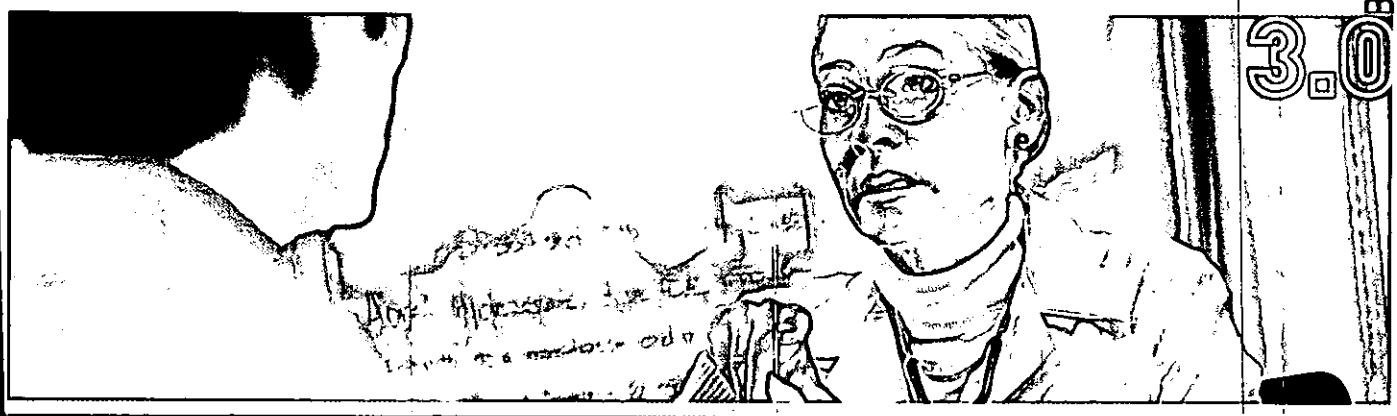
Timothy M. Shannon, M.D., Executive Vice President and Chief Medical Officer, joined CuraGen in September 2002 with the goal of transforming the Company's portfolio of targets into a therapeutic pipeline. Over the past four years, Dr. Shannon's R&D team has successfully advanced five products into clinical trials and is now making preparations to potentially bring one or more drugs into Phase III development in 2008. Previously, Dr. Shannon served as Head and Senior Vice President of Global Medical Development at Bayer Pharmaceutical Group, where he oversaw medical development and portfolio management, from Phase I through product registration, and held responsibility for all medical aspects of regulatory interaction including successful FDA and EMEA/CPMP advisory hearings and audits. Dr. Shannon earned his B.A. in Chemistry from Amherst College and his M.D. from the University of Connecticut School of Medicine.

forward to presenting preliminary results during mid-2007. We are also conducting Phase IB/II trials evaluating the combination of belinostat with paclitaxel and carboplatin for advanced ovarian cancer, and the combination of belinostat plus 5-fluorouracil for advanced colorectal cancer. Phase IB results from both of these trials were reported in 2006 suggesting belinostat was safe in combination with preliminary signs of clinical activity, and we expect preliminary Phase II results should become available during mid-2007.

We presented during 2006 Phase II results from our study evaluating belinostat, either alone or in combination with dexamethasone, for advanced multiple myeloma. Use of belinostat as monotherapy achieved stable disease in 43% of patients. Half of the patients receiving the combination of belinostat and dexamethasone achieved an objective response, with the remaining patients demonstrating stable disease. To further identify the role of belinostat in the treatment of multiple myeloma, we are conducting a Phase IB trial of belinostat with Velcade® (bortezomib) for Injection in patients who are refractory to or have progressive disease following prior treatment. We are looking to see whether the addition of belinostat can work synergistically with bortezomib, and expect preliminary results by mid-2007.

In addition to the studies we are sponsoring directly, the NCI is conducting national and international clinical trials investigating belinostat in multiple indications including B-cell lymphomas, acute myelogenous leukemia, hepatocellular cancer and myelodysplastic syndromes, and in combination with other cancer treatments such as retinoic acid, bortezomib and 5-azacitidine.

With belinostat, I believe that CuraGen is favorably positioned to benefit from the emergence of HDAC inhibitors as a promising approach to treat cancer. We are developing both an intravenous and oral formulation, differentiating belinostat from other HDAC inhibitors being studied, and we have implemented a broad development program that aims to identify the most appropriate indications for Phase III development and potential registration.



PROJECT	MODALITY	INDICATION	PRECLINICAL	PHASE I	PHASE IB	PHASE II	PHASE III
BELINOSTAT	SMALL MOLECULE	T-CELL LYMPHOMA			MONOTHERAPY		
		OVARIAN			PACLITAXEL/CARBOPLATIN		
		MULTIPLE MYELOMA			WITH VELCADE®		
		COLORECTAL			WITH 5-FLUOROURACIL		
		SOLID TUMORS – ORAL					

Belinostat inhibits HDACs to induce apoptosis, induce cancer cell differentiation, and overcome drug resistance by modulating gene transcription and acetylation of proteins used by cancer cells.

VELAFERMIN FOR ORAL MUCOSITIS AND CANCER SUPPORTIVE CARE.

The ability of a single dose of velafermin to reduce the incidence and duration of severe oral mucositis, as well as provide secondary benefits through reductions in the incidence of febrile neutropenia, bacteremia, and the use of pain medications and antibiotics, would provide a supportive care treatment that could be used across a broad range of cancer patients.

In 1999, scientists at CuraGen discovered velafermin, a growth factor that helps repair damage that frequently occurs to the gastrointestinal (GI) lining, and often the mouth, when cancer patients are treated with chemotherapy, radiotherapy, or a combination of the two. Such damage, called mucositis, or oral mucositis when the mouth is affected, can be a severely debilitating side effect of cancer treatment, resulting in pain, inability to eat or drink, need for narcotics, and even hospitalization. Velafermin, specifically known as fibroblast growth factor-20 (FGF-20), is involved in addressing this damage through its stimulation of two types of cells, epithelial and mesenchymal, which line the GI tract.

This is the product profile we aim to deliver with velafermin, and are currently enrolling patients in a randomized, double-blind, placebo-controlled Phase II trial that is evaluating the ability of a single intravenous infusion of velafermin to reduce the incidence and duration of severe oral mucositis when administered to patients undergoing autologous bone marrow transplant. This 400-patient, potentially pivotal clinical trial has been designed to document the efficacy of a single dose of velafermin compared to placebo, and we anticipate that results will be available during the third quarter of 2007. The outcome from this clinical trial will guide us and allow us to define velafermin's path through registrational development and into the oncology supportive care marketplace.

It is estimated that the approximately 20,000 patients undergoing bone marrow transplantation each year in the United States are at high risk for oral mucositis, and there are a further 400,000 patients who may develop oral mucositis as a result of their treatment for cancer.

Mary E. Taylor, M.P.H.
Senior Vice President of Regulatory Affairs

Frank M. Armstrong, M.D.
President and Chief Executive Officer

Elizabeth S. Crowley
Director of Clinical Strategy & Operations

PROJECT	MODALITY	INDICATION	PRECLINICAL	PHASE I	PHASE IB	PHASE II	PHASE III
VELAFERMIN (CG53135)	PROTEIN	ORAL MUCOSITIS PREVENTION					

Velafermin, also known as CG53135 or fibroblast growth factor-20, is believed to stimulate the cells which line the gastrointestinal tract, and is being developed for the prevention of severe oral mucositis. The ability to use a single intravenous dose of velafermin has the potential to complement existing treatment regimens by providing supportive care to cancer patients at risk of developing this debilitating complication, which can occur following anticancer treatments including chemotherapy and radiotherapy.

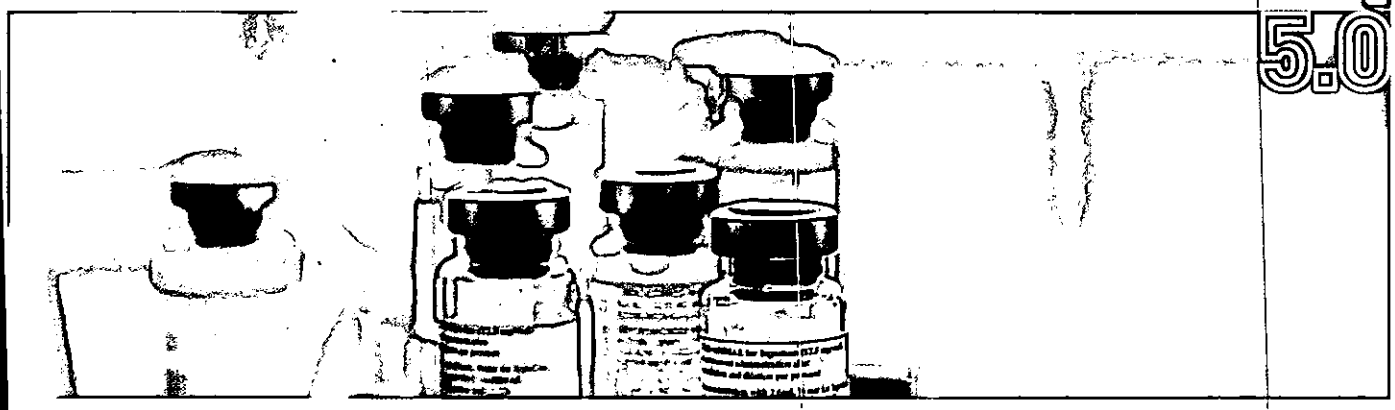
CRO11-vcMMAE: TARGETED APPROACH FOR METASTATIC MELANOMA.

CRO11-vcMMAE REPRESENTS A VERY TARGETED APPROACH IN THE TREATMENT OF METASTATIC MELANOMA, AN AGGRESSIVE AND POTENTIALLY FATAL SKIN CANCER THAT HAS SPREAD TO OTHER PARTS OF THE BODY.

The filing of an Investigational New Drug application (IND) for CRO11-vcMMAE, and the initiation of a Phase I/II clinical trial evaluating the safety and potential efficacy of CRO11-vcMMAE for the treatment of metastatic melanoma, were important milestones in our 2006 pipeline development. Dedicated efforts by our team of biopharmaceutical process scientists, preclinical researchers, regulatory affairs specialists, and clinical research coordinators, were able to achieve the goal of bringing CRO11-vcMMAE, an antibody-drug conjugate, into human studies.

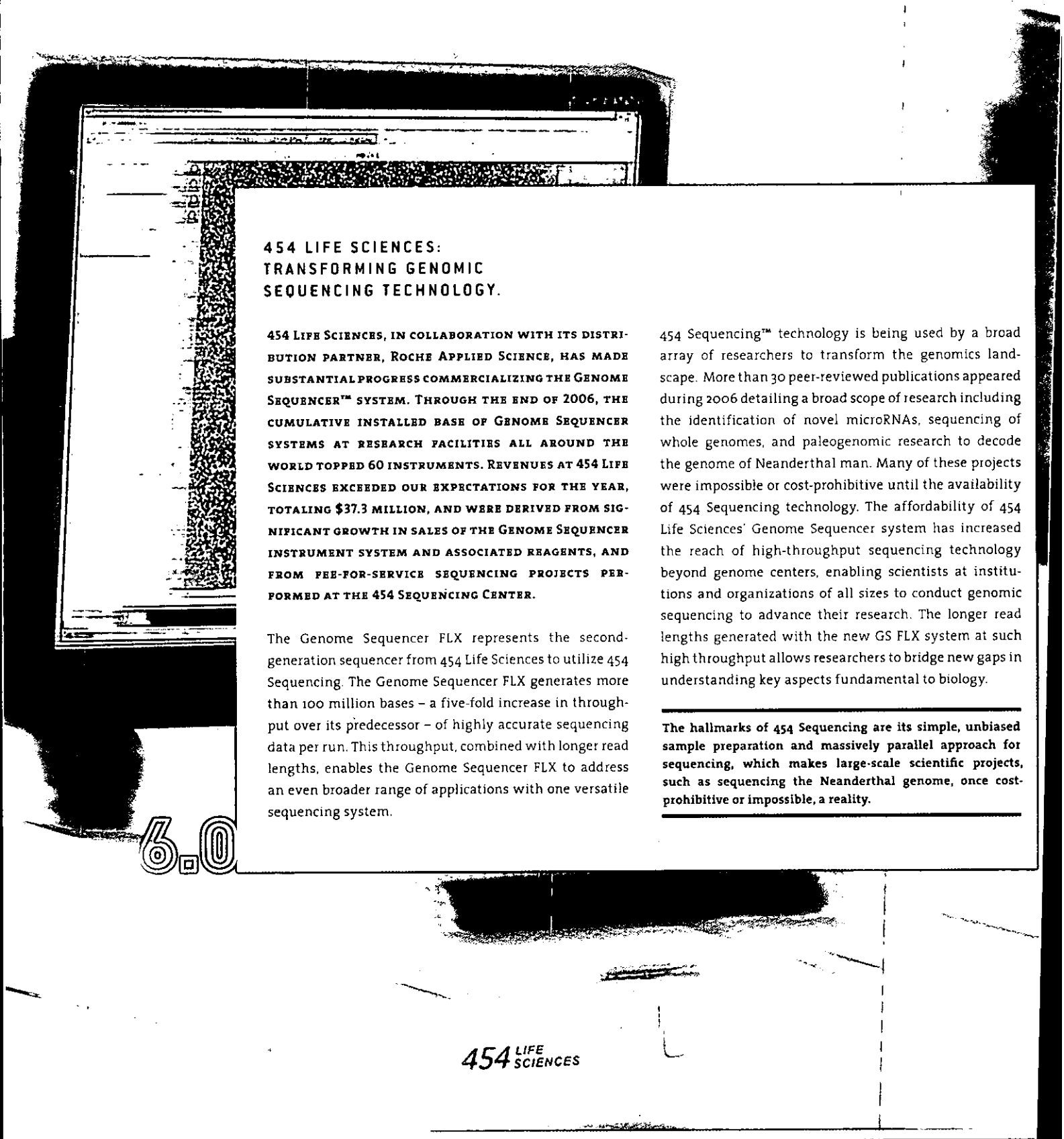
The drug combines a fully human monoclonal antibody, CRO11, and incorporates a linker system to attach four molecules of a potent chemotherapy drug, auristatin E, to create the antibody-drug conjugate CRO11-vcMMAE. The antibody component targets GPNMB, a protein predominantly expressed on the surface of cancer cells, where it is internalized, or transported into the cancer cell. Enzymes within the cancer cell then detach the two CRO11-vcMMAE components, releasing the chemotherapy component to inhibit the cancer cell's growth.

Animal studies with CRO11-vcMMAE produced striking responses where complete remissions were obtained in models of human melanoma. These results were published in the journal *Clinical Cancer Research* in February of 2006 and supported the advancement of this antibody-drug conjugate into clinical trials. An IND for CRO11-vcMMAE was filed with the FDA and a clinical program was initiated in June of last year. In this ongoing Phase I/II clinical trial with CRO11-vcMMAE, we are looking to see whether patients with metastatic melanoma can achieve a response from treatment similar to what was seen in our preclinical studies where tumors shrank following treatment. Our goal for 2007 is to complete the Phase I dose-escalation portion of the trial and continue enrolling patients with metastatic melanoma into the Phase II efficacy portion of the study, with the expectation of reporting results by the end of 2007.



PROJECT	MODALITY	INDICATION	PRECLINICAL	PHASE I	PHASE IB	PHASE II	PHASE III
CRO11-vcMMAE	ANTIBODY-DRUG CONJUGATE	METASTATIC MELANOMA					

Metastatic melanoma is a severe form of skin cancer affecting upwards of 9,000 patients per year in the United States. CRO11-vcMMAE targets GPNMB, an intracellular protein typically found within cells which becomes expressed on the surface of melanoma, thus providing an intriguing target. Following intravenous administration, CRO11-vcMMAE binds to GPNMB, is transported inside of the cancer cell and broken apart by enzymes, which releases the chemotherapy drug auristatin E and leads to cell death.



454 LIFE SCIENCES: TRANSFORMING GENOMIC SEQUENCING TECHNOLOGY.

454 Life Sciences, in collaboration with its distribution partner, Roche Applied Science, has made substantial progress commercializing the Genome Sequencer™ system. Through the end of 2006, the cumulative installed base of Genome Sequencer systems at research facilities all around the world topped 60 instruments. Revenues at 454 Life Sciences exceeded our expectations for the year, totaling $37.3 million, and were derived from significant growth in sales of the Genome Sequencer instrument system and associated reagents, and from fee-for-service sequencing projects performed at the 454 Sequencing Center.

The Genome Sequencer FLX represents the second-generation sequencer from 454 Life Sciences to utilize 454 Sequencing. The Genome Sequencer FLX generates more than 100 million bases – a five-fold increase in throughput over its predecessor – of highly accurate sequencing data per run. This throughput, combined with longer read lengths, enables the Genome Sequencer FLX to address an even broader range of applications with one versatile sequencing system.

454 Sequencing™ technology is being used by a broad array of researchers to transform the genomics landscape. More than 30 peer-reviewed publications appeared during 2006 detailing a broad scope of research including the identification of novel microRNAs, sequencing of whole genomes, and paleogenomic research to decode the genome of Neanderthal man. Many of these projects were impossible or cost-prohibitive until the availability of 454 Sequencing technology. The affordability of 454 Life Sciences' Genome Sequencer system has increased the reach of high-throughput sequencing technology beyond genome centers, enabling scientists at institutions and organizations of all sizes to conduct genomic sequencing to advance their research. The longer read lengths generated with the new GS FLX system at such high throughput allows researchers to bridge new gaps in understanding key aspects fundamental to biology.

The hallmarks of 454 Sequencing are its simple, unbiased sample preparation and massively parallel approach for sequencing, which makes large-scale scientific projects, such as sequencing the Neanderthal genome, once cost-prohibitive or impossible, a reality.

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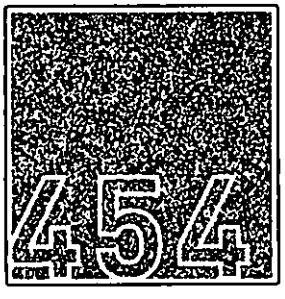
454 LIFE SCIENCES



454 Life Sciences also continued to be recognized for its achievements during 2006, being named a Technology Pioneer by the World Economic Forum, and receiving an R&D 100 Editor's Choice Award for the Genome Sequencer system as one of the most technologically significant products introduced into the marketplace during the past year. Built upon CuraGen's past experience related to the process of genomic sequencing, 454 Life Sciences was established as a majority-owned subsidiary in the year 2000 to develop a revolutionary approach for high-throughput sequencing. 454 Life Sciences' mission is to transform the practice of life sciences by providing affordable and accessible sequencing-based solutions. The Genome Sequencer system utilizes 454 Sequencing technology and is believed to be responsible for enabling research that was once deemed impossible or cost-prohibitive.

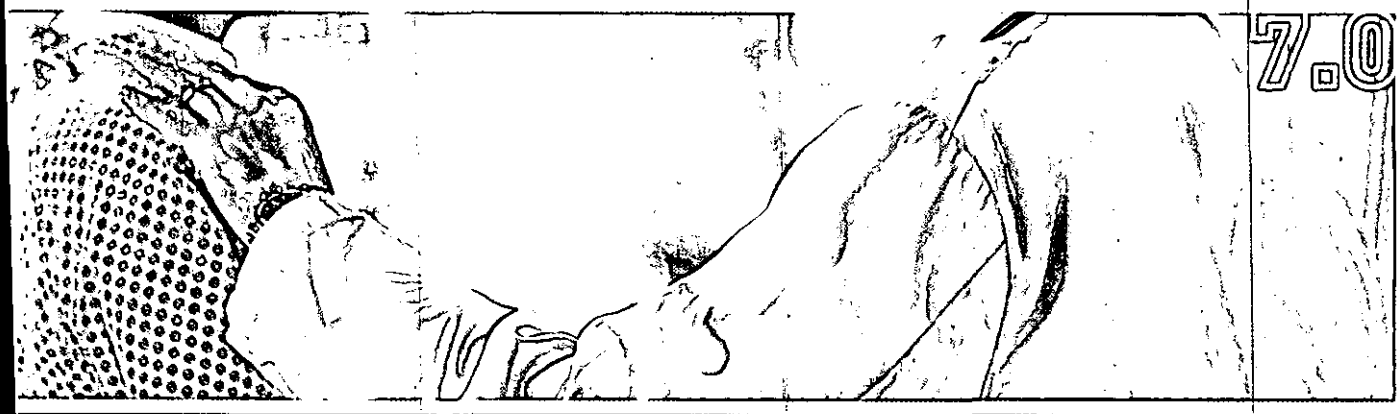
FORMULA FOR THE FUTURE: LEVERAGING OUR ASSETS AND STRATEGIC INVESTMENTS.

THERE ARE THREE FUNDAMENTAL REQUIREMENTS FOR SUCCESS AS A BIOPHARMACEUTICAL COMPANY: INNOVATIVE AND EFFECTIVE PRODUCTS, AN EXPERIENCED AND RESOURCEFUL TEAM TO BRING THE PRODUCTS THROUGH DEVELOPMENT, AND ACCESS TO THE NECESSARY FINANCIAL RESOURCES. I BELIEVE THAT CURAGEN IS WELL POSITIONED ON ALL THREE COUNTS AND IS POISED FOR SIGNIFICANT PROGRESS ON ALL FRONTS.

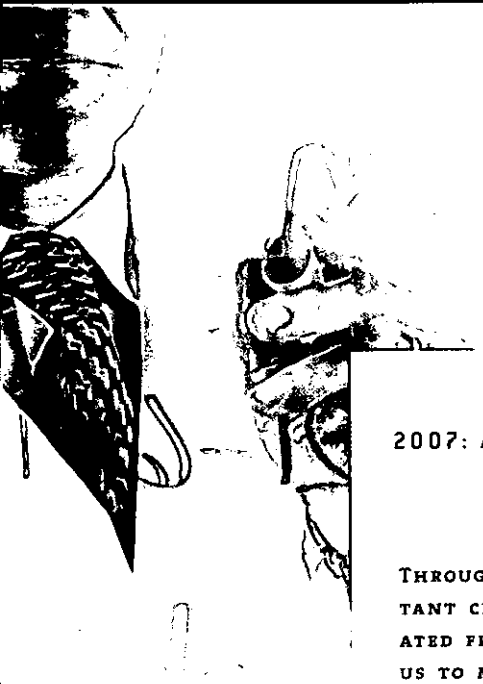
CuraGen also has the potential to sustain its pipeline of drugs by accessing and advancing our portfolio of earlier-stage protein, antibody, antibody-drug conjugate, and small molecule drugs. We have a clear opportunity to make investments in this preclinical portfolio and advance a subset of these drugs toward clinical development in the future. Our current preclinical drug opportunities include CR014-vcMMAE and CR012, possible treatments for ovarian cancer, colorectal cancer, and renal cell carcinoma; and we also have conducted research with TopoTarget to evaluate a portfolio of small molecule HDAC inhibitors for their potential in the treatment of cancer and inflammatory diseases.

Throughout 2006, each and every CuraGen employee exercised fiscal responsibility in cost-containment efforts that reduced by $15 million our anticipated consolidated net loss and cash burn. During 2007, we will continue to identify cost-savings wherever possible–and appropriate–while implementing strategies to strengthen our balance sheet. In early February 2007 we repaid our outstanding 2007 convertible debt with cash, reducing the amount of debt on our balance sheet by $66.2 million. We believe a number of strategic options exist to further strengthen our cash position, and anticipate that the clinical milestones coming up in 2007 could increase our financing options. Furthermore, realizing value from our investment in 454 Life Sciences could provide additional resources to fund our development efforts, as we explore establishing future strategic collaborations to augment our marketing capabilities.

I would also like to take a moment to acknowledge the leadership of Patrick J. Zenner, my predecessor, who served as interim CEO of CuraGen until March 2006, and the support of CuraGen executives, board members and employees, all of whom have contributed to our accomplishments in 2006.



David M. Wurzer, Executive Vice President, Chief Financial Officer and Treasurer, has served as Chief Financial Officer since September 1997, and his contributions were critical in facilitating CuraGen's 1998 initial public offering and listing on the NASDAQ stock exchange. Mr. Wurzer has led efforts to secure the capital to advance CuraGen's pipeline, and he has been responsible for implementing the rigorous financial controls that have allowed CuraGen to become an established biopharmaceutical company. Previously, Mr. Wurzer served as Senior Vice President and Chief Financial Officer of Value Health, Inc. David Wurzer earned his B.B.A. in accounting from the University of Notre Dame.



2007: A PIVOTAL YEAR FOR CURAGEN.

THROUGHOUT 2007, WE ANTICIPATE THAT IMPORTANT CLINICAL TRIAL RESULTS WILL BE GENERATED FROM OUR ONCOLOGY PIPELINE, ENABLING US TO MAKE IMPORTANT DECISIONS REGARDING THE DEVELOPMENT PATH FORWARD.

2007 MILESTONES

VELAFERMIN

- Complete enrollment and report preliminary results from our Phase II randomized, double-blind, placebo-controlled trial for the prevention of severe oral mucositis in the third quarter of 2007

BELINOSTAT

- Report during mid-2007 preliminary results from our three Phase II trials evaluating intravenous belinostat for the treatment of T-cell lymphomas, in combination with carboplatin and paclitaxel for advanced ovarian cancer and in combination with 5-fluorouracil for advanced colorectal cancer
- Report by mid-2007 preliminary Phase 1B trial results for intravenous belinostat plus Velcade® for refractory multiple myeloma
- Release preliminary Phase I results from our trial with oral belinostat by the end of 2007

CR011-vcMMAE

- Report preliminary Phase I/II results by the end of 2007

Building on the momentum of 2006, all of us at CuraGen remain dedicated to realizing value from our advanced oncology pipeline, our earlier-stage portfolio of proteins, antibodies, and small molecules, and from our investment in 454 Life Sciences. We are encouraged by the potential for our products to expand and improve the delivery of effective cancer care, and believe that these products will bring benefits to all our constituencies: patients, the healthcare community, and shareholders.

Frank M. Armstrong, M.D.
President and Chief Executive Officer

CuraGen Corporation is a biopharmaceutical company dedicated to the development of novel drugs for the treatment of cancer and cancer supportive care. By leveraging its research into the basis of disease and selective development collaborations, CuraGen has generated a pipeline of earlier-stage proteins, antibodies, antibody-drug conjugates and small molecules with substantial promise for advancing oncology and inflammatory diseases. CuraGen is now targeting its resources toward the advancement of three drugs - velafermin, belinostat and CR011-vcMMAE - to Phase III trials during 2008.

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

FORM 10-K

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

For the fiscal year ended December 31, 2006

OR

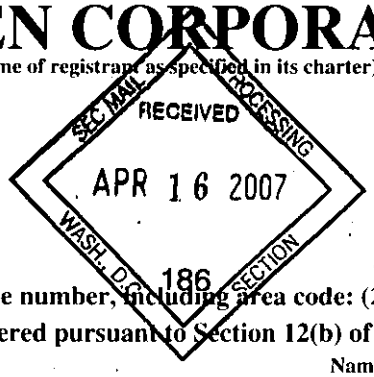
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number 000-23223

CURAGEN CORPORATION

(Exact name of registrant as specified in its charter)



Delaware	**06-1331400**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
322 East Main Street, Branford, Connecticut	**06405**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (203) 481-1104

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

Title of each class	**Name of each exchange on which registered**
Common Stock, $0.01 par value (excluding Preferred Stock Purchase Rights, $0.01 par value)	**NASDAQ Global Market**

Securities registered pursuant to Section 12(g) of the Act:

None
(Title of class)

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. 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 period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

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 whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act.). Yes ☐ No ☒

The aggregate market value of the registrant's voting shares of common stock held by non-affiliates of the registrant on June 30, 2006, based on $3.50 per share, the last reported sale price on the NASDAQ Global Market on that date, was $172,415,936.

The number of shares outstanding of the registrant's common stock as of March 1, 2007 was 56,918,094.

Documents Incorporated by Reference

Portions of the Registrant's Definitive proxy statement for its 2007 Annual Meeting of Stockholders are incorporated by reference into Part III of this report.

CURAGEN CORPORATION

FORM 10-K
INDEX

PART I

Item 1. *Business*

Overview

We are a biopharmaceutical development company dedicated to improving the lives of patients by developing novel protein, fully-human monoclonal antibody, antibody-drug conjugate, and small molecule therapeutics for the treatment of cancer and cancer supportive care. We have taken a systematic approach to identifying and validating the most promising drug targets from our past research into the human genome and are now focused on developing and advancing potential drug candidates through preclinical and clinical development. We use internal resources to develop our potential protein therapeutics and have established strategic collaborations with: Amgen Fremont, Inc., or Amgen Fremont (formerly Abgenix, Inc.), to generate fully-human monoclonal antibody projects; TopoTarget A/S, or TopoTarget, to access small molecule histone deacetylase, or HDAC, inhibitors; and Seattle Genetics, Inc., or Seattle Genetics, to access antibody-drug conjugate, or ADC, technology. The majority of our financial and human resources are focused on advancing our pipeline of cancer treatments and cancer supportive care drug candidates through development and toward commercialization, including velafermin, belinostat (PXD101) and CR011-vcMMAE. In addition, we maintain a portfolio of earlier stage assets, including proteins, antibodies, and small molecules that represent potential treatments for cancer inflammatory diseases and diabetes.

Our majority-owned subsidiary, 454 Life Sciences Corporation, or 454, has commercialized advanced technologies for high-throughput sequencing of DNA. 454's current products perform rapid and comprehensive "whole genome sequencing," or the determination of the nucleotide sequence of entire genomes, "ultra-deep sequencing," or the accurate detection of mutations in target genes of interest, and "ultra-broad sequencing," or the surveying and characterization of large numbers of DNA molecules from a complex mixture. Currently, 454's sequencing technology consists of the Genome Sequencer 20 Instrument, or GS20, and the Genome Sequencer FLX, or GS FLX, and associated reagent kits, disposables and analysis software.

We are a Delaware corporation. We were incorporated in 1991 and began operations in 1993. Our principal executive office is located at 322 East Main Street, Branford, Connecticut 06405. In this Annual Report on Form 10-K, the terms "we," "us" and "our" includes CuraGen Corporation and its subsidiaries.

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and, accordingly, file reports, proxy statements and other information with the Securities and Exchange Commission. Such reports, proxy statements and other information can be read and copied at the public reference facilities maintained by the Securities and Exchange Commission at the Public Reference Room, 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Information regarding the operation of the Public Reference Room may be obtained by calling the Securities and Exchange Commission at 1-800-SEC-0330. The Securities and Exchange Commission maintains a web site (http://www.sec.gov) that contains material regarding issuers that file electronically with the Securities and Exchange Commission.

Our Internet address is www.curagen.com. We are not including the information contained on our web site as a part of, or incorporating it by reference into, this Annual Report on Form 10-K. We make available free of charge on our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission.

Strategy

Our goal is to generate value for our shareholders by focusing our resources on developing and advancing novel drug candidates to improve the lives of patients with cancer. We are striving to become profitable by commercializing a subset of therapeutics stemming from our development pipeline, and establishing partnerships with pharmaceutical and biotechnology companies for the development and commercialization of other therapeutics from our development pipeline.

Development Programs

The following table summarizes our oncology drug development programs and non-oncology assets:

Product Candidate	Classification	Therapeutic Area	Development Status
Oncology			
velafermin	Protein	Cancer supportive care	Phase II
belinostat (PXD101)	Small molecule	Cancer treatment	Phase II
CR011-vcMMAE	ADC	Cancer treatment	Phase I
CR014-vcMMAE	ADC	Cancer treatment	Preclinical
CR012	Antibody	Cancer treatment	Preclinical
Non-oncology			
CR002	Antibody	Kidney inflammation	Completed Phase I
BAY 76-7171	Small molecule	Type 2 diabetes	IND filed November 2005
PXD118490	Small molecule	Dermatologic disorders	Outlicensed to LEO Pharma

Velafermin for cancer supportive care

Velafermin, also referred to as recombinant human fibroblast growth factor-20, or FGF-20, or CG53135, is a protein we discovered and are investigating as a potential therapeutic for the prevention and treatment of oral mucositis, or OM, in cancer patients who are receiving chemotherapy, with or without radiotherapy, for the treatment of their underlying disease. OM is a side effect that can be experienced by patients receiving chemotherapy, radiotherapy, or a combination thereof for cancer treatment. The condition is characterized by inflammation and ulceration of the tissue lining the mouth and throat leading to bleeding, pain, and difficulty eating and drinking. In addition to leading to debilitating symptoms, OM may result in the interruption of radiation or chemotherapeutic protocols in oncology patients. The International Bone Marrow Transplantation Registry estimates that approximately 20,000 hematopoietic stem cell transplantation, or HSCT, or bone marrow transplantation, or BMT, procedures are performed annually in the U.S., putting many of these patients at high-risk of developing OM. Furthermore, more than 400,000 patients in the U.S. may develop OM as a consequence of their cancer treatment. A therapeutic that could prevent or treat OM successfully would not only mitigate debilitating symptoms, but also may enable cancer patients to receive the optimum dosage of radiation therapy or chemotherapy needed to fight their cancer.

Velafermin is a growth factor that is believed to play a role in maintaining the integrity of the gastrointestinal tract by causing regeneration of epithelial and mesenchymal cells, enabling repopulation of the layers of the gastrointestinal tract damaged by chemotherapy and radiotherapy. The potency of velafermin is believed to be due to its activity in promoting proliferation of two critical layers of cells (epithelial and mesenchymal) present in the mucosa lining of the mouth and the remainder of a patient's gastrointestinal tract. The molecule has demonstrated activity in animal models of OM and the data for these studies was published in the journal *Supportive Cancer Care* in 2005. The data demonstrates that a single dose of velafermin administered to animals exposed to chemotherapy, but before the development of active OM, reduces the severity and duration of subsequent OM; and that administration of velafermin to animals with active OM resulted in a significant reduction in the duration and severity of OM. This preclinical data supports our strategy to investigate velafermin as a single dose agent for the prevention of OM and as well as for the treatment of active OM.

Development Status

In 2003, we submitted an investigational new drug application, or IND, to the U.S. Food and Drug Administration, or FDA, and began testing velafermin in clinical trials. In early 2004, we received orphan drug designation from the FDA for velafermin in OM, which we believe will help strengthen the program by offering important clinical development and commercialization benefits. In December 2004, we received Fast Track status from the FDA to investigate velafermin for the prevention of OM in patients receiving HSCT following

myeloablative chemotherapy with or without total body irradiation, or TBI. With a Fast Track designation, there is an opportunity for more frequent interactions with the FDA and the possibility of a priority review, which could decrease the typical review period.

Two Phase I trials evaluating the safety and pharmacokinetics of velafermin for the prevention of OM have been completed. In November 2004, abstracts containing preliminary results from both Phase I trials were published in the proceedings of the 46th Annual Meeting of the American Society of Hematology, or ASH. In May 2005, final data from the Phase I trial on velafermin for cancer patients undergoing BMT was presented during the American Society of Clinical Oncology Annual Meeting, or ASCO. Data on the safety, pharmacokinetics, and potential efficacy of velafermin on 30 patients treated with a single-dose of velafermin suggested that velafermin was well tolerated with no serious drug-related adverse events noted following administration.

A Phase II trial evaluating the activity of a single dose of velafermin for the prevention of OM was completed in September 2005 and results were presented in February 2006 at the 2006 BMT Tandem Meetings. A total of 212 patients were randomized to receive a single administration of placebo, 30 mcg/kg, 100 mcg/kg, or 200 mcg/kg of velafermin at approximately 20 sites in the United States. Data showed that a 30 mcg/kg dose of velafermin significantly reduced the incidence and duration of severe Grade 3 or 4 OM compared to placebo. An analysis of the safety results indicates that velafermin appears to be safe and well tolerated.

In May 2006, we initiated enrollment in a second multi-center, randomized, placebo-controlled, Phase II clinical trial evaluating the activity of a single dose of 30 mcg/kg velafermin, compared to placebo, for the prevention of severe Grade 3 or 4 OM. Approximately 150 patients will be enrolled into each of the 30 mcg/kg velafermin and placebo arms in the trial. The study will also include two secondary comparison arms to evaluate the effects of a single dose of 10 mcg/kg and 60 mcg/kg velafermin, with 50 patients per arm. Patients receiving autologous BMT for the treatment of multiple myeloma, Hodgkin's lymphoma, and non-Hodgkin's lymphoma, or NHL, and receiving one of three common myeloablative regimens will be eligible for enrollment at approximately 40 sites. The study will evaluate the safety and efficacy of velafermin for the prevention of severe OM through 30 days post-dosing, and follow patients for one year to evaluate any potential effects of velafermin on the outcome of cancer treatment. We anticipate that primary OM efficacy and safety results will be available in the third quarter of 2007, with one year follow-up data expected to be available in the third quarter of 2008.

In February 2006, we reported results from a Phase I clinical trial on velafermin for the treatment of OM that evaluated the safety and tolerability of multiple doses of intravenously administered velafermin on nine cancer patients who developed OM as a consequence of the chemotherapy they received for the treatment of their underlying disease. Multiple doses of velafermin were generally well tolerated with results that suggest an adequate safety profile for up to three doses of 200 mcg/kg/day. In addition, the data is supportive of future clinical trials for further evaluation of multiple dose regimens of velafermin and the use of velafermin for the treatment of active OM.

Belinostat (PXD101) for the treatment of cancer

In June 2004, we added belinostat (PXD101), a novel HDAC inhibitor, to our pipeline through a license and collaboration agreement with TopoTarget. We are evaluating belinostat (PXD101) as a potential treatment of both solid and hematologic cancers either alone, or in combination with other cancer drugs. The collaboration with TopoTarget also provides us with access to TopoTarget's library of HDAC inhibitor candidates for future commercialization by us or through licensing or sublicensing arrangements to third parties. HDAC inhibitors represent a new mechanistic class of anti-cancer therapeutics that target HDAC enzymes, and have been shown to: arrest growth of cancer cells; induce apoptosis, or programmed cell death; promote differentiation; inhibit angiogenesis, or the growth of blood vessels; and sensitize cancer cells to overcome drug resistance.

Development Status

Our clinical development program for intravenous and oral belinostat (PXD101) includes one completed, and five active clinical trials, for which we are currently enrolling patients. Details of the trials sponsored by us are provided below.

Indication	*Phase*	*Regimen*	*Initiation of Patient Enrollment*	*Milestone*
Multiple myeloma	II	Monotherapy or in combination with dexamethasone	January 2005	Enrollment completed October 2006; Results presented December 2006
Solid tumors and colorectal cancer	Ib/II	Combination with 5-fluorouracil	September 2005	Preliminary results presented November 2006; Phase II results expected mid-2007
Solid tumors and ovarian cancer	Ib/II	Combination with paclitaxel and/or carboplatin	September 2005	Preliminary results presented November 2006; Phase II results expected mid-2007
T-cell lymphoma	II	Monotherapy	January 2006	Preliminary results expected mid-2007
Multiple myeloma	Ib	Combination with Velcade®	March 2006	Preliminary results expected mid-2007
Advanced solid tumors	I	Oral belinostat (PXD101)	August 2006	Preliminary results expected by end of 2007

In November 2005, we reported results from a Phase I trial on belinostat (PXD101) for the treatment of advanced solid tumors as a single agent. Results from a total of 42 patients suggested that the most common adverse events were fatigue, nausea, vomiting and phlebitis, or vein inflammation, with no significant hematological toxicities noted. Based on the dose-escalation safety data, the dose for Phase II monotherapy efficacy studies was determined to be 1000 mg/m^2. Potential anti-tumor activity was observed in four patients receiving belinostat (PXD101), including an epithelial T-cell thymoma patient who exhibited 70% reduction of mediastinal disease, and a patient with metastatic alveolar sarcoma who has had stable disease, or SD, for 13 months. Two additional patients, with a diagnosis of metastatic fibrosarcoma and breast cancer had SD for six months and four months, respectively.

In December 2005, safety and clinical activity results from a Phase I trial on intravenous belinostat (PXD101) for the treatment of advanced hematologic tumors as a single agent were reported at ASH. Belinostat (PXD101) was generally well-tolerated with the most common adverse events being fatigue, nausea and vomiting. It was reported that one patient with NHL had SD for five cycles and one patient with transformed chronic lymphocytic leukemia, or CLL, had SD for nine cycles. We also reported preclinical results on belinostat (PXD101), both as a single agent and in combination with bortezomib (Velcade®), an FDA-approved treatment for multiple myeloma. Belinostat (PXD101) monotherapy inhibited the growth of various hematological cancer cell lines at sub-micromolar, or extremely low, concentrations and was highly effective on cell lines which were resistant to other chemotherapeutics. Furthermore, preclinical studies evaluating the combination of belinostat (PXD101) with bortezomib showed greater growth-inhibitory activity, as compared to either drug used alone, on a multiple myeloma cell line.

At the 2006 EORTC-NCI-AACR Symposium, results from 23 patients enrolled in a Phase Ib dose-escalation trial evaluating intravenous belinostat (PXD101) in combination with paclitaxel and carboplatin for advanced solid tumors were reported. The data demonstrated that belinostat (PXD101) was well tolerated when administered in combination with standard doses of carboplatin and paclitaxel, with no dose limiting toxicities encountered and no grade 4 adverse events noted. Of the 23 patients treated, evidence of clinical activity was noted in two patients (9%) achieving a partial response (one patient each with pancreatic and rectal cancer) and ten patients (43%) achieving SD lasting from two to greater than 13 cycles. The trial is now enrolling 15 patients with advanced ovarian cancer into the Phase II portion of the trial to further evaluate the safety and activity of belinostat (PXD101) in combination with carboplatin and paclitaxel. Preliminary results from the Phase II trial are anticipated in mid-2007.

It was also reported at the 2006 EORTC-NCI-AACR Symposium that belinostat (PXD101) in combination with 5-FU was generally well-tolerated at doses of 1000 mg/m2/d belinostat (PXD101) in combination with 250 mg/m2/d 5-FU. No dose-limiting toxicities or drug-related grade 3 or 4 adverse events were observed, with the fatigue, nausea and vomiting, dysgeusia, or the impairment of the sense of taste, dehydration and anorexia being the most common adverse events. Upon completion of the Phase Ib dose escalation, the Phase II portion will begin and enroll approximately 20 patients with advanced colorectal cancer to further evaluate the safety and activity of intravenous belinostat (PXD101) with 5-FU. Preliminary Phase II results are anticipated by mid-2007.

In December 2006, results from our Phase II trial evaluating intravenous belinostat (PXD101) for the treatment of multiple myeloma, either alone or in combination with dexamethasone, were presented at ASH. The Phase II trial enrolled a total of 25 patients, of which 21 were eligible to be evaluated for single agent clinical activity. Preliminary results indicate that nine patients (43%) receiving belinostat (PXD101) monotherapy achieved SD, lasting from one to ten cycles. Patients with progressive disease following treatment with belinostat (PXD101) monotherapy were eligible to receive belinostat (PXD101) in combination with dexamethasone. Of the eight evaluable patients treated with this combination, an objective response rate of 50% was achieved including two partial response and two minimal responses, and four additional patients achieving SD lasting two to 15 cycles, with two of these patients continuing to receive belinostat (PXD101) and dexamethasone. In this trial, belinostat (PXD101), both alone and in combination with dexamethasone, was well tolerated.

In August 2004, we signed a clinical trials agreement, or CTA, with the National Cancer Institute, or NCI, that provides us with access to the expertise at the NCI for the design, implementation, and monitoring of clinical trials with belinostat (PXD101). Under the CTA, the NCI will sponsor a number of clinical trials evaluating the activity of belinostat (PXD101), either alone or in combination with other anti-cancer therapies, for the treatment of solid and hematologic malignancies. NCI-sponsored clinical trials are occurring in parallel to those sponsored by us, with all data generated available for use in future product registration. As of March 2007, a total of nine NCI-sponsored trials were being conducted, enrolling patients at sites in the U.S. and abroad. Details of the active NCI-sponsored trials are provided below.

Indication	*Phase*	*Regimen*	*Initiation of Patient Enrollment*
Advanced solid tumors or lymphomas	Ib	Combination with Velcade®	March 2006
Acute Myelogenous Leukemia	II	Monotherapy	June 2006
Advanced solid tumors	Ib	Combination with cis-retinoic acid	June 2006
Mesothelioma	II	Monotherapy	June 2006
Hepatocellular carcinoma	I/II	Monotherapy	July 2006
Advanced hematologic malignancies	I	Combination with azacitidine	August 2006
B-cell lymphomas	II	Monotherapy	August 2006
Ovarian	II	Monotherapy	November 2006
Myelodysplastic Syndrome	II	Monotherapy	November 2006

During 2007, we intend to obtain clinical trial results from our intravenous development program with belinostat (PXD101) that we believe will allow us to advance into registration clinical trials during 2008.

CR011-vcMMAE for the treatment of cancer

CR011 is a fully-human monoclonal antibody resulting from our collaboration with Amgen Fremont, that utilizes ADC technology licensed from Seattle Genetics to attach monomethyl auristatin E, or vcMMAE, to yield CR011-vcMMAE. CR011 targets glycoprotein NMB, or GPNMB, a protein located specifically on the surface of melanoma cells. After CR011-vcMMAE binds to the target protein, the ADC is transported inside the cancer cell where MMAE is cleaved from the antibody and activated in the cell.

In October 2004, we announced the advancement to preclinical development of CR011-vcMMAE, that we are investigating as a potential treatment for metastatic melanoma. Preclinical animal data on CR011-vcMMAE was presented in April 2005 at the 96th Annual Meeting of American Association for Cancer Research, or AACR. These results demonstrated that treatment of xenograft models of melanoma with CR011-vcMMAE caused significant improvements in survival, including complete and durable tumor regression, without any notable toxicity or weight loss.

In June 2006, we announced the clearance by the FDA of the IND for CR011-vcMMAE and the initiation of dosing of patients in a Phase I clinical trial. The open-label, multi-center, dose-escalation study will evaluate the safety, tolerability and pharmacokinetics of CR011-vcMMAE for patients with Stage III or Stage IV melanoma who have failed no more than one prior line of cancer chemotherapy. The first part of the trial will evaluate cohorts of patients receiving increasing doses of CR011-vcMMAE to determine the maximum tolerated dose, or MTD, after which up to approximately 30 additional patients will be enrolled and treated to further define the safety and efficacy of CR011-vcMMAE. We anticipate that preliminary results from this trial will be available by the end of 2007.

CR014-vcMMAE for the treatment of cancer

In January 2006, we announced the advancement to preclinical development of CR014-vcMMAE, a fully-human monoclonal antibody that also utilizes ADC technology from Seattle Genetics, which we are evaluating as a potential treatment for ovarian cancer and renal cell carcinoma. CR014 targets TIM-1, also known as T-cell Immunoglobulin and Mucin domain 1, a protein expressed on the surface of certain cancer cells. In March 2006, we presented new preclinical data on CR014 at the 97th Annual Meeting of the AACR in Washington, D.C., that demonstrated significant anti-proliferative activity on antigen positive renal and ovarian carcinoma cell lines both *in vitro* and *in vivo*.

CR012 for the treatment of cancer

In January 2006, we announced the advancement to preclinical development of CR012, a fully-human monoclonal antibody, which we are evaluating as a potential treatment for colorectal and ovarian cancers. CR012 targets secretory leukocyte protease inhibitor, or SLPI, an enzyme important in the regulation of growth factors which support cancer cell growth. In March 2006, we presented new preclinical data on CR012 at the 97th Annual Meeting of the AACR, that demonstrated inhibition of colon carcinoma cell lines growth *in vitro* and *in vivo*.

CR002 for kidney inflammation

CR002 is a fully-human monoclonal antibody from our collaboration with Amgen Fremont. CR002 is being evaluated as a potential treatment of kidney inflammation to prevent or slow the progression of IgA nephropathy toward kidney failure. CR002 is designed to block the activity of platelet-derived growth factor D, or PDGF-D, a protein shown to play a role in kidney inflammation. Conditions where the growth of mesangial cells stimulated by PDGF-D are thought to be involved in disease progression include IgA nephropathy, diabetic nephropathy and, potentially, lupus nephritis.

Kidney inflammation is typically characterized by a loss of architecture and diminishing function that may eventually lead to kidney failure, necessitating dialysis or kidney transplantation. Kidney inflammation is usually managed clinically by the use of non-specific immunosuppressants, which have variable efficacy and debilitating side effects. A study conducted in an animal model of kidney nephritis, published in the *Journal of the American Society of Nephrology* in 2003, earned a Congress Award at the 2003 World Congress of Nephrology Meeting. We believe that CR002 will be one of the first therapeutics aimed at treating a cause of kidney inflammation.

In 2004 we submitted an IND to the FDA to investigate CR002 as a potential treatment for IgA nephropathy. In November 2004, we received orphan drug designation from the FDA for CR002 as a potential treatment to slow the progression of IgA nephropathy and delay kidney failure in patients affected by the disease, which we believe will help to strengthen the program by offering important clinical development and commercialization benefits.

In July 2005, we announced the completion of our Phase I clinical trial, which was initiated in November 2004, evaluating the safety and tolerability of CR002 in 40 healthy male volunteers. In this study, CR002 was well tolerated at all doses evaluated with no serious adverse events reported following exposure. The safety and tolerability profile, long half-life and pharmacodynamic properties of CR002 support the future evaluation of CR002 in additional clinical trials as a potential therapeutic for kidney inflammation. Based on these results we intend to license CR002 to a partner with the necessary resources for developing and marketing a nephrology product.

BAY 76-7171 for type 2 diabetes

BAY 76-7171 represents the first drug candidate to enter preclinical development from our collaboration with Bayer Pharmaceuticals, or Bayer, that was established to identify and develop promising drugs for the treatment of diabetes based upon targets we discovered. In October 2004, we announced the advancement to preclinical development of BAY 76-7171, an investigational small molecule drug for the potential management of adult-onset (type 2) diabetes. In November 2005, an IND for BAY 76-7171 was filed with the FDA. In December of 2005, we announced that we exercised our right to revert to a tiered royalty structure under which we would receive royalties on any BAY 76-7171 product sales and we would no longer contribute to the ongoing development costs for BAY 76-7171. In July 2006, we were informed by Bayer of Bayer's plans to out-license BAY 76-7171.

PXD118490

In December 2006, we announced with TopoTarget that LEO Pharma was granted exclusive worldwide rights to develop, manufacture, and commercialize PXD118490, a preclinical HDAC inhibitor, for the treatment of psoriasis and other dermatological disorders. Under the terms of the existing agreement between us and TopoTarget, we will receive 50% of all payments received by TopoTarget under the licensing agreement between TopoTarget and LEO Pharma. Under the terms of the agreement between TopoTarget and LEO Pharma, TopoTarget received in 2006 initial payments totaling € 2,000,000 (approximately US$2.6 million). TopoTarget is eligible to receive additional milestone payments of up to € 32,000,000 (approximately US$40.8 million) and tiered royalties on any future product sales.

Earlier stage assets

In addition to the above-mentioned drug candidates currently in preclinical and clinical development, we have a portfolio of protein, antibody, ADC and small molecule drug candidates that have been, or are ready to be, evaluated in animal studies. The majority of our advanced protein and antibody therapeutics are in the areas of oncology and inflammatory diseases, and our small molecules are in the areas of oncology and inflammatory diseases. As our pipeline matures, many of the IND applications that we could potentially submit in the future may come from this portfolio of earlier stage drug candidates.

Research and Development

Research and Development Expenses

Research and development expenses for the years ended 2006, 2005 and 2004 were $58.5 million, $68.1 million and $72.7 million, respectively. Of our total research and development expenses, a majority of the costs were associated with expenses incurred by CuraGen with the remaining portion attributed to research and development efforts at 454.

Our research and development expenses consist of investments in the manufacturing, preclinical evaluation and clinical development of our drug candidates including velafermin, belinostat (PXD101) and CR011-vcMMAE. 454 continues to make investments in further developing its sequencing technology by improving the throughput of its Genome Sequencer system, generating new applications, and conducting research to identify future technologies for high-throughput sequencing. For additional details regarding our research and development expenses, see "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations," which is included elsewhere in this Annual Report on Form 10-K.

Drug Development Approach

We seek to develop a pipeline of promising drug candidates that addresses unmet medical needs. As our pipeline of projects has matured over the past few years, we have focused our resources on the advancement of our pipeline of potential protein, antibody, ADC and small molecule drug candidates into and through clinical development. We currently focus the majority of our financial and human resources on our oncology drug candidates in the areas of cancer supportive care and cancer treatment. We also maintain additional assets including protein, antibody, ADC and small molecule drug candidates in various stages of development across the therapeutic areas of oncology, inflammatory diseases and diabetes.

We have established strategic collaborations to support the development of our pipeline including: Amgen Fremont to generate fully-human monoclonal antibodies against our drug targets; TopoTarget to access small molecule HDAC inhibitors for oncology and inflammatory diseases; Seattle Genetics to access antibody-drug conjugation technology for our ADC projects; and Bayer for the identification and development of small molecule compounds for diabetes. We also utilize contract manufacturing organizations for the manufacturing of our clinical development products according to current good manufacturing practices, or cGMP, and contract research organizations to support specific preclinical and clinical initiatives.

Our research and development groups have the expertise to move our drug candidates through all phases of preclinical and clinical development. We utilize a project team matrix approach which combines the skills found in each of the following individual groups in order to enhance communication and incorporate expertise from all of the skilled personnel required to efficiently advance our drug candidates through development:

- **Clinical Development**—is a strong multidisciplinary team with depth and experience in all areas required for effective clinical development. In addition to core expertise in medicine and clinical science, the group includes drug development professionals with specialized skills, who oversee clinical trial design and direction, study implementation and oversight of contract research organizations, biostatistics and data management, drug safety evaluation and adverse event reporting;
- **Regulatory Affairs**—is responsible for communicating with regulatory agencies, including preparing and submitting all documents, and assuring that our development programs are conducted in compliance with all regulatory requirements. These professionals combine the ability to continuously monitor and assess the ever-changing regulatory requirements with the ability to translate those regulations into pragmatic advice for our development projects;
- **Project Management**—assures that each investigational compound advances through development appropriately. Careful planning and coordination facilitate the efficient use of internal and external resources. This group is comprised of development professionals with specialized project management experience in the pharmaceutical and biotechnology industries;

- **Quality Assurance**—assures that the manufacturing of the investigational compounds used in our clinical trials adhere to the requirements set forth by the regulatory agencies. This group includes individuals with experience obtained at pharmaceutical and large biotechnology companies assuring the quality of investigational compounds used in clinical trials and commercial products sold following regulatory approval;
- **Protein Manufacturing**—provides process development work which results in technology transfer of those processes to a contracted cGMP facility for the manufacture of GMP material to support clinical development or commercialization of a product. Additionally, this group manufactures non-GMP material for *in vitro* and *in vivo* (animal pharmacology, toxicology) work to support preclinical development activities for our early and advanced pipeline activities; and
- **Preclinical Development**—conducts all *in vitro* and *in vivo* studies with our investigational compounds prior to and during clinical development. The researchers in this group evaluate our investigational compounds in studies necessary to understand biologic activity and pharmacokinetics, including absorption, distribution, metabolism and excretion.

Strategic Collaborations

We have established a pipeline of potential therapeutics by collaborating with, and leveraging the capabilities of, industry leaders to more efficiently advance our programs, reduce risk and conserve resources. We have developed five classes of drug candidates: protein therapeutics, which are developed in-house; fully-human monoclonal antibody therapeutics, which are developed in collaboration with Amgen Fremont; small molecule therapeutics for oncology and inflammatory diseases, which are developed in collaboration with TopoTarget; ADCs, which are developed using antibodies generated by Amgen Fremont and ADC technology from Seattle Genetics; and small molecule therapeutics for diabetes and metabolic disorders, which are developed in collaboration with Bayer.

Amgen Fremont (formerly Abgenix)

In December 1999, we entered into a strategic collaboration with Abgenix to develop fully-human monoclonal antibody therapeutics using Abgenix' XenoMouse™ technology. We amended and restructured this alliance in November 2000 and April 2004. The initial phase of the agreement, involving the identification of targets and the initiation of antibody generation, was completed in June 2005. In April 2006, Amgen Inc. acquired Abgenix, and Abgenix now operates as a wholly-owned subsidiary known as Amgen Fremont. In accordance with the terms of the agreement pertaining to change of control, Amgen Fremont assumed all obligations of the agreement.

We and Amgen Fremont continue to jointly characterize antibody candidates under the research phase of the alliance and to date have identified ten antibodies with commercial product potential. We have elected to further develop nine of these antibodies and Amgen Fremont has elected to further develop one. Under the agreement, antibodies resulting from the strategic alliance are available for characterization and allocation until December 2007.

Under the agreement, once an antibody program is allocated to a party, that party is responsible for advancing the program through development and commercialization. The developing party is obligated to pay milestone and royalty payments to the other party for any product that is commercialized. Potential aggregate milestone payments payable per product launched are approximately $8.5 million; excluding any third party milestone payments payable by Abgenix that we would pay if we launched a product.

TopoTarget

In June 2004, we signed a license and collaboration agreement with TopoTarget to develop belinostat (PXD101), a novel HDAC inhibitor for the treatment of solid and hematologic malignancies, and identify additional HDAC inhibitors from TopoTarget's extensive library of compounds.

Under the terms of the agreement, we acquired the exclusive right to develop and commercialize belinostat (PXD101) in all markets other than Europe, where TopoTarget has retained commercialization rights. In June 2004, we paid a $5.0 million perpetual license fee to TopoTarget and made a $5.0 million equity investment that was recorded as a convertible loan receivable. In June 2005, we converted this loan into 1,429,687 shares of TopoTarget common stock following TopoTarget's initial public offering on the Copenhagen Stock Exchange. Under the terms of the agreement, we paid TopoTarget $7.2 million in development milestones from June 2004 through December 2005. Additionally, the TopoTarget research program received $5.8 million in research support during the period from June 2004 through December 2006. An additional $0.2 million in research support may be made during the period from January 2007 through June 2007, and up to $27.0 million in additional milestone payments based on successful development, regulatory approval, and commercialization of belinostat (PXD101).

TopoTarget is entitled to receive royalties from us based on sales of belinostat (PXD101) outside of Europe and we are entitled to receive reciprocal royalties from TopoTarget based on sales of belinostat (PXD101) in Europe. We will fund the global development of belinostat (PXD101). In addition, we have an option to select additional HDAC compounds from TopoTarget for clinical development in oncology and other indications for a fee payable by us to TopoTarget not to exceed $1.0 million and up to $30.0 million in milestone payments based on successful development, regulatory approval and commercialization of each additional product. TopoTarget has the option to fund a portion of the global development of belinostat (PXD101) and additional products in exchange for higher royalties. Potential payments to TopoTarget from us based on the successful development and commercialization of belinostat (PXD101) and two additional HDAC inhibitor products could exceed $100.0 million. We are currently evaluating belinostat (PXD101) in a number of clinical trials as a potential treatment of cancer both as a single agent and in combination with other anti-cancer therapies.

The research program to identify additional HDAC inhibitors from TopoTarget's library has a three-year term and can be terminated by either party upon a change in control of the other party, and by us after the first year upon payment of a penalty equal to 50% of the unexpended research funding, or without penalty if it becomes apparent that a commercially viable future product is unlikely to be identified.

In November 2006, we announced with TopoTarget the grant of exclusive worldwide rights to LEO Pharma to develop, manufacture, and commercialize PXD118490, a preclinical HDAC inhibitor, for the treatment of psoriasis and other dermatological disorders. Under the terms of the agreement between TopoTarget and LEO Pharma, TopoTarget received during 2006 initial payments totaling 2,000,000 euros (approximately $2.6 million). In addition, TopoTarget is eligible to receive additional milestone payments of up to 32,000,000 euros (approximately $40.8 million), and tiered royalties on any future product sales. Under the terms of the existing agreement between TopoTarget and us, we will receive 50% of all payments received by TopoTarget under the licensing agreement between TopoTarget and LEO Pharma.

Seattle Genetics

In June 2004, we announced the licensing of Seattle Genetics' proprietary ADC technology for use with up to two of our fully-human monoclonal antibodies. We paid an upfront fee of $2.0 million for access to the ADC technology for use with CR011, our first fully-human monoclonal antibody program to utilize this technology which we announced in October 2004. We announced in July 2006 that an IND was filed with the FDA for CR011-vcMMAE and patient enrollment was initiated in a Phase I clinical trial. An undisclosed milestone payment was made to Seattle Genetics following this achievement. In February 2005, we exercised our option to access Seattle Genetics' ADC technology for use with a second antibody program, CR014, in exchange for a $1.0 million payment. In January 2006, we announced that CR014 was being advanced into preclinical development.

Seattle Genetics' ADC technology employs synthetic, highly potent drugs that can be attached to antibodies using their proprietary linker systems that inactivate the potent drug during delivery. The drug with the linker is designed to be stable in the bloodstream but to release and activate the drug payload under specific conditions

once inside target cells, thereby sparing non-target cells many of the toxic effects of traditional chemotherapy. ADCs can increase the therapeutic potential of antibodies that possess targeting ability but have limited or no inherent cell-killing activity.

Under the agreement, Seattle Genetics may receive up to $28 million in milestone payments from us, assuming successful development of two antibody therapeutics employing ADC technology, and is entitled to receive royalties from us on net sales of resulting products. We are responsible for research, product development, manufacturing and commercialization of all products under this collaboration. We also pay maintenance and material supply fees as well as research support payments for ongoing assistance provided by Seattle Genetics in developing ADC products. We may terminate any license under the agreement by providing not less than 90 days prior written notice to Seattle Genetics.

Bayer

In January 2001, we signed two comprehensive agreements with Bayer. The first agreement was a comprehensive alliance to discover, develop, and jointly commercialize small molecule therapeutics to treat metabolic disorders, primarily adult onset diabetes. Under this collaboration agreement, we provided therapeutic targets to Bayer through February 2006. Bayer is utilizing its development expertise to develop small molecule therapeutics against these targets. Bayer is responsible for funding all high-throughput screening, combinatorial chemistry, medicinal chemistry and pharmacology activities until a designated preclinical stage. Thereafter, expenses are equally split with Bayer for later stage preclinical and clinical compound development to fund the relevant research, development and commercialization activities. If we commercialize any therapeutics resulting from this alliance, Bayer will receive 56% of the profits associated with that therapeutic and we will receive 44%. Bayer may terminate the agreement if there is a change in control involving us, upon providing written notice to us within 90 days.

In October 2004, we announced that the first small molecule compound stemming from this collaboration, BAY 76-7171, was advanced to the preclinical stage. BAY 76-7171 is an orally available, small molecule therapeutic with the potential to treat type 2 diabetes. An IND application for BAY 76-7171 was cleared by the FDA in November 2005. In December 2005, we modified the collaboration agreement as it relates to BAY 76-7171 to revert to a tiered royalty structure under which we will receive royalties on any BAY 76-7171 product sales but will no longer contribute to BAY 76-7171's development or commercialization costs. The terms of the original agreement remain unchanged with respect to our right to co-develop and co-commercialize any additional compounds resulting from this collaboration. In July 2006, we announced that Bayer plans to out-license BAY 76-7171 to a third party. We believe that Bayer's intention to license BAY 76-7171 will have no direct impact on our near term value generation or on our cash utilization.

Other

In addition to the above-listed alliances, we have established smaller, ongoing collaborative relationships with numerous universities, academic institutions, and individual companies to gain access to disease tissue samples, disease models, and select technologies. We have successfully conducted research with, and have the potential to receive future milestones and royalties from various companies. At present, we do not consider these relationships, either collectively or individually, to be of a material nature.

Competition

We are subject to significant competition in the development and commercialization of new drugs from organizations that are pursuing strategies, approaches, technologies and products that are similar to our own. Many of the organizations competing with us have greater capital resources, research and development staffs and facilities and marketing capabilities. We face competition from a number of biotechnology and pharmaceutical companies with products in preclinical development, clinical trials, or approved for conditions identical or similar to the ones we are pursuing.

We expect that velafermin, our fibroblast growth factor, will compete with Kepivance, a keratinocyte growth factor, marketed by Amgen, Inc. for the prevention of severe OM in patients undergoing HSCT. We expect to compete in the case of velafermin, on the basis of efficacy, mechanism of action, ease of administration, and potentially economic value compared to drugs used in current practice or currently being developed.

We are aware of specific companies that are developing HDAC inhibitors for use in the treatment of cancer that may be competitive with ours. With respect to our HDAC inhibitor, belinostat (PXD101), Merck & Co., Inc. recently received FDA approval to market Zolinza, or vorinostat, the first HDAC inhibitor approved for use in the U.S., for the treatment of cutaneous T-cell lymphoma. Bayer Schering Pharma AG, Gloucester Pharmaceuticals, Inc., Methylgene, Inc., and Novartis Pharma AG are also currently evaluating HDAC inhibitors in clinical trials for the treatment of cancers, and in combinations with other chemotherapies, that are similar to approaches and indications we are pursuing. In addition, many other pharmaceutical and biotechnology companies are engaged in research and development for the treatment of cancer from which we may face intense competition. We expect to compete in the case of belinostat, on the basis of efficacy, routes of administration, and potentially safety and economic value compared to drugs used in current practice or currently being developed.

Intellectual Property

Our business and competitive position depends in part on our ability to protect our gene sequences, the proteins they encode, fully-human monoclonal antibodies raised against them, small molecules, other products, information systems and proprietary databases, software and other methods and technology. We have filed and continue to file patent applications that seek to protect commercially significant aspects of our technology, including our product candidates. As of the date of this report, we had been issued approximately 115 patents worldwide, including 88 issued U.S. patents.

We have applied for patent protection on novel genes and proteins, novel mutants of known genes and their uses, partial sequences of novel proteins and their gene sequences and uses, and novel uses for previously identified genes discovered by third parties. We have applied for patents on antibodies against the proteins we have discovered, and we have sought or have had our partners seek patent protection on the antibodies we produce against these proteins. We have sought and intend to continue to seek patent protection for novel uses for genes and proteins and therapeutic antibodies that may have been patented by third parties. Our patent application filings that result from the identification of genes associated with the cause or effect of a particular disease generally seek to protect the genes and the proteins encoded by such genes as well as antibodies raised against these gene products. We also seek patent protection for our therapeutic, diagnostic, and drug screening methods and products.

CuraGen® and our other trademarks mentioned in this report are the property of CuraGen Corporation. Trademarks of 454 mentioned in this report are the property of 454 Life Sciences Corporation. All other trademarks or trade names referred to herein are the property of their respective owners.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, labeling, packaging, promotion, storage, advertising, distribution, marketing and export and import of products such as those we are developing.

United States Government Regulation

In the United States, the information that must be submitted to the FDA in order to obtain approval to market a new drug varies depending on whether the drug is a new product whose safety and effectiveness has not previously been demonstrated in humans or a drug whose active ingredient(s) and certain other properties are the same as those of a previously approved drug. A new drug will typically follow the new drug application, or NDA, route and a new biologic will typically follow the biologic license application, or BLA, route.

NDA and BLA Approval Processes

In the United States, the FDA regulates drugs and biologics under the Federal Food, Drug and Cosmetic Act, or FFDCA, and in the case of biologics, also under the Public Health Service Act, and the FDA's implementing regulations. 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. These sanctions could include the FDA's refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, a clinical hold, warning letters, product recalls, product seizures, total or partial suspension of production or distribution injunctions, fines, civil penalties or criminal prosecution. Any agency or judicial enforcement action could have a material adverse effect on us. The process of obtaining regulatory approvals and the subsequent substantial compliance with appropriate federal, state, local, and foreign statutes and regulations require the expenditure of substantial time and financial resources.

The process required by the FDA before a drug or biologic may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests, animal studies and formulation studies according to Good Laboratory Practices;
- submission of an IND which must become effective before human clinical trials may begin;
- performance of adequate and well-controlled human clinical trials according to Good Clinical Practices, or GCPs, to establish the safety and efficacy of the proposed drug for its intended use;
- submission to the FDA of an NDA or BLA;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with cGMP, to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity or to meet standards designed to ensure the biologic's continued safety, purity and potency; and
- FDA review and approval of the NDA or BLA.

Once a drug candidate is identified for development, it enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry and/or biology, toxicity and formulation, as well as animal studies. An IND sponsor must submit the results of the preclinical tests, the chemical structure of a small molecule or sequence of a protein or antibody drug candidate, the proposed mechanism by which the drug candidate is believed to work in the body, manufacturing information, and analytical data to the FDA as part of the IND. Some preclinical or nonclinical testing may continue even after the IND is submitted. In addition to including the results of the preclinical studies, the IND 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 and whether the first phase lends itself to an efficacy determination. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises concerns or questions about the conduct of the trial. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin.

All clinical trials must be conducted under the supervision of one or more qualified investigators in accordance with GCPs regulations. These regulations include the requirement that all research subjects provide informed consent. Further, an institutional review board, or IRB, for each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution. Each new clinical protocol must be submitted to the FDA as part of the IND. Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if adverse events or other certain types of other changes occur.

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

- **Phase I:** The drug candidate is initially introduced into healthy human volunteer subjects or patients with the disease. These studies are designed to determine the safety and side effects associated with increasing dosages, absorption, metabolism, distribution and excretion, pharmacologic and mechanism of action of the drug candidate in humans, and, if possible, to gain early evidence of effectiveness. Sufficient information about a drug candidate's pharmacokinetics and pharmacological effects should be obtained to permit the design of well-controlled, scientifically valid, Phase II studies;
- **Phase II:** Involves controlled clinical studies conducted to evaluate the effectiveness of the drug candidate for a particular indication in patients with the disease or condition under study and to determine the common short-term side effects and risks associated with the drug candidate. These studies are typically well-controlled, closely monitored, and conducted in a relatively small number of patients, usually involving no more than several hundred patients; and
- **Phase III:** Clinical trials are performed after preliminary evidence suggesting effectiveness of the drug candidate has been obtained, and are intended to generate additional information about the drug candidate's effectiveness and safety that is required to evaluate the overall benefit-risk relationship of the drug candidate and to provide an adequate basis for physician labeling. The studies may include anywhere from several hundred to several thousand subjects.

Phase I, Phase II, and Phase III testing may not be completed successfully within any specified period, if at all. The FDA, an IRB or the sponsor may suspend 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.

Concurrent with clinical trials, companies usually complete additional animal studies. Companies must also develop additional information about the chemistry and physical characteristics of the drug and finalize a process for manufacturing the product in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and the manufacturer must develop methods for testing the quality, purity and potency of the final drugs. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf-life.

The results of product development, preclinical studies and clinical studies, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, results of chemical studies and other relevant information are submitted to the FDA as part of an NDA or BLA requesting approval to market the product. The FDA reviews all NDAs and BLAs submitted before it accepts them for filing. It may request additional information rather than accept an NDA or BLA for filing. In this event, the NDA or BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth review. The submission of an NDA or BLA is subject to the payment of user fees, but a waiver of such fees may be obtained under certain circumstances. 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. Even if such data is submitted, the FDA may ultimately decide that the NDA or BLA does not satisfy the criteria for approval. The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality and purity. The FDA reviews a BLA to determine, among other things, whether the product is safe, pure and potent and the facility in which it is manufactured, processed, packed or held meets standards designed to assure the product's continued safety, purity and potency. Before approving an NDA or BLA, the FDA will inspect the facility or facilities where the product is manufactured.

Expedited Review and Approval

The FDA has various programs, including fast track, priority review, and accelerated approval, that are intended to expedite or simplify the process for reviewing drugs, and/or provide for approval on the basis of surrogate endpoints. Even if a drug qualifies for one or more of these programs, we cannot be sure that the FDA

will not later decide that the drug no longer meets the conditions for qualification or that the time period for FDA review or approval will be shortened. Generally, drugs that may be eligible for these programs are those for serious or life-threatening conditions, those with the potential to address unmet medical needs, and those that offer meaningful benefits over existing treatments. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. Although fast track and priority review do not affect the standards for approval, the FDA will attempt to facilitate early and frequent meetings with a sponsor of a fast track designated drug and expedite review of the application for a drug designated for priority review. In December 2004, the FDA granted us fast track status on velafermin, for the prevention of OM in patients receiving HSCT following myeloablative chemotherapy with or without TBI. Drugs that receive an accelerated approval may be approved on the basis of adequate and well-controlled clinical trials establishing that the drug product has an effect of a surrogate endpoint that is reasonably likely to predict clinical benefit or on the basis of an effect on a clinical endpoint other than survival or irreversible morbidity. As a condition of approval, the FDA may require that a sponsor of a drug receiving accelerated approval perform post-marketing clinical trials.

Orphan Drug

Under the Orphan Drug Act, the FDA may grant orphan drug designation to drugs intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making available in the United States a drug for this type of disease or condition will be recovered from sales in the United States for that drug. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in or shorten the duration of the regulatory review and approval process. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug for the same indication, except in very limited circumstances, for seven years. Orphan drug exclusivity, however, also could block the approval of our product for seven years if a competitor obtains approval of the same drug as defined by the FDA or if our product is determined to be contained within the competitor's product for the same indication or disease. In February 2004, the FDA granted us orphan drug designation on velafermin, for the treatment of radiation induced OM. In November 2004, the FDA granted us orphan drug designation on CR002, as a potential treatment to slow the progression of IgA nephropathy and delay kidney failure in patients affected by the disease. We intend to file for orphan drug designation for any other product candidates that meet the criteria for orphan designation. There is no guarantee that we will be awarded orphan exclusivity for any of our other product candidates or indications. In addition, obtaining FDA approval to market a product with orphan drug exclusivity may not provide us with a material commercial advantage.

Pediatric Exclusivity

The FDA Modernization Act of 1997 included a pediatric exclusivity provision that was extended by the Best Pharmaceuticals for Children Act of 2002. Pediatric exclusivity is designed to provide an incentive to manufacturers to conduct research about the safety of their products in children. Pediatric exclusivity, if granted, provides an additional six months of market exclusivity in the United States for new or currently marketed drugs. Under Section 505A of the FFDCA, six months of market exclusivity may be granted in exchange for the voluntary completion of pediatric studies in accordance with an FDA-issued "Written Request." The FDA may issue a Written Request for studies on unapproved or approved indications, where it determines that information relating to the use of a drug in a pediatric population, or part of the pediatric population, may produce health benefits in that population. We have not requested or received a Written Request for such pediatric studies, although we may ask the FDA to issue a Written Request for such studies in the future. To receive the six-month pediatric market exclusivity, we would have to receive a Written Request from the FDA, conduct the requested studies, and submit reports of the studies in accordance with a written agreement with the FDA or, if there is no

written agreement, in accordance with commonly accepted scientific principles. There is no guarantee that the FDA will issue a Written Request for such studies or accept the reports of the studies. The current pediatric exclusivity provision is scheduled to end on October 1, 2007, and it may not be reauthorized.

Post-Approval 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. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further FDA review and approval. In addition, the FDA may require testing and surveillance programs to monitor the effect of approved products that have been commercialized, and the FDA has the power to prevent or limit further marketing of a product based on the results of these post-marketing programs.

Any drug products manufactured or distributed by us pursuant to FDA approvals are subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the drug, providing the FDA with updated safety and efficacy information, drug sampling and distribution requirements, notifying the FDA and gaining its approval of certain manufacturing or labeling changes, complying with certain electronic records and signature requirements, and complying with FDA promotion and advertising requirements. Drug manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws.

We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our products. Future FDA and state inspections may identify compliance issues at the facilities of our contract manufacturers that may disrupt production or distribution, or require substantial resources to correct.

From time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the approval, manufacturing and marketing of products regulated by the FDA. In addition, FDA regulations and guidance are often revised or reinterpreted by the agency in ways that may significantly affect our business and our products. It is impossible to predict whether legislative changes will be enacted, or FDA regulations, guidance or interpretations changed or what the impact of such changes, if any, may be.

Foreign Regulation

In addition to regulations in the Untied States, we will be subject to a variety of foreign regulations governing clinical trials and commercial sales and distribution of our products. Whether or not we obtain FDA approval for a product, we must obtain approval of a product 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, product licensing, pricing and reimbursement vary greatly from country to country.

Under European Union regulatory systems, we may submit marketing authorization applications either under a centralized or decentralized procedure. The centralized procedure, which is compulsory for medicines produced by biotechnology and optional for those which are highly innovative, provides for the grant of a single marketing authorization that is valid for all European Union member states. The decentralized procedure provides for mutual recognition of national approval decisions. Under the decentralized procedure, the holder of a national marketing authorization may submit an application to the remaining member states. Within 90 days of receiving the applications and assessments report each member state must decide whether to recognize approval. If a member state does not recognize the marketing authorization, the disputed points are eventually referred to the European Commission, whose decision is binding on all member states. As in the United States, we may

apply for designation of our products as orphan drug for the treatment of a specific indication in the European Union before the application for marketing authorization is made. Orphan drugs in Europe enjoy economic and marketing benefits, including a 10-year market exclusivity period for the approved indication, but not for the same drug, unless another applicant can show that its product is safer, more effective or otherwise clinically superior to the orphan-designated product.

Reimbursement

Sales of pharmaceutical products depend in significant part on the availability of third-party reimbursement. We anticipate third-party payors will provide reimbursement for our products. It is time consuming and expensive for us to seek reimbursement from third-party payors. Reimbursement may not be available or sufficient to allow us to sell our products on a competitive and profitable basis.

The passage of the Medicare Prescription Drug and Modernization Act of 2003, or the MMA, imposes new requirements for the distribution and pricing of prescription drugs for Medicare beneficiaries, which may affect the marketing of our products. The MMA also introduced a new reimbursement methodology, part of which went into effect in 2004. At this point, it is not clear what effect the MMA will have on the prices paid for currently approved drugs and the pricing options for new drugs approved after January 1, 2006. Moreover, while the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from the MMA may result in a similar reduction in payments from non-governmental payors.

In addition, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market.

We expect that there will continue to be a number of federal and state proposals to implement governmental pricing controls. While we cannot predict whether such legislative or regulatory proposals will be adopted, the adoption of such proposals could have a material adverse effect on our business, financial condition and profitability.

454 Life Sciences Corporation

In June 2000, we announced the formation of 454, a separate technology development subsidiary. This majority-owned subsidiary was initially funded with $40.0 million primarily from investors including CuraGen, Soros Fund Management, L.L.C., Cooper Hill Partners, L.L.C., and members of our senior management team and Board of Directors. In September 2003, 454 secured an additional $20.0 million in equity financing from CuraGen and several existing stockholders, including Cooper Hill Partners L.L.C., to initiate commercialization of 454's product offering. This second round of financing increased CuraGen's ownership from 60% to 66%.

454 has commercialized advanced technologies for high-throughput sequencing of DNA. 454's current Genome Sequencer systems perform rapid and comprehensive "whole genome sequencing," or the determination of the nucleotide sequence of entire genomes, "ultra-deep sequencing," or the accurate detection of mutations in target genes of interest, and "ultra-broad sequencing," or the surveying and characterization of large numbers of DNA molecules from a complex mixture. Currently 454's sequencing technology consists of 454's GS20, GS FLX, reagent kits, disposables and a suite of analysis software.

Commencing in 2004, 454 began offering, on a fee for service basis, high-throughput sequencing at its 454 Sequencing Center, or 454 SC, for the analysis of virus, bacteria and small fungi. In May 2004, 454 received a two-year, $2.4 million federal grant from the National Human Genome Research Institute, or NHGRI, one of the National Institutes of Health, or NIH. In October 2004, 454 was awarded a three-year, $5.0 million grant from the NHGRI. 454 has used these grants to partially fund the scale up of its technology.

In February 2005, 454 began commercializing its instrument systems and reagents with the launch of the GS20. The GS20 sequences more than 20 million bases, from over 200,000 independent DNA fragments, per five-hour run on a single instrument. The software included with the GS20 enables mapping of the fragments against a reference genome up to 1 billion bases in size or *de novo* assembly for whole genome shotgun sequencing of genomes up to 50 million bases. Many biologically meaningful and complex regions of genomes can be analyzed with this system without the time or cost constraints of current DNA-sequencing methods.

In May 2005, 454 entered into an exclusive five-year worldwide License, Supply and Distribution Agreement with F. Hoffman La Roche, or Roche License Agreement for the promotion, sale, and distribution of 454's products, including the GS20, and proprietary kits and reagents, by Roche Diagnostics, or Roche. In October 2005, Roche began promoting, selling and distributing 454's products to customers in North America, Europe and Asia. Under the terms of the Roche License Agreement, Roche may sell 454's products for use in any high-throughput sequencing applications, with the exception of regulated diagnostics. 454 manufactures and supplies instrument systems and reagents to Roche at an agreed upon transfer price, and earns a royalty on sales to third parties completed by Roche. Roche has the right to negotiate distribution of 454's products for use in the regulated diagnostic market and for renewal of the distribution agreement contingent upon meeting minimum performance criteria. In 2005, 454 received $19.0 million in milestone payments from Roche, consisting of $11.5 million of pre-commercialization milestones and $7.5 million for the commercial launch by Roche of the GS20 and proprietary kits and reagents. During October 2006, 454 received a $4.0 million milestone from Roche for the cumulative sale of an agreed upon number of instruments. As of December 31, 2006, 454 had a worldwide installed base of more than 60 Genome Sequencer systems.

In January 2007, 454 and Roche Applied Science announced the launch of the GS FLX by Roche, which Roche began selling in December 2006. The GS FLX generates longer reads of DNA fragments averaging between 200 to 300 bases, depending on the application and the organism, an average of 400,000 reads per run, average single read accuracy of greater than 99.5% over 200 bases, consensus accuracy of greater than 99.99%, and higher throughput resulting in a yield of approximately 100 million bases per 7.5 hour run. 454 also announced that GS20 systems already in use by customers can be easily upgraded on-site to the GS FLX. 454 received a $5.0 million milestone payment from Roche for the commercial launch of the GS FLX in January 2007.

The operations of 454 are run by a separate management team and governed by a Board of Directors made up of members of CuraGen's management team, our Board of Directors, and an independent director. 454 has also established a Scientific Advisory Board that is comprised of an elite group of scientists in the fields of whole genome sequencing, infectious disease, human genetics, chemical engineering and bioinformatics. As 454's instruments and reagents are commercialized by Roche across the life sciences industry and contract sequencing services are performed by 454, we anticipate that 454 will continue to contribute revenue and value to the consolidated entity. See Note 19 to our consolidated financial statements for segment reporting. 454 will continue to incur substantial research and development expenses as it scales-up its technology to routinely analyze larger model organisms, including human DNA, and to develop other sequencing applications for its technology. Our previously announced engagement of Goldman Sachs for the review of CuraGen's investment in 454 is ongoing and focused on implementing a strategic option.

Technology

454's sequencing technology is derived from its proprietary, emulsion-based, clonal amplification process, or emPCR, and its simultaneous sequencing by synthesis of hundred of thousands of DNA fragments in parallel on a PicoTiterPlate substrate. With emPCR, a single fragment of DNA can be clonally amplified, or multiplied, into approximately ten million identical copies in an average of eight hours of laboratory time. One preparation is sufficient for the sequencing of an entire genome, whether from a virus, bacteria or a human. The PicoTiterPlate is a glass plate consisting of 1.6 million individual 75 picoliter wells into which DNA fragments are deposited for sequencing. At the core of the Genome Sequencer system is a compact instrument that integrates fluidics, optics

and computing systems. The Genome Sequencer system delivers sequencing reagents to the PicoTiterPlate, captures the chemi-luminescent signal created during the sequencing process, and analyzes and processes the sequenced data. The GS FLX system currently sequences approximately one hundred million bases during one seven and a half hour run.

454 Sequencing Center

454 offers genome sequencing services at its 454 SC on a fee for service basis. 454 SC customers provide DNA samples to 454 who sequences and packages the resulting data for its customers in an electronic format. The 454 SC service offerings include whole genome *de novo* or variant resequencing of bacteria or fungi, animal and plant sequencing, Bacterial Artificial Chromosome, or BAC, clones and BAC pools, amplified tags, metagenomic samples and complementary deoxyribonucleic acid, or cDNA, *de novo* transcriptome or transcript resequencing. The 454 SC also offers ultra deep sequencing, including the analysis of human genes involved in cancer.

Genome Sequencer Systems

The GS FLX and reagents are available exclusively from Roche Applied Science. The GS FLX includes: 1) instrument and accessories; 2) reagents and consumables for library construction, amplification and sequencing; and 3) analysis software for mapping and *de novo* assembly. The GS20 and reagents are also available exclusively from Roche Applied Science, and will continue to be supported following the launch of the GS FLX. The GS20 can be upgraded to the GS FLX for current customers, on-site.

Patents and Licenses

454's products and services are based on the combination of several complex technologies. As part of the initial capitalization of 454 in June 2000, CuraGen contributed and licensed certain technologies for conducting genomic analysis. Since June 2000, 454 has developed some of these technologies internally and has pursued patent protection in the U.S. and other countries for certain developments, improvements, and inventions it has developed that are incorporated into 454's products or that fall within its fields of interest. Other of the technologies of interest to 454 are owned by third parties and are used by 454 under license, such as the Biotage AB (formerly Pyrosequencing AB) license agreement outlined in Note 5 to our consolidated financial statements.

The rights that 454 considers important to its current business include patents or patent applications directed to nucleic acid sample preparation and amplification, as well as certain sequencing by synthesis approaches.

Competition

The current market for DNA sequencing instruments and reagents is supplied almost entirely by Applied Biosystems, or ABI. According to Strategic Directions International, Inc., ABI supplies approximately 68% of this market. ABI offers a range of sequencing instruments from low to high throughput. A large portion of the balance of the market is supplied by Amersham Biosciences, part of GE Healthcare.

Another group of competitors, including Affymetrix and Illumina, Inc., or Illumina utilize hybridization arrays. These two companies together lead the gene expression and SNP genotyping markets where researchers are focused on the investigation of known mutations and not de novo sequencing of DNA. An alternative hybridization approach for re-sequencing known genomes is being pursued by Agencourt, based on the work of Professor George Church at Harvard University.

There are several companies that are attempting to develop alternative sequencing by synthesis technologies, including Illumina, Helicos, Inc., or Helicos Visigen and Pacific Biosciences, Inc., or Pacific Biosciences. With the exception of Illumina which recently began shipping its Genome Analyzer, we believe that

none of these companies currently has a product for sale or a sequencing service using their technology. Sequencing by measuring voltage change as DNA molecules pass through nanopores is an alternative technology being pursued by several academic labs and funded by the US government. This technology is still in its earliest investigation phase and is not yet commercially available.

Employees

As of December 31, 2006, CuraGen and 454 had an aggregate of 255 full and part-time employees. Our employees include engineers, physicians, molecular biologists, chemists, accountants, lawyers, and computer scientists. We believe that we maintain good relationships with our employees. We believe that our future success will depend in large part on our ability to attract and retain experienced and skilled employees.

Item 1A. ***Risk Factors***

Statements contained or incorporated by reference in this Annual Report on Form 10-K that are not based on historical fact are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Exchange Act. These forward-looking statements regarding future events and our future results are based on current expectations, estimates, forecasts, and projections and the beliefs and assumptions of our management including, without limitation, our expectations regarding results of operations, selling, general and administrative expenses, research and development expenses, the sufficiency of our cash for future operations, and the success of our preclinical, clinical and development programs. Forward-looking statements may be identified by the use of forward-looking terminology such as "may," "could," "will," "expect," "estimate," "anticipate," "continue," or similar terms, variations of such terms or the negative of those terms.

We cannot assure investors that our assumptions and expectations will prove to have been correct. Important factors could cause our actual results to differ materially from those indicated or implied by forward-looking statements. Such factors that could cause or contribute to such differences include those factors discussed below. We undertake no intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. If any of the following risks actually occur, our business, financial condition or results of operations would likely suffer.

Risks Related to Our Business

We have a history of operating losses and expect to incur losses in the future.

We have incurred losses since inception, principally as a result of research and development and general and administrative expenses in support of our operations. We experienced net losses of $59.8 million in 2006, $73.2 million in 2005 and $90.4 million in 2004, and as of December 31, 2006 had an accumulated deficit of $513.0 million. We anticipate incurring additional losses as we focus our resources on prioritizing, selecting, and advancing our most promising drug candidates. We may never be profitable or achieve significant revenues.

We can not ensure that our existing cash and investment balances will be sufficient to meet our requirements for the future.

We believe that our existing cash and investment balances and other sources of liquidity, will be sufficient to meet our requirements through the middle of 2008. We consider our operating and capital expenditures to be crucial to our future success, and by continuing to make strategic investments in our preclinical and clinical drug pipeline, as well as 454, we believe that we are building substantial value for our Stockholders. The adequacy of our available funds to meet our future operating and capital requirements will depend on many factors. These factors include: the number, breadth, progress and results of our research, product development and clinical programs; the amounts and timing of sales of 454's products and services; the costs and timing of obtaining regulatory approvals for any of our products; examination of strategic options to monetize our investment in 454; in-licensing and out-licensing of pharmaceutical products; and costs incurred in enforcing and defending our patent claims and other intellectual property rights.

While we will continue to explore alternative sources for financing our business activities, including the possibility of public securities offerings and/or private strategic-driven common stock offerings, we cannot be certain that in the future these sources of liquidity will be available when needed or that our actual cash requirements will not be greater than anticipated. In appropriate strategic situations, we may seek financial assistance from other sources, including contributions by others to joint ventures, other collaborative or licensing arrangements for the development and testing of products under development and strategic options with respect to monetizing our investment in 454. However, should we be unable to obtain future financing either through the methods described above or through other means, we may be unable to meet the critical objective of our long-term business plan, which is to successfully develop and market pharmaceutical products, and may be unable to continue operations. This result could cause our Stockholders to lose all or a substantial portion of their investment.

All of our drug candidates are still in the early stages of development and remain subject to clinical testing and regulatory approval. If we are unable to successfully develop and test our drug candidates, we will not be successful.

To date, we have not marketed, distributed or sold any drug candidates. The success of our business depends primarily upon our ability to develop and commercialize our drug candidates successfully. Our most advanced drug candidates are velafermin, which is currently in a Phase II clinical trial, belinostat (PXD101), which is in multiple Phase I and Phase II clinical trials, CR011-vcMMAE, which is currently in a Phase I/II clinical trial, and CR002, which completed a Phase I clinical trial in July 2005. Our other drug candidates are in various stages of preclinical development. Our drug candidates must satisfy rigorous standards of safety and efficacy before they can be approved for sale. To satisfy these standards, we must engage in expensive and lengthy testing and obtain regulatory approval of our drug candidates. Despite our efforts, our drug candidates may not:

- offer therapeutic or other improvement over existing comparable drugs;
- be proven safe and effective in clinical trials;
- meet applicable regulatory standards;
- be capable of being produced in commercial quantities at acceptable costs; or
- be successfully commercialized.

Positive results in preclinical studies of a drug candidate may not be predictive of similar results in humans during clinical trials, and promising results from early clinical trials of a drug candidate may not be replicated in later clinical trials. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late stage clinical trials even after achieving promising results in early stage development. Accordingly, the results from the completed preclinical studies and clinical trials and ongoing clinical trials for velafermin, belinostat (PXD101), CR011-vcMMAE and our other drug candidates may not be predictive of the safety, efficacy or dosing results we may obtain in later stage trials. We do not expect any of our drug candidates to be commercially available for at least several years.

If we are unable to obtain U.S. and/or foreign regulatory approval, we will be unable to commercialize our drug candidates.

Our drug candidates are subject to extensive governmental regulations relating to development, clinical trials, manufacturing and commercialization. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process are required in the United States and in many foreign jurisdictions prior to the commercial sale of our drug candidates. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. It is possible that none of the drug candidates we are developing will obtain marketing approval. In connection with the clinical trials for velafermin, belinostat (PXD101), CR011-vcMMAE and any other drug candidate we may seek to develop in the future, we face risks that:

- the drug candidate may not prove to be efficacious;
- the drug may not prove to be safe;
- the results may not confirm the positive results from earlier preclinical studies or clinical trials; and
- the results may not meet the level of statistical significance required by the FDA or other regulatory authorities.

We have limited experience in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the FDA. The time required to complete clinical trials and for the FDA and other countries' regulatory review processes is uncertain and typically takes many years. Our analysis of data obtained from preclinical and clinical activities is subject to confirmation and interpretation by regulatory

authorities, which could delay, limit or prevent regulatory approval. We may also encounter unanticipated delays or increased costs due to government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials and FDA regulatory review.

Any delay in obtaining, or failure to obtain, required approvals could materially adversely affect our ability to generate revenues from the particular drug candidate. Furthermore, any regulatory approval to market a product may be subject to limitations on the indicated uses for which we may market the product. These limitations may limit the size of the market for the product. We are also subject to numerous foreign regulatory requirements governing the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. 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 foreign requirements. Approval by the FDA does not ensure approval by regulatory authorities outside the United States. Foreign jurisdictions may have different approval procedures than those required by the FDA and may impose additional testing requirements for our drug candidates.

If clinical trials for our drug candidates are prolonged or delayed, we may be unable to commercialize our drug candidates on a timely basis, which would require us to incur additional costs and delay our receipt of any product revenue.

We cannot predict whether we will encounter problems with any of our completed, ongoing or planned clinical trials that will cause us or regulatory authorities to delay or suspend clinical trials, or delay the analysis of data from our completed or ongoing clinical trials. Any of the following could delay the clinical development of our drug candidates:

- ongoing discussions with the FDA or comparable foreign authorities regarding the scope or design of our clinical trials;
- delays in receiving or the inability to obtain required approvals from institutional review boards or other reviewing entities at clinical sites selected for participation in our clinical trials;
- delays in enrolling volunteers and patients into clinical trials;
- a lower than anticipated retention rate of volunteers and patients in clinical trials;
- the need to repeat clinical trials as a result of inconclusive or negative results or unforeseen complications in testing;
- inadequate supply or deficient quality of drug candidate materials or other materials necessary for the conduct of our clinical trials;
- unfavorable FDA inspection and review of a clinical trial site or records of any clinical or preclinical investigation;
- serious and unexpected drug-related side effects experienced by participants in our clinical trials; or
- the placement by the FDA of a clinical hold on a trial.

Our ability to enroll patients in our clinical trials in sufficient numbers and on a timely basis will be subject to a number of factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial. Delays in patient enrollment may result in increased costs and longer development times. In addition, subjects may withdraw from our clinical trials, and thereby impair the validity or statistical significance of the trials.

We, the FDA or other applicable regulatory authorities may suspend clinical trials of a drug candidate at any time if we or they believe the subjects or patients participating in such clinical trials are being exposed to unacceptable health risks or for other reasons.

We cannot predict whether any of our drug candidates will encounter problems during clinical trials which will cause us or regulatory authorities to delay or suspend these trials, or which will delay the analysis of data from these trials. In addition, it is impossible to predict whether legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes, if any, may be. If we experience any such problems, we may not have the financial resources to continue development of the drug candidate that is affected or the development of any of our other drug candidates.

Even if we obtain regulatory approvals, our drug candidates will be subject to ongoing regulatory review. If we fail to comply with continuing U.S. and applicable foreign regulations, we could lose those approvals, and our business would be seriously harmed.

Even if we receive regulatory approval of any drugs we may develop, we will be subject to continuing regulatory review, including the review of clinical results which are reported after our drug candidates become commercially available approved drugs. Since drugs are more widely used by patients once approval has been obtained, side effects and other problems may be observed after approval that were not seen or anticipated during pre-approval clinical trials. In addition, the manufacturer, and the manufacturing facilities we use to make any of our drug candidates, will also be subject to periodic review and inspection by the FDA. The subsequent discovery of previously unknown problems with the drug, manufacturer or facility may result in restrictions on the drug, manufacturer or facility, including withdrawal of the drug from the market. If we fail to comply with applicable continuing regulatory requirements, we may be subject to fines, suspension or withdrawal of regulatory approval, product recalls and seizures, operating restrictions and criminal prosecutions.

Our business has a substantial risk of product liability claims. If we are unable to obtain appropriate levels of insurance, a product liability claim could adversely affect our business.

Our business exposes us to significant potential product liability risks that are inherent in the development, manufacturing and sales and marketing of human therapeutic products. Although we do not currently commercialize any products, claims could be made against us based on the use of our drug candidates in clinical trials. We currently have clinical trial insurance and will seek to obtain product liability insurance prior to the sales and marketing of any of our drug candidates. However, our insurance may not provide adequate coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to maintain current amounts of insurance coverage or obtain additional or sufficient insurance at a reasonable cost to protect against losses that could have a material adverse effect on us. If a claim is brought against us, we might be required to pay legal and other expenses to defend the claim, as well as uncovered damages awards resulting from a claim brought successfully against us. Furthermore, whether or not we are ultimately successful in defending any such claims, we might be required to direct significant financial and managerial resources to such defense, and adverse publicity is likely to result.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell our drug candidates, we may not generate product revenue.

We have no commercial products, and we do not currently have an organization for the sales and marketing of pharmaceutical products. In order to successfully commercialize any drugs that may be approved in the future by the FDA or comparable foreign regulatory authorities, we must build our sales and marketing capabilities or make arrangements with third parties to perform these services. There are risks involved with establishing our own sales and marketing capabilities, as well as entering into arrangements with third parties to perform these services. For example, developing a sales force is expensive and time consuming and could delay any product launch. In addition, to the extent that we enter into arrangements with third parties to perform sales, marketing and distribution services, we will have less control over sales of our products, and our future revenues would depend heavily on the success of the efforts of these third parties. If we are unable to establish adequate sales, marketing and distribution capabilities, whether independently or with third parties, we may not be able to generate product revenue and may not become profitable.

If physicians, patients and third-party payors do not accept our future drugs, we may be unable to generate significant revenue, if any.

Even if velafermin, belinostat (PXD101), CR011-vcMMAE, CR014-vcMMAE, CR012, CR002, BAY 76-7171 or any other drug candidates we may develop or acquire in the future, obtain regulatory approval, they may not gain market acceptance among physicians, patients and health care payors. Physicians may elect not to recommend these drugs for a variety of reasons including:

- timing of market introduction of competitive drugs;
- lower demonstrated clinical safety and efficacy compared to other drugs;
- lack of cost-effectiveness;
- lack of availability of reimbursement from third-party payors;
- convenience and ease of administration;
- prevalence and severity of adverse side effects;
- other potential advantages of alternative treatment methods; and
- ineffective marketing and distribution support.

If our approved drugs fail to achieve market acceptance, we would not be able to generate sufficient revenue from product sales to maintain or grow our business.

If third-party payors do not adequately reimburse customers for any of our product candidates that are approved for marketing, they might not be purchased or used, and our revenues and profits will not develop or increase.

Our revenues and profits will depend heavily upon the availability of adequate reimbursement for the use of our approved product candidates from governmental and other third-party payors, both in the United States and in foreign markets. Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining reimbursement approval for a product from each government or other third-party payor is a time-consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data for the use of our products to each payor. We may not be able to provide data sufficient to gain acceptance with respect to reimbursement. There is substantial uncertainty whether any particular payor will reimburse the use of any drug products incorporating new technology. Even when a payor determines that a product is eligible for reimbursement, the payor may impose coverage limitations that preclude payment for some uses that are approved by the FDA or comparable authority. Moreover, eligibility for coverage does not imply that any product will be reimbursed in all cases or at a rate that allows us to make a profit or even cover our costs. Interim payments for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the product and the clinical setting in which it is used, may be based on payments allowed for lower-cost products that are already reimbursed, may be incorporated into existing payments for other products or services, and may reflect budgetary constraints and/or imperfections in Medicare, Medicaid or other data used to calculate these rates. Net prices for

products may be reduced by mandatory discounts or rebates required by government health care programs or by any future relaxation of laws that restrict imports of certain medical products from countries where they may be sold at lower prices than in the United States.

There have been, and we expect that there will continue to be, federal and state proposals to constrain expenditures for medical products and services, which may affect payments for our products. The Centers for Medicare and Medicaid Services, or CMS, frequently change product descriptors, coverage policies, product and service codes, payment methodologies and reimbursement values. Third-party payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates, and both CMS and other third-party payors may have sufficient market power to demand significant price reductions. Due in part to actions by third-party payors, the health care industry is experiencing a trend toward containing or reducing costs through various means, including lowering reimbursement rates, limiting therapeutic class coverage and negotiating reduced payment schedules with service providers for drug products.

Our inability to promptly obtain coverage and profitable reimbursement rates from government-funded and private payors for our products could have a material adverse effect on our operating results and our overall financial condition.

We may not be able to execute our business strategy if we are unable to enter into alliances with other companies that can provide capabilities and funds for the development and commercialization of our drug candidates. If we are unsuccessful in forming or maintaining these alliances on favorable terms, our business may not succeed.

We have entered into collaboration arrangements with several companies for the research, development and commercialization of our drug candidates, and we may enter into additional collaborative arrangements in the future. For example, we may enter into alliances with major biotechnology or pharmaceutical companies to jointly develop specific drug candidates and to jointly commercialize them if they are approved. We may not be successful in entering into any such alliances on favorable terms. Even if we do succeed in securing such alliances, we may not be able to maintain them if, for example, development or approval of a drug candidate is delayed or sales of an approved drug are disappointing. Furthermore, any delay in entering into collaboration agreements could delay the development and commercialization of our drug candidates and reduce their competitiveness even if they reach the market. Any such delay related to our collaborations could adversely affect our business.

In addition to relying on a third party for its capabilities, we may depend on our alliances with other companies to provide substantial additional funding for development and potential commercialization of our drug candidates. We may not be able to obtain funding on favorable terms from these alliances, and if we are not successful in doing so, we may not have sufficient funds to develop a particular drug candidate internally, or to bring drug candidates to market. Failure to bring our drug candidates to market will prevent us from generating sales revenues, and this may substantially harm our business.

If a collaborative partner terminates or fails to perform its obligations under agreements with us, the development and commercialization of our drug candidates could be delayed or terminated.

If any current or future collaborative partner does not devote sufficient time and resources to collaboration arrangements with us, we may not realize the potential commercial benefits of the arrangement, and our results of operations may be adversely affected. In addition, if any existing or future collaboration partner were to breach or terminate its arrangements with us, the development and commercialization of the affected drug candidate could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue development and commercialization of the drug candidate on our own.

Much of the potential revenue from our existing and future collaborations will consist of contingent payments, such as payments for achieving development milestones and royalties payable on sales of drugs developed using our technologies. The milestone and royalty revenues that we may receive under these collaborations will depend upon our collaborator's ability to successfully develop, introduce, market and sell new products. In addition, our collaborators may decide to enter into arrangements with third parties to commercialize products developed under our existing or future collaborations using our technologies, which could reduce the milestone and royalty revenue that we may receive, if any. In many cases we will not be involved in these processes and accordingly will depend entirely on our collaborators. Our collaboration partners may fail to develop or effectively commercialize products using our products or technologies because they:

- decide not to devote the necessary resources due to internal constraints, such as limited personnel with the requisite scientific expertise, limited cash resources or specialized equipment limitations, or the belief that other drug development programs may have a higher likelihood of obtaining regulatory approval or may potentially generate a greater return on investment;
- do not have sufficient resources necessary to carry the drug candidate through clinical development, regulatory approval and commercialization;
- decide to pursue a competitive drug candidate developed outside of the collaboration; or
- cannot obtain the necessary regulatory approvals.

If our collaboration partners fail to develop or effectively commercialize drug candidates or drugs for any of these reasons, we may not be able to replace the collaboration partner with another partner to develop and commercialize a drug candidate or drugs under the terms of the collaboration. We may also be unable to obtain a license from such collaboration partner on terms acceptable to us, or at all.

We rely on third parties to conduct our clinical trials and provide other services, and those third parties may not perform satisfactorily, including failing to meet established deadlines for the completion of such services.

We do not have the ability to independently conduct some preclinical studies and the clinical trials for our drug candidates, and we rely on third parties such as contract laboratories, contract research organizations, medical institutions and clinical investigators to design and conduct these studies and our clinical trials. Our reliance on these third parties reduces our control over these activities. Accordingly, these third-party contractors may not complete activities on schedule, or may not conduct the studies or our clinical trials in accordance with regulatory requirements or our trial design. To date, we believe our contract research organizations and other similar entities with which we are working have performed well. However, if these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be required to replace them. Although we believe that there are a number of other third-party contractors we could engage to continue these activities, it may result in delays. Accordingly, our efforts to obtain regulatory approvals for and commercialize our drug candidates may be delayed.

In addition, our ability to bring our future products to market depends on the quality and integrity of the data we present to regulatory authorities in order to obtain marketing authorizations. We cannot guarantee the authenticity or accuracy of such data, nor can we be certain that such data has not been fraudulently generated. The failure of these third parties to carry out their obligations would materially adversely affect our ability to develop and market new products and implement our strategies.

We currently depend on third-party manufacturers to produce our preclinical and clinical drug supplies and intend to rely upon third-party manufacturers to produce commercial supplies of any approved drug candidates. If in the future we manufacture any of our drug candidates, we will be required to incur significant costs and devote significant efforts to establish and maintain these capabilities.

We have relied upon third parties to produce material for preclinical and clinical testing purposes and intend to continue to do so in the future. Although we believe that we will not have any material supply issues, we cannot be certain that we will be able to obtain long-term supplies of those materials on acceptable terms, if at

all. We also expect to rely upon third parties to produce materials required for the commercial production of our drug candidates if we succeed in obtaining necessary regulatory approvals. If we are unable to arrange for third-party manufacturing, or to do so on commercially reasonable terms, we may not be able to complete development of our drug candidates or market them. Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured drug candidates ourselves, including reliance on the third party for regulatory compliance and quality assurance, the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control and the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or damaging to us. In addition, the FDA and other regulatory authorities require that our drug candidates be manufactured according to cGMP regulations. Any failure by us or our third-party manufacturers to comply with cGMP and/or our failure to scale up our manufacturing processes could lead to a delay in, or failure to obtain, regulatory approval of any of our drug candidates. In addition, such failure could be the basis for action by the FDA to withdraw approvals for drug candidates previously granted to us and for other regulatory action.

We currently rely on a single manufacturer for the preclinical and clinical supplies of our protein, antibody, and ADC drug candidates and do not currently have relationships for redundant supply or a second source for any of these drug candidates. To date, our third-party manufacturers have met our manufacturing requirements, but we cannot assure that they will continue to do so. Any performance failure on the part of our existing or future manufacturers could delay clinical development or regulatory approval of our drug candidates or commercialization of any approved products. If for some reason our current contract manufacturers cannot perform as agreed, we may be required to replace them. Although we believe there are a number of potential replacements as our manufacturing processes are not manufacturer specific, we may incur added costs and delays in identifying and qualifying any such replacements. Furthermore, although we generally do not begin a clinical trial unless we believe we have a sufficient supply of a drug candidate to complete the trial, any significant delay in the supply of a drug candidate for an ongoing trial due to the need to replace a third-party manufacturer could delay completion of the trial.

We may in the future elect to manufacture certain of our drug candidates in our own manufacturing facilities. If we do so, we will require substantial additional funds and need to recruit qualified personnel in order to build or lease and operate any manufacturing facilities.

Because we have limited experience in developing, commercializing and marketing products, we may be unsuccessful in our efforts to do so.

Our products in development will require significant research and development and preclinical and clinical testing prior to our submitting any regulatory application for their commercial use. These activities, even if undertaken without the collaboration of others, will require us to expend significant funds and will be subject to the risks of failure inherent in the development of pharmaceutical products. We have limited experience conducting clinical trials. Even if we complete such studies, our ability to commercialize products will depend on our ability to:

- obtain and maintain necessary intellectual property rights to our products;
- enter into arrangements with third parties to manufacture our products on our behalf; and
- deploy sales and marketing resources effectively or enter into arrangements with third parties to provide these services.

As a result of these possibilities, we may not be able to develop any commercially viable products. In addition, should we choose to develop pharmaceutical products internally, we will have to make significant investments in pharmaceutical product development, marketing, sales, and regulatory compliance resources, and we will have to establish or contract for the manufacture of products under the FDA cGMPs. Any potential products developed by our licensees will be subject to the same risks.

We do not currently have any marketed products. If we develop products that can be marketed, we intend to market the products either independently or together with collaborators or strategic partners. If we decide to market any products independently, we will incur significant additional expenditures and commit significant additional management resources to establish a sales force. For any products that we market together with partners, we will rely, in whole or in part, on the marketing capabilities of those parties. We may also contract with other third parties to market certain of our products. Ultimately, we and our partners may not be successful in marketing our products.

Because neither we nor any of our collaborative partners have received marketing approval for any product resulting from our research and development efforts, and may never be able to obtain any such approval, we may not be able to generate any product revenue.

All of the products being developed by our collaborative partners will require additional research and development, extensive preclinical studies and clinical trials, and regulatory approval prior to any commercial sales. In some cases, the length of time that it takes for our collaborative partners to achieve various regulatory approval milestones may affect the payments that we are eligible to receive under our collaboration agreements. We and our collaborative partners may need to address a number of technical challenges successfully in order to complete development of our drug candidates. Moreover, these drug candidates may not be effective in treating any disease or may prove to have undesirable or unintended side effects, toxicities, or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use.

We rely significantly on our collaborative partners to gain access to specified technologies and our business could be harmed if we are unable to maintain strategic alliances.

As part of our business strategy, we have strategic research and development alliances with companies to gain access to specific technologies. These alliances with other pharmaceutical and biotechnology companies may provide us with access to unique technologies, access to capital, near-term revenues, milestone and/or royalty payments, and potential profit sharing arrangements. In return, we provide access to unique technologies, expertise in genomics, and information on the molecular basis of disease, drug targets, and drug candidates. We currently have significant strategic alliances with Amgen Fremont, TopoTarget, Seattle Genetics, and Bayer in addition to numerous smaller agreements to facilitate these efforts. In these strategic alliances, either party can terminate the agreement at any time the alliance permits them to or if either party materially breaches the contract. We may not be able to maintain or expand existing alliances or establish any additional alliances. If any of our existing collaborators were to breach or terminate their agreements with us or otherwise fail to conduct activities successfully and in a timely manner, the preclinical or clinical development or commercialization of product candidates or research programs may be delayed or terminated, which may materially and adversely affect our business, financial condition, and results of operations.

We depend on attracting and retaining key employees.

We are highly dependent on the principal members of our senior management and scientific staff, including Frank M. Armstrong, M.D., President and Chief Executive Officer; David M. Wurzer, Executive Vice President, Chief Financial Officer and Treasurer; Timothy M. Shannon, M.D., Executive Vice President and Chief Medical Officer; Paul M. Finigan, Senior Vice President and General Counsel; Elizabeth A. Whayland, Senior Vice President and Corporate Secretary; and Christopher K. McLeod, President and Chief Executive Officer of 454. Our future success will depend in part on the continued services of our key management and scientific personnel. The loss of services of any of these personnel could materially adversely affect our business, financial condition, and results of operations. We have entered into employment agreements with all of the principal members of our senior management team. Our future success will also depend in part on our ability to attract, hire, and retain additional personnel. There is intense competition for qualified personnel and there can be no assurance that we will be able to continue to attract and retain such personnel. Failure to attract and retain key personnel could materially, adversely affect our business, financial condition, and results of operations.

We depend on academic collaborators, consultants, and scientific advisors.

We have relationships with collaborators, consultants, and scientific advisors at academic and other institutions that conduct research or provide consulting services at our request. These collaborators, consultants, and scientific advisors are not our employees. Substantially all of our collaborators, consultants, and scientific advisors are employed by employers other than us and may have commitments to, or collaboration, consulting, or advisory contracts with, other entities that may limit their availability to us. As a result, we have limited control over their activities and, except as otherwise required by our collaboration, consulting agreements, and advisory agreements, can expect only limited amounts of their time to be dedicated to our activities. Our ability to explore and validate biological activity of therapeutic candidates and commercialize products based on these discoveries may depend, in part, on continued collaborations with researchers at academic and other institutions. We may not be able to negotiate additional acceptable collaborations with collaborators, consultants, or scientific advisors at academic and other institutions.

Our academic collaborators, consultants, and scientific advisors may have relationships with other commercial entities, some of which could compete with us. Our academic collaborators, consultants and scientific advisors sign agreements which provide for confidentiality of our proprietary information and of the results of studies. We may not be able to maintain the confidentiality of our technology and other confidential information in connection with every academic collaboration, consulting, or advisory arrangement, and any unauthorized dissemination of our confidential information could materially adversely affect our business, financial condition, and results of operations. Further, any such collaborator, consultant or advisor may enter into an employment agreement or consulting arrangement with one of our competitors.

Competition in our field is intense and likely to increase.

We are subject to significant competition in the development and commercialization of new drugs from organizations that are pursuing strategies, approaches, technologies and products that are similar to our own. Many of the organizations competing with us have greater capital resources, research and development staffs and facilities and marketing capabilities. We face competition from a number of biotechnology and pharmaceutical companies with products in preclinical development, clinical trials, or approved for conditions identical or similar to the ones we are pursuing.

We are aware of specific companies that are developing HDAC inhibitors for use in the treatment of cancer that may be competitive with ours. With respect to our HDAC inhibitor, belinostat (PXD101), Merck & Co., Inc. recently received FDA approval to market Zolinza, or vorinostat, the first HDAC inhibitor approved for use in the U.S., for the treatment of cutaneous T-cell lymphoma. Bayer Schering Pharma AG, Gloucester Pharmaceuticals, Inc., Methylgene, Inc., and Novartis Pharma AG are also currently evaluating HDAC inhibitors in clinical trials for the treatment of cancers, and in combinations with other chemotherapies, that are similar to approaches and indications we are pursuing. In addition, many other pharmaceutical and biotechnology companies are engaged in research and development for the treatment of cancer from which we may face intense competition. We expect to compete in the case of belinostat, on the basis of efficacy, routes of administration, and potentially safety and economic value compared to drugs used in current practice or currently being developed.

We expect that our fibroblast growth factor, velafermin, will compete with Kepivance, a keratinocyte growth factor, marketed by Amgen, Inc. for the prevention of severe OM in patients undergoing HSCT. We expect to compete in the case of velafermin, on the basis of efficacy, mechanism of action, ease of administration, and potentially economic value compared to drugs used in current practice or currently being developed.

If we do not obtain adequate intellectual property protection, we may not be able to prevent our competitors from commercializing our discoveries.

Our business and competitive position depends on our ability to protect our products and processes, including obtaining patent protection on genes and proteins for which we or our collaborators discover utility, and on products, methods and services based on such discoveries.

The patent positions of pharmaceutical, biopharmaceutical, and biotechnology companies, including us, are generally uncertain and involve complex legal and factual questions. The law relating to the scope of patent claims in the technology fields in which we operate is evolving, and the degree of future protection for our proprietary rights is uncertain. Furthermore, even if patents are issued to us, there can be no assurance that others will not develop alternative technologies or design around the patented technologies developed by us. Therefore, our patent applications may not protect our products, processes, and technologies for at least the following reasons:

- there is no guarantee that any of our pending patent applications will result in additional issued patents;
- there is no guarantee that any patents issued to us or our collaborative customers will provide a basis for commercially viable products;
- there is no guarantee that any patents issued to us or our collaborative customers will provide us with any competitive advantages;
- there is no guarantee that any patents issued to us or our collaborative customers will not be challenged or circumvented or invalidated by third parties; and
- there is no guarantee that any patents issued to others will not have an adverse effect on our ability to do business.

The issuance of a patent is not conclusive as to its validity or enforceability, nor does it provide the patent holder with freedom to operate without infringing the patent rights of others. A patent could be challenged by litigation and, if the outcome of such litigation were adverse to the patent holder, competitors could be free to use the subject matter covered by the patent. The invalidation of key patents owned by or licensed to us or the non-approval of pending patent applications could increase competition and materially adversely affect our business, financial condition, and results of operations.

Litigation, which could result in substantial cost to us, also may be necessary to enforce our patent and proprietary rights and/or to determine the scope and validity of others' proprietary rights. We may participate in interference proceedings that may in the future be declared by the USPTO to determine priority of invention, which could result in substantial cost to us. The outcome of any such litigation or interference proceeding might not be favorable to us, and we might not be able to obtain licenses to technology that we require or, even if obtainable, such technology may not be available at a reasonable cost.

If we infringe on the intellectual property rights of others, we may be required to obtain a license, pay damages, and/or cease the commercialization of our technology.

We believe that there may be significant litigation in the industry regarding patent and other intellectual property rights. It is possible that the commercialization of our technology could infringe the patents or other intellectual property rights of others. In addition, others may have filed, and in the future are likely to file, patent applications covering genes or gene products or antibodies against the gene products that are similar or identical to our products. Any such patent applications may have priority over our patent applications, and may result in the issuance of patents to others that could be infringed by our products or processes.

A number of competitors are producing proteins from genes and claiming both the proteins as potential therapeutics as well as the antibodies against these proteins. In many cases, generic antibody claims are being issued by the USPTO even though competitors have not actually made antibodies against the protein of interest, or do not have cellular, animal, or human data to support the use of these antibodies as therapeutics. These claims to proteins as therapeutics, to all antibodies against a protein, and to methods of use in broad human indications are being filed at a rapid rate, and patents including such claims have issued and may continue to issue. Such patents may prevent us from commercializing some products or processes or, if licenses under the patents are made available, may make the royalty burden on these products and processes so high as to prevent commercial success.

In addition, we have sought and intend to continue to seek patent protection for novel uses for genes and proteins and therapeutic antibodies that may have been patented by third parties. In such cases, we would need a license from the holder of the patent with respect to such gene or protein in order to make, use, or sell such gene or protein for such use. We may not be able to acquire such licenses on commercially reasonable terms, if at all.

Certain third parties have indicated to us that they believe we may be required to obtain a license in order to perform certain processes that we use in the conduct of our business or in order to market potential drugs we have in development.

Any legal action against us or our collaborators for patent infringement relating to our products and processes could, in addition to subjecting us to potential liability for damages, require us or our collaborators to obtain a license in order to continue to manufacture or market the affected products and processes, or could enjoin us from continuing to manufacture or market the affected products and processes. There can be no assurance that we or our collaborators would prevail in any such action or that any license required under any such patent would be made available on commercially acceptable terms, if at all. If we become involved in such litigation, it could consume a substantial portion of our managerial and financial resources.

We cannot be certain that our security measures will protect our confidential information and proprietary technologies.

We rely upon trade secret protection for some of our confidential and proprietary information that is not the subject matter for which patent protection is being sought. We have taken security measures to protect our proprietary technologies, processes, information systems, and data and continue to explore ways to enhance such security. Such measures, however, may not provide adequate protection for our trade secrets or other proprietary information. While we require employees, academic collaborators, consultants, and scientific advisors to enter into confidentiality and/or non-disclosure agreements where appropriate, any of the following could still occur:

- proprietary information could be disclosed;
- others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets, technology, or disclose such information; or
- we may not be able to meaningfully protect our trade secrets.

If the security of our confidential information is breached, our business could be materially adversely affected.

We depend upon our ability to license technologies.

We may have to acquire or license certain components of our technologies or products from third parties. We may not be able to acquire from third parties or develop new technologies, either alone or with others. We may not be able to acquire licenses on commercially reasonable terms, if at all. Failure to license or otherwise acquire necessary technologies could materially adversely affect our business, financial condition, and results of operations.

454's Sequencing System and reagent kits have been offered commercially for only a short period of time and its technology platform is based on new and relatively unproven technologies and methods. Our future success depends on market acceptance of our current products and our continued research, development and commercialization efforts relating to the future versions of our sequencing systems.

454 began marketing, selling and distributing its 454 Sequencing system in 2005 as the GS20 and the next version of the 454 Sequencing system, the GS FLX, is in the early stages of commercialization and future iterations of the technology are in development. As of December 31, 2006, 454 had a cumulative installed base of

more than 60 Genome Sequencer systems. Compared to well-known technologies, 454's DNA sequencing system has not yet been widely adopted or accepted. Accordingly, to be successful, 454's current and future sequencing systems, and the technologies underlying those products, must be accepted by 454's target markets. This market acceptance and the success of 454's products will depend on numerous factors, including:

- the ability to use 454's products for large-scale applications of DNA sequencing in a cost effective and dependable manner;
- whether customers adopt 454's DNA sequencing systems, as opposed to the products and technologies offered by 454's competitors;
- the willingness and ability of more researchers to invest in DNA sequencing technology than have already done so to date;
- the willingness and ability of customers to adopt new technologies requiring additional capital investment; and
- 454's ability to manufacture, market, sell and distribute its DNA sequencing systems and reagent kits on a competitive cost basis.

454 is subject to competition from organizations that have developed or are developing technologies and products to service 454's potential customers.

We believe that the future success of 454 will depend in large part on our ability to maintain a competitive position in instruments for the high throughput nucleic acid sequencing field. Before we recover development expenses for 454's products or technologies, such products or technologies may become obsolete as a result of technological developments by us or others. 454's products could also be made obsolete by new technologies which are less expensive or more effective. 454 may not be able to make the enhancements to its technology necessary to compete successfully with newly emerging technologies. The market for high throughput nucleic acid sequencing may not be sufficient to generate revenues significant enough for 454 to achieve profitability.

The current market for DNA sequencing instruments and reagents is supplied almost entirely by ABI. According to Strategic Directions International, Inc., ABI supplies approximately 68% of this market. ABI offers a range of sequencing instruments from low to high throughput. A large portion of the balance of the market is supplied by Amersham Biosciences, part of GE Healthcare.

Another group of competitors, including Affymetrix and Illumina, utilize hybridization arrays. These two companies together lead the gene expression and SNP genotyping markets where researchers are focused on the investigation of known mutations and not de novo sequencing of DNA. An alternative hybridization approach for re-sequencing known genomes is being pursued by Agencourt, based on the work of Professor George Church at Harvard University.

There are several companies that are attempting to develop alternative sequencing by synthesis technologies, including Illumina, Helicos, Visigen and Pacific Biosciences. With the exception of Illumina which recently began shipping its Genome Analyzer, we believe that none of these companies currently has a product for sale or a sequencing service using their technology. Sequencing by measuring voltage change as DNA molecules pass through nanopores is an alternative technology being pursued by several academic labs and funded by the US government. This technology is still in its earliest investigation phase and is not yet commercially available.

454 has a limited history of manufacturing instrument systems and consumable products, and its success, in part, depends on its ability to provide commercially successful products to Roche.

454 has limited experience manufacturing products and consumable reagents in significant volumes. 454 has only recently begun manufacturing products on a commercial scale and may be unable to provide products in the volumes required, or to complete projects at its facility. 454 may encounter previously unknown manufacturing difficulties that could significantly reduce production or the ability to manufacture its systems and products economically.

454 has a limited history of managing inventory levels. Reagents are subject to obsolescence. If inventory of consumables is not managed appropriately, this could result in 454 having to write-off expired products, potentially impacting its ability to provide products and services.

For the foreseeable future, 454 will rely on a single distributor, Roche, to generate product revenue for 454's products. If Roche is unable to sell 454's products effectively, it could materially and adversely affect the results of our operations.

454 has granted Roche the right to be its exclusive, worldwide sales and marketing distributor for 454's high-throughput instrument systems, proprietary kits and reagents. As a result, 454 is dependent on Roche and its ability to effectively market 454's current products. If Roche is unable to sell 454's products effectively, 454 will not have the ability to seek other customers for 454's products at least until such time as satisfactory arrangements are made with Roche.

454 obtains key components from single source or a limited group of suppliers, and the partial or complete loss of one of these suppliers could cause significant production delays, an inability to meet customer demand and a substantial loss in revenues.

454 depends on single-source suppliers or a limited group of suppliers for some of the key components used in the 454 Sequencing system. 454's dependence on this limited selection of suppliers of product components exposes it to several risks, including disruptions in supply, price increases, late deliveries or an inability to meet customer demand. This could lead to customer dissatisfaction, damage to 454's reputation or cause customers to switch to competitors' products.

Finding alternative sources for the components provided by single-source or a limited group of suppliers would be difficult in many cases and may entail a significant amount of time and disrupt 454's business. In some cases, 454 would need to change the components of its products if it changed suppliers. This, in turn, could require a redesign of the 454 Sequencing System, thereby causing further costs and disruption to its business.

A portion of 454's sales are to international customers and international sales are subject to risks.

454's instrument systems and reagents will be sold internationally by Roche. 454 also offers sequencing services to clients worldwide and intends to expand its international presence. International sales entail a variety of risks, including:

- currency exchange fluctuations;
- unexpected changes in legislative or regulatory requirements of foreign countries into which products are imported;
- difficulties in obtaining export licenses or other trade barriers and restrictions resulting in delivery delays; and
- significant taxes or other burdens of complying with a variety of foreign laws.

In addition, sales to international customers typically result in longer payment cycles and greater difficulty in accounts receivable collection. 454 is also subject to general geopolitical risks, such as political, social and economic instability and changes in diplomatic and trade relations. One or more of these factors could have a material adverse effect on 454's business, financial condition and operating results.

Patents may not provide sufficient protection for the 454 technology.

454's products and services are based on the combination of several complex technologies. 454 has developed some of these technologies internally and has pursued patent protection in the U.S. and other countries for certain developments, improvements, and inventions it has developed that are incorporated into 454's products or that fall within its fields of interest. Other of the technologies utilized by 454 are owned by third

parties and are used by 454 under license. There are relatively few decided court cases interpreting the scope of patent claims in these technologies, and 454 believes that its products and services do not infringe upon the technology covered by valid and enforceable patents. This belief could be successfully challenged by third parties. 454's patent applications may not protect its products, processes and technologies because of the following reasons:

- there is no guarantee that any of 454's pending patent applications will result in additional issued patents;
- 454 may develop additional proprietary technologies that are not patentable;
- there is no guarantee that any patents issued to 454 or its collaborative customers will provide a basis for commercially viable products;
- there is no guarantee that any patents issued to 454 or its collaborative customers will provide 454 with any competitive advantages;
- there is no guarantee that any patents issued to 454 or its collaborative customers will not be challenged or circumvented or invalidated by third parties; and
- there is no guarantee that any patents issued to others will not have an adverse effect on 454's ability to do business.

If 454 infringes or is alleged to infringe intellectual property rights of third parties, it will adversely affect its business.

454's research, development and commercialization activities, as well as products resulting from these activities, may infringe or be claimed to infringe patents or patent applications under which it does not hold licenses or other rights. Third parties may own or control these patents and patent applications in the United States and abroad. These third parties could bring claims against 454 or its collaborators that would cause 454 to incur substantial expenses and, if successful, could cause 454 to pay substantial damages. Further, if a patent infringement suit were brought against 454 or its collaborators, 454 or they could be forced to stop or delay research, development, manufacturing or sales of the product or product candidate that is the subject of the suit.

Infringement and other intellectual property claims and proceedings brought against 454, whether successful or not, could result in substantial costs and harm to its reputation. Such claims and proceedings can also distract and divert management and key personnel from other tasks important to the success of the business. In addition, intellectual property litigation or claims could force 454 to do one or more of the following:

- cease selling or using any of its products that incorporate the asserted intellectual property, which would adversely affect revenues;
- pay substantial damages for past use of the asserted intellectual property;
- obtain a license from the holder of the asserted intellectual property, which license may not be available on reasonable terms, if at all, and which could reduce its profitability; or
- redesign or rename, in the case of trademark claims, 454 products to avoid infringing the intellectual property rights of third parties, which may be impossible, impracticable and/or costly and time-consuming.

As a result of patent infringement claims, or to avoid potential claims, 454 or its current or future collaborators may choose or be required to seek a license from the third party and be required to pay license fees, royalties or both. These licenses may not be available on acceptable terms, or at all. Even if 454 or its collaborators were able to obtain a license, the rights may be nonexclusive, which could result in 454's competitors gaining access to the same intellectual property. Ultimately, 454 could be prevented from commercializing a product, or be forced to cease some aspect of its business operations, if, as a result of actual or threatened patent infringement claims, 454 or its collaborators are unable to enter into licenses on acceptable terms. This could harm 454's business significantly.

454 has recently introduced changes to its 454 Sequencing System technology. The recent 454 Sequencing System modification or future modifications may not be acceptable to 454's customers, which could adversely and permanently affect its reputation with its current and potential customers and adversely affect our business.

454 continually makes changes to its products to improve performance and, in some cases, to lessen risk of third party patent infringement. 454's current and future commercial success depends upon acceptance by its existing and potential customers of the 454 Sequencing System technology as recently modified and as may be modified in the future. Introducing modified products to 454's current customers is time consuming and expensive, and could result in dissatisfied customers, harm to its reputation and a reduced ability to attract new customers. While 454 has successfully tested recent updates to its technology in its laboratories, successful customer implementation in the field and market acceptance of the modified 454 Sequencing System will not be known until after 454's updated products have been commercially launched and assimilated into the marketplace. If the changes made to the 454 Sequencing technology do not prove effective in the market, or if such changes prompt claims of patent infringement, current and potential customers may not accept 454's products, and 454 may be required to undertake further changes to its product design. If for these or other reasons 454's current or potential customers do not accept recent or future modifications to its 454 Sequencing technology, the demand for 454 products could be diminished, and its reputation and our business could be adversely affected.

Changes in the level of government funding for life sciences research could affect the adoption of 454's products and services and the level of 454's future product and services sales.

454's current customer base, and the customer base 454 anticipates in the near term, consists primarily of large genome centers and large academic research facilities, many of which rely heavily on government grants to finance their research programs and the acquisition of sequencing products and services. In both the United States and abroad, political support for government funding of life sciences research, and DNA sequencing in particular, is subject to varying degrees of approval and opposition, and 454 cannot predict whether future government funding or grants will be available for researchers to purchase its products and services. In the event further government funding and grants are reduced, its business could be adversely affected.

It is uncertain whether 454 will be able to successfully develop and commercialize new products, including the GS FLX, or to what extent 454 can increase its revenues or become profitable.

Although we, through 454, have developed and commercialized DNA sequencing instrument systems and provide DNA sequencing services, we cannot be certain that 454 can successfully develop any new commercially acceptable products, increase its revenues or become profitable. Therefore we may not be able to recover our investment in 454.

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 efforts involve the controlled use of hazardous materials, chemicals and various radioactive compounds. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards prescribed by state and federal 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. Although we maintain workers' compensation insurance to cover us for costs we may incur due to injuries to our employees resulting from the use of these materials, this insurance may not provide adequate coverage against potential liabilities. Due to the small amount of hazardous materials that we generate, we do not currently maintain any environmental liability or toxic tort claim insurance coverage to cover pollution conditions or other extraordinary or unanticipated events relating to our use and disposal of hazardous materials. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Risks Related to Our Financial Results

We have a large amount of debt and our debt service obligations may prevent us from taking actions that we would otherwise consider to be in our best interests.

As of December 31, 2006, we had total consolidated debt of $176.2 million, of which $66.2 million was repaid on February 2, 2007 and $110.0 million is due in February 2011; and for the year ended December 31, 2006, we had a deficiency of earnings available to cover fixed charges of $61.3 million. A variety of uncertainties and contingencies will affect our future performance, many of which are beyond our control. We may not generate sufficient cash flow in the future to enable us to meet our anticipated fixed charges, including our debt service requirements with respect to our debt that we sold in 2004. The following table shows, as of December 31, 2006, the remaining aggregate amount of our interest payments due in each of the years listed *(in millions)*:

Year	Aggregate Interest
2007	$ 6.4
2008	4.4
2009	4.4
2010	4.4
2011	2.2
Total	$21.8

Our substantial leverage could have significant negative consequences for our future operations, including:

- increasing our vulnerability to general adverse economic and industry conditions;
- limiting our ability to obtain additional financing;
- requiring the dedication of a substantial portion of our expected cash flow to service our indebtedness, thereby reducing the amount of our expected cash flow available for other purposes, including working capital and capital expenditures;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; or
- placing us at a possible competitive disadvantage compared to less leveraged competitors and competitors that have better access to capital resources.

We will likely need to raise additional funding, which may not be available on favorable terms, if at all.

We believe that we have sufficient capital to satisfy our funding requirements through the middle of 2008. However, our future funding requirements will depend on many factors and we anticipate that we will likely need to raise additional capital to fund our business plan and research and development efforts on a going-forward basis. To the extent that we need to obtain additional funding, the amount of additional capital we would need to raise would depend on many factors, including:

- the number, breadth, and progress of our research, product development, and clinical programs;
- our ability to establish and maintain additional collaborations;
- the progress of our collaborators;
- our costs incurred in enforcing and defending our patent claims and other intellectual property rights; and
- the costs and timing of obtaining regulatory approvals for any of our products.

We expect that we would raise any additional capital we require through examination of strategic options to monetize our investment in 454, public or private equity offerings, debt financings, or additional collaborations and licensing arrangements. We cannot be certain that in the future these sources of liquidity will be available when needed or that our actual cash requirements will not be greater than anticipated. In appropriate strategic situations, we may seek financial assistance from other sources, including contributions by others to joint ventures and other collaborative or licensing arrangements for the development and testing of products under development. If we raise additional capital by issuing equity securities, the issuance of such securities would result in ownership dilution to our Stockholders. If we raise additional funds through collaborations and licensing arrangements, we may be required to relinquish rights to certain of our technologies or product candidates, or to grant licenses on unfavorable terms. The relinquishing of rights or granting of licenses on unfavorable terms could materially adversely affect our business, financial condition, and results of operations. If adequate funds are not available, our business, financial condition, and results of operations would be materially adversely affected. However, should we be unable to obtain future financing either through the methods described above or through other means, we may be unable to meet the critical objective of our long-term business plan, which is to successfully develop and market pharmaceutical products. If we require additional capital at a time when investment in biotechnology companies such as ours, or in the marketplace in general, is limited due to the then prevailing market or other conditions, we may not be able to raise such funds at the time that we desire or any time thereafter.

Our quarterly operating results have fluctuated greatly and may continue to do so.

Our operating results have fluctuated on a quarterly basis. We expect that losses will continue to fluctuate from quarter to quarter and that these fluctuations may be substantial. Our results of operations are difficult to predict and may fluctuate significantly from period to period, which may cause our stock price to decline and result in losses to investors. Some of the factors that could cause our operating results to fluctuate include:

- changes in the demand for our services;
- the nature, pricing, and timing of products and services provided to our collaborators and customers;
- our ability to compete effectively in our therapeutic discovery and development efforts against competitors that have greater financial or other resources or drug candidates that are in further stages of development;
- acquisition, licensing, and other costs related to the expansion of our operations;
- losses and expenses related to our investments;
- regulatory developments or changes in public perceptions relating to the use of genetic information and the diagnosis and treatment of disease based on genetic information;
- regulatory actions and changes related to the development of drugs;
- changes in intellectual property laws that affect our patent rights;
- payments of milestones, license fees, or research payments under the terms of our external alliances and collaborations and our ability to monitor and enforce such payments; and
- the timing of intellectual property licenses that we may enter.

We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of future performance. In addition, fluctuations in quarterly results could affect the market price of our common stock in a manner unrelated to our long-term operating performance.

Our debt investments are impacted by the financial viability of the underlying companies.

We have a diversified portfolio of investments of which $52.6 million at December 31, 2006 were invested in U.S. Treasuries and debt investments that are sponsored by the U.S. Government. Our corporate fixed-rate debt investments comply with our policy of investing in only investment-grade debt instruments. The ability for

the debt to be repaid upon maturity or to have a viable resale market is dependent, in part, on the financial success of the underlying company. Should the underlying company suffer significant financial difficulty, the debt instrument could either be downgraded or, in the worst case, our investment could be worthless. This would result in our losing the cash value of the investment and incurring a charge to our statement of operations.

The market price of our common stock is highly volatile.

The market price of our common stock has fluctuated widely and may continue to do so. For example, during fiscal year 2006, the sale price of our stock ranged from a high of $5.41 per share to a low of $2.73 per share. Many factors could cause the market price of our common stock to rise and fall. These factors include:

- variations in our quarterly operating results;
- announcements of technological innovations, clinical results, or new products by us or our competitors;
- introduction of new products or new pricing policies by us or our competitors;
- acquisitions or strategic alliances by us or others in our industry;
- announcement by the government or other agencies regarding the economic health of the United States and the rest of the world;
- the hiring or departure of key personnel;
- changes in market valuations of companies within the biotechnology industry; and
- changes in estimates of our performance or recommendations by financial analysts.

We have significant leverage as a result of the sales of our debt in 2004.

In February 2004, in connection with the sale of our 4% convertible subordinated notes due 2011, we incurred $100.0 million of indebtedness. In addition, in March 2004, the initial purchasers exercised their option to purchase an additional $10.0 million of 4% convertible subordinated notes due in 2011. As a result of this indebtedness of $110.0 million, our interest payment obligations amount to $4.4 million per year.

The degree to which we are leveraged could adversely affect our ability to obtain further financing for working capital, acquisitions, or other purposes and could make us more vulnerable to industry downturns and competitive pressures. Our ability to meet our debt service obligations will depend upon our future performance, which may be subject to the financial, business, and other factors affecting our operations, many of which are beyond our control.

Our convertible debt is an unsecured obligation and is not guaranteed by any of our subsidiaries. Accordingly, it is effectively subordinated to all of our current and future secured indebtedness to the extent of the assets securing the indebtedness. Furthermore, our right to receive any distribution of assets of any subsidiary upon that subsidiary's liquidation, reorganization, or otherwise, is subject to the prior claims of creditors of that subsidiary, except to the extent we also are recognized as a creditor of that subsidiary. As a result, our convertible debt is effectively subordinated to the claims of such creditors.

There are no restrictive covenants in our indentures relating to our ability to incur future indebtedness.

The indentures governing our convertible debt due in 2011 do not contain any financial or operating covenants or restrictions on the payment of dividends, the incurrence of indebtedness, transactions with affiliates, incurrence of liens, or the issuance or repurchase of securities by us or any of our subsidiaries. We may therefore incur additional debt, including secured indebtedness senior to these notes.

Our convertible debt is the exclusive obligation of CuraGen Corporation. Our subsidiaries are separate and distinct legal entities and have no obligation to pay any amounts due under the convertible debt or to provide us with funds for our payment obligations, whether by dividends, distributions, loans or other payments. In addition, any payment of dividends, distributions, loans, or advances by our subsidiaries to us could be subject to statutory or contractual restrictions. Payments to us by our subsidiaries will also be contingent upon our subsidiaries' earnings and business considerations.

Our debt service obligations may adversely affect our cash flow.

A higher level of indebtedness increases the risk that we may default on our debt obligations. We cannot be certain that we will be able to generate sufficient cash flow to pay the interest on our debt or that future working capital, borrowings, or equity financing will be available to pay or refinance such debt. If we are unable to generate sufficient cash flow to pay the interest on our debt, we may have to delay or curtail our research and development programs. The level of our indebtedness among other things, could:

- make it difficult for us to make payments on our notes;
- make it difficult for us to obtain any necessary financing in the future for working capital, capital expenditures, debt service requirements, or other purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and
- make us more vulnerable in the event of a downturn in our business.

Our ability to repurchase notes, if required, with cash upon a change in control or fundamental change may be limited.

In certain circumstances involving a fundamental change, we may be required to repurchase some or all of the notes due 2011. We cannot be certain that we will have sufficient financial resources at such time or would be able to arrange financing to pay the repurchase price of the notes. Our ability to repurchase the notes in such event may be limited by law, by the indenture, and by such indebtedness and agreements as may be entered into, replaced, supplemented, or amended from time to time.

Securities we issue to fund our operations could cause dilution to our stockholders' ownership.

We may decide to raise additional funds through a public or private debt or equity financing to fund our operations. If we raise funds by issuing equity securities, the percentage ownership of current stockholders will be reduced, and the new equity securities may have rights with priority over our common stock. We may not be able to obtain sufficient financing on terms that are favorable to us or our existing stockholders, if at all.

Any conversion of our convertible debt into shares of common stock will dilute the ownership interest of our current stockholders. The conversion price of our convertible debt due in February 2011 is approximately $9.69 per share.

Item 1B. ***Unresolved Staff Comments***

Not applicable.

Item 2. ***Properties***

We maintain our executive and administrative offices along with research and manufacturing facilities at locations in Branford, Connecticut. At December 31, 2006, we leased a total of approximately 138,000 square feet at all Branford locations. Our leases are for terms of six months to ten years. We believe that our facilities are adequate for our current operations or that suitable additional leased space will be available as needed.

Item 3. ***Legal Proceedings***

We are not currently a party to any material legal proceedings.

Item 4. ***Submission Of Matters To A Vote Of Security Holders***

Not applicable.

PART II

Item 5. ***Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.***

Market Information

Our common stock is traded on the Nasdaq Global Market under the symbol "CRGN". The following table sets forth, for the periods indicated, the low and high sales prices per share for our common stock, as reported by the Nasdaq Global Market:

	2006	
	Low	High
Quarter Ended March 31, 2006	$3.02	$5.41
Quarter Ended June 30, 2006	3.03	5.01
Quarter Ended September 30, 2006	2.73	3.55
Quarter Ended December 31, 2006	3.40	4.97

	2005	
	Low	High
Quarter Ended March 31, 2005	$3.80	$7.28
Quarter Ended June 30, 2005	2.75	5.34
Quarter Ended September 30, 2005	4.25	6.61
Quarter Ended December 31, 2005	2.97	5.20

Stockholders

As of March 1, 2007, there were approximately 293 stockholders of record of our common stock and, according to our estimates, 9,415 beneficial owners of our common stock.

Dividends

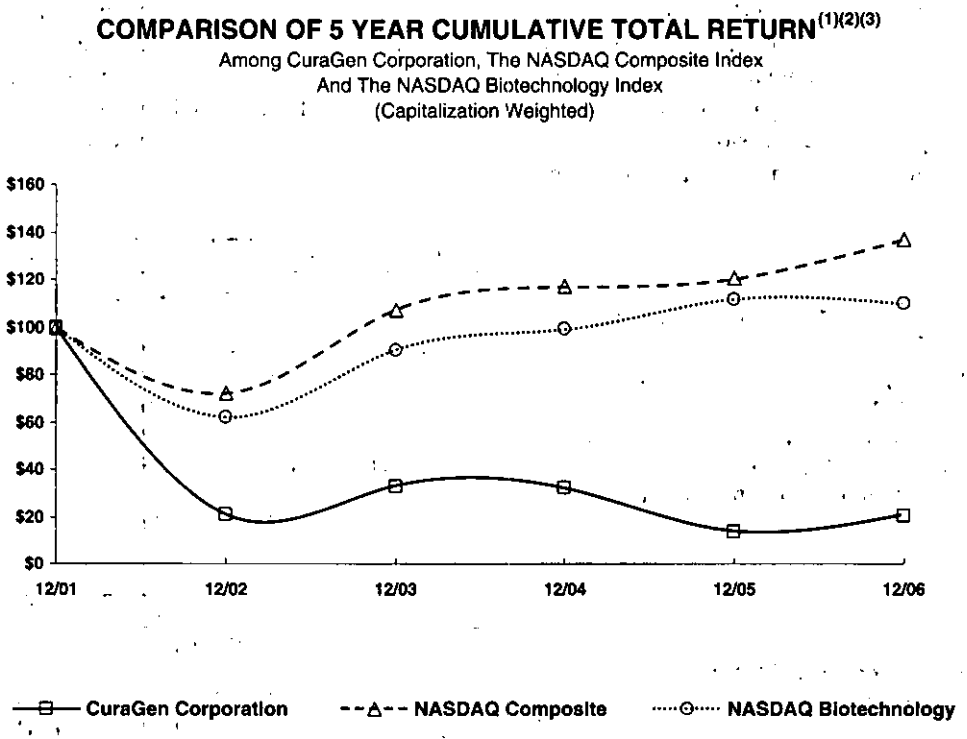
We have never paid cash dividends on our common stock and do not anticipate declaring any cash dividends in the foreseeable future. We currently intend to retain earnings, if any, to finance the development of our business.

Equity Compensation Plan Information

Information relating to compensation plans under which our equity securities are authorized for issuance is set forth under "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" in our definitive proxy statement for our 2007 Annual Meeting of Stockholders.

Performance Graph

The performance graph compares CuraGen Corporation's cumulative 5-year total shareholder return on common stock with the cumulative total returns of The NASDAQ Composite Index and The NASDAQ Biotechnology Index (capitalization weighted). The graph tracks the performance of a $100 investment in our common stock and in each of the designated indexes assuming (with the reinvestment of all dividends) for the period 12/31/2001 to 12/31/2006. The stock price performance included in this graph is not necessarily indicative of future stock price performance.



	Base Period 12/31/01	Cumulative Total Return 12/31/02	12/31/03	12/31/04	12/31/05	12/31/06
CuraGen Corporation	**$100.00**	**$20.79**	**$ 32.77**	**$ 32.01**	**$ 13.77**	**$ 20.56**
NASDAQ Composite Index	**100.00**	**71.97**	**107.18**	**117.07**	**120.50**	**137.02**
NASDAQ Biotechnology Index	**100.00**	**62.08**	**90.27**	**99.08**	**111.81**	**110.06**

(1) Graph assumes $100 invested on December 31, 2001 in our common stock, The NASDAQ Composite Index and The NASDAQ Biotechnology Index (capitalization weighted).

(2) Total return assumes reinvestment of dividends.

(3) Year ended December 31.

The information included under the heading "Performance Graph" in Item 5 of this Annual Report on Form 10-K is "furnished" and not "filed" and shall not be deemed to be "soliciting material" or subject to Regulation 14A, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

Item 6. *Selected Consolidated Financial Data*

The selected consolidated financial data set forth below are derived from our audited consolidated balance sheets as of December 31, 2006 and 2005 and the related audited consolidated statements of operations, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2006 and notes thereto, which are included elsewhere in this report. The consolidated balance sheet data as of December 31, 2004, 2003 and 2002 and the consolidated statements of operations data for each of the two years in the periods ended December 31, 2003 and 2002 have been derived from our related financial statements which are not included herein. Historical results are not necessarily indicative of future results. See the notes to the consolidated financial statements for an explanation of the method used to determine the number of shares used in computing basic and diluted net loss per common share. The selected consolidated financial data set forth below should be read in conjunction with, and is qualified in its entirety by our audited consolidated financial statements and related notes thereto found at "Item 8. "Financial Statements and Supplementary Data" and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" which are included elsewhere in this Annual Report on Form 10-K.

	Year Ended December 31,				
	2006	2005	2004	2003	2002
	(In thousands, except per share amounts)				
Consolidated Statement of Operations Data					
Total revenue	$ 39,587	$ 23,531	$ 6,339	$ 6,918	$ 18,246
Total operating expenses	99,013	97,472	98,601	86,597	115,591
Loss from operations	(59,426)	(73,941)	(92,262)	(79,679)	(97,345)
Net loss	(59,839)	(73,244)	(90,397)	(74,497)	(90,403)
Basic and diluted net loss per share	(1.09)	(1.41)	(1.81)	(1.51)	(1.85)
Weighted average number of common shares outstanding	54,896	51,991	49,943	49,335	48,942

	December 31,				
	2006	2005	2004	2003	2002
	(In thousands)				
Consolidated Balance Sheet Data					
Cash and investments	$170,153	$226,528	$328,120	$343,641	$414,809
Working capital	105,622	213,813	312,024	326,310	404,211
Total assets	227,199	270,457	369,212	376,742	448,529
Total long-term liabilities	128,121	190,996	241,000	151,500	150,263
Accumulated deficit	512,972	453,133	379,889	289,492	214,995
Stockholders' equity	8,729	56,436	106,897	197,681	271,504
Cash dividends declared per common share	None	None	None	None	None

Deficiency of Earnings Available to Cover Fixed Charges

The following table sets forth our consolidated deficiency of earnings available to cover fixed charges.

	Year Ended December 31,				
	2006	2005	2004	2003	2002
	(In thousands)				
Deficiency of earnings available to cover fixed charges (1) (2)	($61,303)	($75,605)	($97,231)	($80,634)	($95,793)

(1) Earnings were inadequate to cover fixed charges. We needed additional earnings, as indicated by the deficiency of earnings available to cover fixed charges for each of the periods presented above, to achieve a ratio of earnings to fixed charges of 1.0x.

(2) The deficiency of earnings available to cover fixed charges is computed by subtracting fixed charges from earnings before income taxes and minority interest plus fixed charges. Fixed charges consist of interest expense plus that portion of net rental expense deemed representative of interest.

Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

Our management's discussion and analysis of our financial condition and results of operations include the identification of certain trends and other statements that may predict or anticipate future business or financial results that are subject to important factors that could cause our actual results to differ materially from those indicated. See Item 1A, "Risk Factors."

Overview

We are a biopharmaceutical development company dedicated to improving the lives of patients by developing novel protein, antibody and small molecule therapeutics for the treatment of cancer and cancer supportive care. We have taken a systematic approach to identifying and validating the most promising therapeutic targets from our past research into the human genome and our efforts are now focused on developing and advancing potential therapeutics through preclinical and clinical development, and towards commercialization.

Our majority-owned subsidiary 454, has commercialized advanced technologies for high-throughput sequencing of DNA. 454's Genome Sequencer system performs rapid and comprehensive "whole genome sequencing," or the determination of the nucleotide sequence of entire genomes, "ultra-deep sequencing," or the accurate detection of mutations in target genes of interest, and "ultra-broad sequencing," or the surveying and characterization of large numbers of DNA molecules from a complex mixture. Currently 454's sequencing technology consists of 454's GS20 and GS FLX, associated reagent kits, disposables and a suite of analysis software.

Preclinical and clinical therapeutics

We are currently focusing the majority of our human and financial resources on our oncology therapeutics in the areas of cancer supportive care and the treatment of cancer. We also maintain a portfolio of protein, antibody, and small molecule therapeutics, and targets in various stages of development in the areas of oncology, inflammatory diseases and diabetes.

Oncology Pipeline

- **Velafermin**—is a protein therapeutic that we are investigating for the prevention of OM, a debilitating side effect experienced by many cancer patients receiving treatment with chemotherapy, radiotherapy, or a combination thereof. To confirm the activity of a single intravenous infusion of 30 mcg/kg of velafermin, we are conducting a second Phase II trial, which began enrolling patients in May 2006. This study will evaluate the efficacy of 30 mcg/kg velafermin compared to placebo for the prevention of OM, and also evaluate the activity of a single dose of 10 mcg/kg velafermin or 60 mcg/kg velafermin compared to placebo;

- **Belinostat (PXD101)**—is a small molecule therapeutic that inhibits the activity of the enzyme HDAC and is being evaluated for the treatment of solid and hematologic cancers either alone or in combination with other active chemotherapeutic drugs and newer targeted agents. We are conducting clinical trials evaluating intravenous and oral belinostat (PXD101) for:

Indication	*Phase*	*Regimen*	*Initiation of Patient Enrollment*	*Milestone*
Multiple myeloma	II	Monotherapy or in combination with dexamethasone	January 2005	Enrollment completed October 2006; Results presented in December 2006
Solid tumors and colorectal cancer	Ib/II	Combination with 5-fluorouracil	September 2005	Preliminary results presented November 2006; Phase II results expected mid-2007
Solid tumors and ovarian cancer	Ib/II	Combination with paclitaxel and/or carboplatin	September 2005	Preliminary results presented November 2006; Phase II results expected mid-2007
T-cell lymphoma	II	Monotherapy	January 2006	Preliminary results expected mid-2007
Multiple myeloma	Ib	Combination with Velcade®	March 2006	Preliminary results expected mid-2007
Advanced solid tumors	I	Oral belinostat (PXD101)	August 2006	Preliminary results expected by end of 2007

We are also evaluating oral belinostat (PXD101) in a Phase I clinical trial for the treatment of advanced solid tumors. Under a CTA we signed with the NCI, the NCI is currently sponsoring nine clinical trials evaluating intravenous belinostat (PXD101) for the treatment of:

Indication	*Phase*	*Regimen*	*Initiation of Patient Enrollment*
Advanced solid tumors or lymphomas	Ib	Combination with Velcade®	March 2006
Acute Myelogenous Leukemia	II	Monotherapy	June 2006
Advanced solid tumors	Ib	Combination with cis-retinoic acid	June 2006
Mesothelioma	II	Monotherapy	June 2006
Hepatocellular carcinoma	I/II	Monotherapy	July 2006
Advanced hematologic malignancies	I	Combination with azacitidine	August 2006
B-cell lymphomas	II	Monotherapy	August 2006
Ovarian	II	Monotherapy	November 2006
Myelodysplastic Syndrome	II	Monotherapy	November 2006

- **CR011-vcMMAE**—is a fully-human monoclonal antibody resulting from our collaboration with Amgen Fremont and utilizes ADC technology licensed from Seattle Genetics to attach MMAE to yield CR011-vcMMAE. In June 2006, we announced that the IND for CR011-vcMMAE was cleared by the FDA and dosing of patients in a Phase I/II clinical trial had begun. The open-label, multi-center, dose-escalation study will evaluate the safety, tolerability and pharmacokinetics of CR011-vcMMAE for patients with Stage III or Stage IV melanoma who have failed no more than one prior line of cytotoxic therapy. The first part of the trial will evaluate cohorts of patients receiving increasing doses of CR011-vcMMAE to determine the maximum tolerated dose, or MTD. After determination of the MTD, up to approximately 30 additional patients will be enrolled and treated at the MTD to further define safety and efficacy in this Phase I trial;

- **CR014-vcMMAE**—is a fully-human monoclonal ADC that targets TIM-1, also known as T-cell Immunoglobulin domain and Mucin domain 1, and is in preclinical studies to evaluate its role in the treatment of ovarian cancer and renal cell carcinoma. In March 2006, we presented new preclinical data on CR014 at the 97th AACR Annual Meeting that demonstrated significant anti-proliferative activity on antigen positive renal and ovarian carcinoma cell lines both in vitro and in vivo; and
- **CR012**—is a fully-human monoclonal antibody that targets secretory leukocyte protease inhibitor, or SLPI, a protein located on the surface of certain cancer cells, and is in preclinical studies to evaluate its role in the treatment of colorectal and ovarian cancers. In March 2006, we presented new preclinical data on CR012 at the 97th AACR Annual Meeting that demonstrated inhibition of colon carcinoma cell lines growth in vitro and in vivo.

Non-oncology Portfolio

- **CR002**—is a fully-human monoclonal antibody that targets PDGF-D, also known as platelet-derived growth factor D, and has been investigated for the treatment of kidney inflammation associated with diabetic nephropathy, IgA nephropathy and lupus nephritis. A Phase I study of CR002 in 40 healthy male volunteers was completed in 2005 and the safety, tolerability, and pharmacokinetic and pharmacodynamic profile are supportive of additional clinical trials. We intend to license CR002 to a partner with the necessary resources and expertise required for developing this potential therapeutic; and
- **BAY 76-7171**—is a small molecule therapeutic that is being investigated as a potential treatment for type 2 diabetes. This compound was identified under our metabolic disease collaboration with Bayer and an IND was filed with the FDA in November 2005. Bayer informed us that they intend to license BAY 76-7171.

In addition, we have several potential protein, antibody, and small molecule therapeutics that have been or are being prepared to be evaluated in animal studies. We will continue to evaluate strategic opportunities for these assets through partnerships, licensing, or the filing of IND applications in the future.

454 Life Sciences Corporation

454 was formed in 2000 as our majority-owned subsidiary. 454 has commercialized advanced technologies for high-throughput genetic analysis to perform rapid and comprehensive determination of nucleotide sequences. We believe 454's affordable, high-throughput technology will expand the whole genome sequencing market beyond genome centers, where the majority of such sequencing services are currently performed, to research centers and academic institutions. Commencing in 2004, 454 began offering, on a fee for service basis, high-throughput sequencing at its 454 SC for the analysis of virus, bacteria and small fungi, and in 2005, 454 began commercializing its instrument systems and reagents to customers. In May 2005, 454 signed the Roche License Agreement for the promotion, sales and distribution of the GS20 and reagents by Roche. As of December 31, 2006, the installed base of Genome Sequencing systems included more than 60 instruments worldwide.

Summary

We expect to generate value for our shareholders by developing novel therapeutics. We expect to become profitable by commercializing a subset of therapeutics stemming from our development pipeline, and establishing partnerships with pharmaceutical and biotechnology companies for the development and commercialization of other therapeutics from our development pipeline. Our failure to successfully develop and commercialize pharmaceutical products would materially and adversely affect our business, financial condition, cash and investments balances and results of operations. Royalties or other revenue generated from commercial sales of products developed through the application of our technologies and expertise are not expected for several years, if at all. We expect that our revenue or income sources for at least the next several years may be limited to: 454 grant, service, milestone and product revenue; and interest income. In July 2006, we announced that we

engaged Goldman, Sachs & Co. to examine strategic options for our investment in 454. This strategic initiative is ongoing and focused on implementing a strategic option. However, should we be unable to obtain future financing either through the methods described above or through other means, we may be unable to meet the critical objective of our long-term business plan and may be unable to continue operations. This result could cause our shareholders to lose all or a substantial portion of their investment.

We expect to continue incurring substantial expenses relating to our research and development efforts, as we focus on: preclinical studies and clinical trials required for the development of therapeutic protein, antibody and small molecule product candidates; external programs identified by our platform as being promising and synergistic with our products and expertise; and 454, as it continues to work on the development and commercialization of its DNA sequencing technology. Conducting clinical trials is a lengthy, time-consuming and expensive process. We will incur substantial expenses for, and devote a significant amount of time to, these studies. As a result, we expect to incur continued losses over the next several years, unless we are able to realize significant revenues through 454's sales of genomic analysis services and the GS FLX. The timing and amounts of such revenues cannot be predicted with certainty and may fluctuate. Results of operations for any period may be unrelated to the results of operations for any other period. In addition, historical results should not be viewed as indicative of future operating results.

Critical Accounting Policies and Use of Estimates

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amount of assets and liabilities, revenues and expenses. On an on-going basis, we evaluate our estimates, including those related to revenue recognition, accrued expenses and inventory. We base our estimates on historical experience and on various other assumptions that are believed 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.

While our significant accounting policies are more fully described in Note 1 to our consolidated financial statements, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our consolidated financial statements:

Revenue Recognition

Overview

We recognize revenue when all four criteria are met: (1) persuasive evidence that an arrangement exists; (2) delivery of the products has occurred or services have been rendered; (3) the selling price is fixed or determinable; and (4) the collectibility is reasonably assured, in accordance with Securities and Exchange Commission Staff Accounting Bulletin No. 104, "Revenue Recognition," which set forth guidelines for the timing of revenue recognition based upon factors such as passage of title, installation, payment and customer acceptance. Determination of criteria (2), (3) and (4) are based on management's judgment regarding delivery of products, the fee charged for products delivered and the collectibility of those fees.

Product Revenue

454's commercialized GS20 and GS FLX include instrument systems and reagents. In October 2005, Roche began selling and distributing the GS20 products. In December 2006, Roche began selling the GS FLX products. 454 sells the instrumentation, reagents and consumables to Roche at an agreed upon transfer price. Additionally, 454 earns a royalty on sales to third parties completed by Roche. Sales of instruments and reagents to Roche are

recognized upon shipment of products under FOB shipping point as risk of loss transfers to Roche once 454's products are loaded onto a Roche carrier. Royalties on sales by Roche to third parties completed are recognized based upon royalty reports received from Roche at the end of each calendar quarter. During 2005, 454 sold instruments directly to end users. Revenue from instruments sold directly by 454 was recognized upon the completion of installation of the equipment and training of customer personnel. For those customers, 454 determined the completion of each of these deliverables before revenue was recognized. Additionally, certain customers required that 454's instruments be tested prior to their acceptance of the instruments. For those customers, revenue was recognized upon acknowledgement of acceptance from the customer. Included with instruments sold directly by 454 is a maintenance contract which generally is for one year. Revenue for the maintenance contract was recognized ratably over the term.

Reagent sales that are directly sold by 454 are recognized upon shipment of the products under FOB shipping or upon receipt by 454's customer under FOB destination based upon terms and conditions outlined in 454 customers' purchase orders.

Sequencing Service Revenue

Sequencing service revenue under fee for service arrangements with customers in the 454 Sequencing Center is recognized when contractual performance is completed, typically when the resulting sequence data is delivered to the 454's customers.

Collaboration Revenue

Collaboration revenue for CuraGen is generated primarily under our Pharmacogenomics Agreement, or the Bayer Agreement, with Bayer and for 454 under the Roche Research and Development Agreement between 454 and Roche, or the Roche Research and Development Agreement. Payments under the terms of these agreements consist of non-refundable fixed quarterly payments received in advance under the Bayer Agreement and the Roche Research and Development Agreement.

The non-refundable fixed quarterly payments received in advance under the Bayer Agreement relate to our future performance of services and are deferred and recognized as revenue when the future performance occurs, based upon the satisfaction of defined metrics of completion, as outlined in the Bayer Agreement, which include proportional performance and project specific deliverables. These metrics are reviewed internally each month to determine the work performed, deliverables met, and, if required, deliverables accepted by Bayer. We estimate the time period over which services will be provided and the level of effort in each period. In the event that we under or overestimate the level of services performed or the costs of such services, our actual revenues could differ from such estimates. The date on which some services commence, the level of services performed on or before a given date and the cost of such services are often subjective determinations. We make judgments based upon the facts and circumstances known to us at the time and in accordance with generally accepted accounting principles.

Under the Roche Research and Development Agreement between 454 and Roche, Roche has an obligation to fund research and development of applications for sequencing DNA. Roche can fulfill this obligation by providing 454 with cash or providing 454 with reagents and Roche personnel. Payments, if any, are made quarterly, in advance. These payments are deferred and amortized into revenue on a straight line basis over the quarter in which they pertain.

Grant Revenue

Grant revenue is recorded when qualifying expenses are incurred for the research that is performed as set forth under the terms of 454's federal grant award agreements from the NHGRI, one of the NIH.

Milestone revenue

Under the Roche License Agreement, 454 is entitled to receive both up-front non refundable milestone payments for certain events, including contract negotiation and signing, supplier agreement execution, the commercial launch of products, placement of a number of products, and future product launches, as well as potential future commission/royalty sales-based payments for significant cumulative sales by Roche. Up-front milestone payments under the Roche License Agreement are deferred and amortized into revenue on a straight line basis from the later of the date the payment was earned or the effective date of the agreement (October 2005) through the end of the agreement term (October 2010). Commission/royalty sales-based payments for significant cumulative sales by Roche under the Roche License Agreement will be recorded in revenue as earned, however to date 454 has not earned any commission/royalty sales-based payments for significant cumulative sales by Roche. Significant estimates included in milestone revenue are the identification of up-front non refundable payments as compared to commission/royalty sales-based payments, the period of amortization of up-front non refundable payments and the straight line method of amortization.

Accrued Expenses

We review open contracts and purchase orders, communicate with our applicable personnel to identify services that have been performed on our behalf and estimate the level of service performed and the associated costs incurred for the service when we have not yet been invoiced or otherwise notified of the actual costs. The majority of our service providers invoice us monthly in arrears for services performed. We make estimates of our accrued expenses as of each balance sheet date in our financial statements based on facts and circumstances known to us. We also periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. To date, we have not adjusted our estimates at any particular balance sheet date in any material amount. Examples of estimated accrued expenses include:

- fees paid to contract research organizations in connection with preclinical and toxicology studies and clinical trials;
- fees paid to investigative sites in connection with clinical trials;
- fees paid to contract manufacturers in connection with the production of clinical trial materials; and
- professional service fees.

We base our expenses related to clinical trials on our estimates of the services received and efforts expended pursuant to contracts with multiple research institutions and clinical research organizations that conduct and manage clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we will adjust the accrual accordingly. If we do not identify costs that we have begun to incur or if we underestimate or overestimate the level of services performed or the costs of these services, our actual expenses could differ from our estimates.

Inventory

Inventory is recorded at the lower of cost or market. Cost includes material, labor and estimates related to manufacturing overhead costs. Cost is determined using the first-in-first-out method for non-lot controlled items and on the specific identification basis for lot controlled items. Lot controlled items relate to critical components in 454's instrument and reagent manufacturing process. In order to state inventory at net realizable value, 454 records adjustments to inventory for potentially excess, obsolete or impaired goods based upon historical turnover and assumptions about future demand for its instrument and reagent manufacturing process and market

conditions. Our estimates and assumptions for excess and obsolete inventory are subject to uncertainty. Future product introductions and related inventories may require additional reserves based upon changes in market demand or introduction of competing technologies. Increases in the reserve for excess and obsolete inventory would result in a corresponding increase to cost of revenues.

Stock-Based Compensation

We utilized the modified prospective transition method to adopt Statement of Financial Accounting Standards No. 123 (revised 2004) "Share Based Payment", or SFAS 123R, on January 1, 2006. Under this method, the provisions of SFAS 123R, apply to all awards granted or modified after the date of adoption. In addition, the unrecognized expense of awards not yet vested at the date of adoption, determined under the original provisions of Statement of Financial Accounting Standards No. 123 "Accounting for Share-Based Payment", or SFAS 123, shall be recorded in net income in the periods after the date of adoption. Prior to January 1, 2006, we accounted for stock options under the intrinsic value method described in Accounting Principals Board Opinion No. 25, or APB 25, and related Interpretations as permitted by SFAS 123. When applying the intrinsic value method to stock options, we did not record stock-based compensation cost in net loss because the exercise price of our stock options equaled the market price of the underlying stock on the date of grant. For additional information on stock-based compensation, please see Note 1 to our condensed consolidated financial statements included in this Annual Report on Form 10-K.

Results of Operations

Year 2006 Compared to Year 2005

The following table sets forth a comparison of the components of our net loss for the years ended December 31, 2006 and 2005 (in millions):

	2006	2005	$ Change	% Change
Product revenue	$19.4	$12.6	$ 6.8	54%
Sequencing service revenue	10.0	2.3	7.7	335%
Collaboration revenue	3.8	4.8	(1.0)	(21)%
Grant revenue	2.3	2.8	(0.5)	(18)%
Milestone revenue	4.1	1.0	3.1	310%
Cost of product revenue	11.6	4.7	6.9	147%
Cost of sequencing service revenue	4.3	1.0	3.3	330%
Grant research expenses	2.1	2.2	(0.1)	(5)%
Research and development expenses	58.5	68.1	(9.6)	(14)%
General and administrative expenses	22.5	18.7	3.8	20%
Restructuring and related charges	—	2.8	(2.8)	(100)%
Interest income	7.5	8.3	(0.8)	(10)%
Interest expense	9.4	11.7	(2.3)	(20)%
Gain on extinguishment of debt	—	1.8	(1.8)	(100)%
Income tax benefit	0.5	0.2	0.3	150%
Minority interest in subsidiary loss	1.0	2.2	(1.2)	(55)%
Net loss	$59.8	$73.2		

The following table sets forth a comparison of revenue by segment, for the years ended December 31, 2006 and 2005 (in millions):

	2006	2005	$ Change	% Change
Product revenue:				
454	$19.4	$12.6	$ 6.8	54%
Total	$19.4	$12.6		
Sequencing service revenue:				
454	$10.0	$ 2.3	$ 7.7	335%
Total	$10.0	$ 2.3		
Collaboration revenue:				
CuraGen	$ 2.3	$ 4.8	$(2.5)	(52)%
454	1.5	—	1.5	100%
Total	$ 3.8	$ 4.8		
Grant revenue:				
454	$ 2.3	$ 2.8	$(0.5)	(18)%
Total	$ 2.3	$ 2.8		
Milestone revenue:				
454	$ 4.1	$ 1.0	$ 3.1	310%
Total	$ 4.1	$ 1.0		

Product revenue. The increase in product revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was due to an increase in worldwide product sales volumes under 454's Roche License Agreement, offset by a decrease in the per sale revenue amounts as discussed below. 454 began selling products directly to end users beginning in the first quarter of 2005 and through Roche beginning in the fourth quarter of 2005. Under 454's agreement with Roche, 454 receives payments at agreed upon transfer pricing for shipments of 454's products to Roche. In addition, 454 receives a royalty from Roche upon its subsequent sale of these products to third parties. 454 recognizes royalties on these sales to third parties when they are earned based upon royalty reports received from Roche at the end of each calendar quarter. Together, the transfer price and royalty received by 454 from Roche represents approximately 50% of the price paid by the third party. We expect product revenue to increase substantially in 2007 as compared to 2006 with the release and associated sales of the next generation sequencing platform, GS FLX, additional reagent configurations, and increasing reagent sales to support a growing installed base of instruments.

Sequencing service revenue. The increase in sequencing service revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily due to the increase in the number of service agreements completed as well as an increase in the average value of each of these agreements as compared to 2005. We expect sequencing service revenue to increase substantially in 2007 as compared to 2006, due to the Pharmacogenomics additional sales efforts as well as further acceptance of 454's technology in the market place.

Collaboration revenue. The decrease in CuraGen's collaboration revenue for year ended December 31, 2006, as compared to the year ended December 31, 2005 was due to the completion of work under the Bayer Agreement during the second quarter of 2006. We do not expect to recognize additional collaboration revenue during 2007, with the exception of limited amounts of collaboration revenue related to the amortization of the $1.3 million received during 2006 from the LEO Pharma/TopoTarget licensing agreement.

The increase in 454's collaboration revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005 was due to the Roche Research and Development Agreement. Under this agreement, Roche has an obligation to fund certain research and development projects, for which funding can be in the form of cash or in-kind contributions. Payments from Roche to 454 under this arrangement began in 2006. We expect 2007 collaboration revenue to be consistent with 2006 unless the scope of the Roche Research and Development Agreement changes during 2007.

Grant revenue. The decrease in grant revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was a result of the completion of a federal grant awarded to 454 in May 2004 and the completion of the third contract year of a grant awarded in September 2004. Both grants were awarded by the NHGRI, one of NIH. These grants partially funded the continued scale up of 454's technology. We expect grant revenue to decrease in 2007 as compared to 2006 due to the completion of the fourth and final contract year which is expected to span only five months in 2007.

Milestone revenue. The increase in milestone revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was a result of a full year of amortization associated with up-front milestone payments received in 2005 from Roche, as well as amortization associated with an additional up-front milestone payment received in 2006. Milestone revenue in 2005 consisted only of amortization during the fourth quarter of 2005 related to milestones received during 2005. Under the Roche License Agreement, 454 is entitled to receive both up-front milestone payments for specific events, including contract negotiation and signing, supplier agreement execution and product launches, as well as potential future commission/royalty sales-based payments for significant cumulative sales by Roche. Up-front payments under the Roche License Agreement are deferred and amortized into revenue on a straight-line basis from the later of the date the payment was earned or the effective date of the agreement, through the end of the agreement term. For the purposes of milestone revenue recognition, the effective date of the agreement was determined by management of 454 to be October 2005, the date of the commercial launch by Roche of 454's products, and the end of the agreement is October 2010. 454 received $19.0 million of milestones in 2005, a $4.0 million milestone in the fourth quarter 2006 and a $5.0 million milestone in the first quarter of 2007 from Roche. We expect milestone revenue to increase in 2007 due to a full year of amortization associated with the milestones received in 2006, the receipt of additional milestones in 2007, as well as the anticipated achievement during 2007 of a commission/royalty sales based milestone related to cumulative sales by Roche to Roche customers. This commission/royalty sales based milestone will be recognized when earned instead of being amortized over the remaining life of the Roche License agreement.

Cost of product revenue. The increase in 454's cost of product revenue for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily due to increases in the number of instruments, consumables and reagent kits sold to Roche. Additionally, effective February 1, 2005, the date on which 454 successfully completed the installation of its first sequencing instrument at a customer site, 454 began to capitalize, in inventory, the costs of manufacturing instrumentation and reagents for commercial sale. Certain items that were previously capitalized as fixed assets were transferred into inventory at their net book value on February 1, 2005. In October 2005, 454 began selling instruments, consumables and reagent kits to Roche at an agreed upon transfer price, and earning royalties from Roche on Roche third party sales. The profit margin 454 earned on products during 2006 as compared to 2005 was lower due to the non-recurring nature of the items transferred into inventory in 2005 and 454's selling of instruments and reagents to Roche at agreed upon transfer prices and royalties during 2006 while selling directly to third parties during the same period of 2005. We expect the cost of product revenue to continue to increase in 2007 with increasing product revenue. We expect product margins in 2007 to be consistent with product margins in 2006, however, product mix and the timing of royalties earned from Roche may impact these margins positively or negatively.

Cost of sequencing service revenue. The increase in 454's cost of sequencing service revenue for year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily due to the increase in the number of sequencing service agreements as well as an increase in the average value of each of these

agreements as compared to 2005. We expect cost of sequencing service revenue to continue to increase in 2007 in connection with the increase in sequencing service revenue. We expect the profit margin we earn on these projects to be consistent with 2006.

Grant research expenses. The slight decrease in grant research expenses for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was a result of the completion of a federal grant awarded to 454 in May 2004 and the completion of the third contract year of a grant awarded in September 2004. Both grants were awarded by the NHGRI, one of the NIH. These grants partially funded the continued scale up of 454's technology. We expect grant revenue to decrease in 2007 due to the completion of the fourth and final contract year which is expected to span only five months in 2007.

Research and development expenses. The following table sets forth a comparison of research and development expenses by segment, for the years ended December 31, 2006 and 2005 (in millions):

	2006	2005	$ Change	% Change
Research and development expenses:				
CuraGen	$44.0	$57.2	$(13.2)	(23)%
454	14.5	10.9	3.6	33%
Total	$58.5	$68.1		

Research and development expenses consist primarily of: contractual and manufacturing costs; salary and benefits; perpetual license fees and milestone payments; supplies and reagents; depreciation and amortization; and allocated facility costs. Historically, our research and development efforts have been concentrated on four major project areas: clinical trials; 454 technology and product development; preclinical drug candidates; and collaborations. However, upon completion of our work on the Bayer AG Pharmacogemomics Agreement during the second quarter of 2006, our research and development efforts are now being concentrated on three project areas: clinical trials; 454; and preclinical drug candidates. With the exception of 454, we budget and monitor our research and development costs by expense category, rather than by project, because these costs often benefit multiple projects and/or our technology platform.

Below is a summary that reconciles our total research and development expenses for the years ended December 31, 2006 and 2005 by the major categories mentioned above (in millions):

	2006	2005	$ Change	% Change
Contractual and manufacturing costs	$20.1	$20.7	$(0.6)	(3)%
Salary and benefits	16.9	15.5	1.4	9%
Supplies and reagents	6.8	6.9	(0.1)	(1)%
Perpetual license fees and milestone payments	1.3	10.9	(9.6)	(88)%
Depreciation and amortization	3.5	4.1	(0.6)	(15)%
Allocated facility costs	9.9	10.0	(0.1)	(1)%
Total research and development expenses	$58.5	$68.1		

The decrease in CuraGen's research and development expenses for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily due to 2005 perpetual license fees and milestone payments of approximately $10.9 million (primarily related to our collaborations with TopoTarget, Seattle Genetics and the Bayer metabolic disorder collaboration), a decrease in contractual and manufacturing costs, a decrease in supplies and reagents, and a decrease in salary and benefits caused by a decrease in personnel, offset by a second quarter 2006 milestone payment (related to our collaboration with Seattle Genetics) and increased non-cash expenses in 2006 related to stock options and restricted stock recorded under SFAS 123R. We

anticipate our research and development expenses for 2007 will increase as compared to research and development expenses for 2006 as contractual and manufacturing costs increase, and as we continue to progress our clinical trials.

The increase in research and development expenses for 454 for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily due to an increase in lab supplies and reagents and salary and benefits due to increasing personnel and non-cash expenses in 2006 for stock options recorded under SFAS 123R in 454's research and development departments. Additionally, certain individuals were working a greater percentage of their time on our two Federal grants in 2005 as compared to 2006. We expect 454's research and development expenses to increase in 2007 as compared to 2006 in support of new applications for the GS FLX platform and anticipated new product launches.

As soon as we advance a potential clinical candidate into clinical trials, we begin to track the direct research and development expenses associated with that potential clinical candidate. The following table shows the cumulative direct research and development expenses as of December 31, 2006, as well as the current direct research and development expenses for the years ended December 31, 2006 and 2005 which were incurred on or after we started conducting a Phase I clinical trial for a clinical candidate *(in millions):*

		Clinical Development Costs				
Therapeutic Area and Clinical Candidate	**Class**	**Cumulative as of December 31, 2006 (since commencement of Phase I trial)**	**Year Ended December 31, 2006**	**Year Ended December 31, 2005**	**Indication**	**Trial Status**
Cancer Supportive Care						
Velafermin	Protein	$37.1	$11.5	$ 8.9	Oral Mucositis	Phase II
Oncology						
Belinostat (PXD101) ...	Small Molecule	$30.4	$11.4	$16.4	Various Cancers	Phase II
CR011-vcMMAE	Antibody-Drug Conjugate	$ 4.4	$ 4.4	—	Metastatic Melanoma	Phase I/II
Kidney Inflammation						
CR002	Antibody	$ 1.8	$ 0.3	$ 1.0	Kidney Inflammation	Phase I

We expect that the direct research and development expenses incurred in connection with our development of velafermin to increase substantially in 2007 as compared to 2006 due to the ongoing enrollment of patients in the Phase II trial as well as the initiation of activities in 2007 to support a Phase III program that would be initiated in 2008, pending positive data from the ongoing Phase II trial. We expect that the direct research and development expenses incurred in connection with our development of belinostat (PXD101) will increase in 2007 as compared to 2006. The expected increase during 2007 is related to higher enrollment of patients into our ongoing Phase I/II trials, and the initiation of activities to support a potential Phase III program that would be initiated in 2008 pending positive data from the ongoing Phase I/II trials. We expect the CR011 expenses to decrease in 2007 as compared to 2006 due to the completion of manufacturing activities during 2006. We expect no material costs related to CR002 in 2007, as we are looking to license CR002 to a partner with the necessary resources and expertise required for developing this potential therapeutic.

Currently, our potential pharmaceutical products require significant research and development efforts and preclinical testing, and will require extensive evaluation in clinical trials prior to submitting an application to regulatory agencies for their commercial use. Although we are conducting or have conducted human studies with respect to velafermin, belinostat (PXD101), CR011-vcMMAE, and CR002, we may not be successful in developing or commercializing these or other products. We are attempting to license CR002 to a partner with the necessary resources and expertise required for developing this potential therapeutic. Our product candidates are subject to the risks of failure inherent in the development and commercialization of pharmaceutical products and we cannot currently provide reliable estimates as to when, if ever, our product candidates will generate revenue and cash flows.

Completion of research and development, preclinical testing and clinical trials may take many years. Estimates of completion periods for any of our major research and development projects are highly speculative and variable, and dependent on the nature of the disease indication, how common the disease is among the general populace, and the results of the research. For example, preclinical testing and clinical trials can often go on for an indeterminate period of time since the results of tests are continually monitored, with each test considered "complete" only when sufficient data has been accumulated to assess whether the next phases of clinical trials are warranted or whether the effort should be abandoned. Typically, Phase I clinical trials are expected to last between 12 and 24 months, Phase II clinical trials are expected to last between 24 and 36 months and Phase III clinical trials are expected to last between 24 and 60 months. The most significant time and costs associated with clinical development are the Phase III trials as they tend to be the longest and most comprehensive studies conducted during the drug development process.

In addition, many factors may delay the commencement and speed of completion of preclinical testing and clinical trials, including, but not limited to, the number of patients participating in the trial, the duration of patient follow-up required, the number of clinical sites at which the trials are conducted, and the length of time required to locate and enroll suitable patient subjects. The successful completion of our development programs and the successful development of our product candidates are highly uncertain and are subject to numerous challenges and risks. Therefore, we cannot presently estimate anticipated completion dates for any of our projects.

Due to the variability in the length of time necessary to develop a product candidate, the uncertainties related to the cost of projects and the need to obtain governmental approval for commercialization, accurate and meaningful estimates of the ultimate costs to bring our product candidates to market are not available. If our major research and development projects are delayed, then we can expect to incur additional costs in conducting our preclinical testing and clinical trials, and a longer period of time before we might achieve profitability from our operating activities. Accordingly, the timing of the potential market approvals for our existing product candidates: velafermin; belinostat (PXD101); CR011-vcMMAE; CR002; and future product development candidates, may have a significant impact on our capital requirements.

General and administrative expenses. The following table sets forth a comparison of general and administrative expenses by segment, for the years ended December 31, 2006 and 2005 (in millions):

	2006	2005	$ Change	% Change
General and administrative expenses:				
CuraGen	$13.7	$12.2	$1.5	12%
454	8.8	6.5	2.3	35%
Total	$22.5	$18.7		

The increase in CuraGen's general and administrative expenses for the year ended December 31, 2006, as compared to the year ended December 31, 2005, was primarily a result of an increase during 2006 in executive recruiting costs, consulting and legal fees incurred in connection with the strategic review of 454 and other financing efforts, and non-cash expenses for stock options and restricted stock recorded under SFAS 123R. Our general and administrative expenses are expected to remain constant for the full year 2007 as compared to 2006.

The increase in 454's general and administrative expenses for the year ended December 31, 2006 as compared to the year ended December 31, 2005 was attributable to an increase in personnel as a result of the commercialization of 454's products, the establishment of a dedicated service sales department, increased marketing activities, non-cash expenses for stock options recorded under SFAS 123R and professional service expenses associated with financing efforts. We expect 454's general and administrative expenses to increase during in 2007 due to increases in sales and marketing efforts.

Restructuring and related charges. During 2006 there were no restructuring and related charges. In connection with the 2005 restructuring plan, we recorded a charge of $2.8 million, including $1.1 million related to employee separation costs, $1.5 million of operating lease obligations and $0.2 million of asset impairment costs. The cash requirements under the 2005 restructuring plan were $2.5 million, of which $1.0 million was paid prior to December 31, 2006. The remaining cash requirements of $1.5 million will be paid through 2007.

Interest income. Interest income for year ended December 31, 2006 decreased as compared to the year ended December 31, 2005 primarily due to lower cash and investment balances, partially offset by higher yields on our investment portfolio. We earned an average yield of 3.8% during 2006 as compared to 2.9% in 2005. We anticipate interest income to decrease in 2007 due to lower cash balances caused by the utilization of cash and investment balances in the normal course of operations, as well as the repayment of $66.2 million of our 6% convertible subordinated debentures which occurred upon their maturity in February 2007. We also expect the yields in our investment portfolio to decrease during 2007.

Interest expense. Interest expense for the year ended December 31, 2006 decreased compared to the same period in 2005 primarily due to the repurchases by us during the second and third quarters of 2005 of $63.8 million of our 6% convertible subordinated debentures due 2007. We expect interest expense, including interest paid to debt holders as well as amortization of deferred financing costs, to decrease during 2007 as compared to 2006 due to the repayment of $66.2 million of our 6% convertible subordinated debentures which occurred upon their maturity in February 2007.

Gain on extinguishment of debt. During 2006 we did not repurchase any of our outstanding convertible subordinated debt. During the year ended December 31, 2005, we repurchased $63.8 million of our 6% convertible subordinated debentures due February 2007, for total consideration of $61.5 million, plus accrued interest to the date of repurchase of $1.2 million. As a result of these transactions we recorded a gain of $1.8 million in "Gain on extinguishment of debt," which is net of the write-off of the ratable portion of unamortized deferred financing costs relating to the repurchased debt.

Income tax benefit. CuraGen recorded an income tax benefit of $0.4 million during the year ended December 31, 2006 as a result of Connecticut legislation, which allows companies to obtain cash refunds from the State of Connecticut at a rate of 65% of their annual research and development expense credit, in exchange for forgoing carryforward of the research and development credit. For the years ended December 31, 2006 and 2005, the CuraGen income tax benefit included adjustments resulting from the expiration of the State of Connecticut statute of limitations, as they relate to the Year 2002 and Year 2001 income tax benefit, respectively. Also during the year ended December 31, 2006, 454 recorded an income tax benefit of $0.1 million as a result of the expiration of the State of Connecticut statute of limitations, as it relates to the Year 2002 income tax benefit. We expect the 2007 income tax benefit to be consistent with 2006 (before adjustment to reflect statute of limitations expirations).

Minority interest in subsidiary loss. Minority interest in subsidiary loss for the year ended December 31, 2006, which is the portion of 454's loss attributable to shareholders of 454 other than us, decreased as compared to the year ended December 31, 2005, due to a lower 454 net loss. In addition during the third quarter of 2006, the cumulative losses applicable to the minority interest in subsidiary exceeded the minority interest in the equity capital of 454, therefore, going forward, all future losses applicable to the minority interest will be charged to us, until such times as 454 has future income and/or financing from the minority interest. For the year ended December 31, 2006, 24% of 454's net loss was allocated to the minority interest in subsidiary as compared to 34% in prior periods. During 2007, we anticipate 454 will have net income, therefore we anticipate a portion of 454's income will be allocated to the minority interest, after first allocating sufficient income to CuraGen as a result of the excess loss allocations during 2006.

Year 2005 Compared to Year 2004

The following table sets forth a comparison of the components of our net loss for the years ended December 31, 2005 and 2004 (in millions):

	2005	2004	$ Change	% Change
Product revenue	$12.6	$—	$12.6	100%
Sequencing service revenue	2.3	—	2.3	100%
Collaboration revenue	4.8	5.1	(0.3)	6%
Grant revenue	2.8	1.2	1.6	133%
Milestone revenue	1.0	—	1.0	100%
Cost of product revenue	4.7	—	4.7	100%
Cost of sequencing service revenue	1.0	—	1.0	100%
Grant research expenses	2.2	0.9	1.3	144%
Research and development expenses	68.1	72.7	(4.6)	(6)%
Asset impairment expense	—	1.9	(1.9)	(100)%
General and administrative expenses	18.7	19.1	(0.4)	(2)%
Restructuring and related charges	2.8	4.0	(1.2)	(30)%
Interest income	8.3	8.2	0.1	1%
Interest expense	11.7	12.9	(1.2)	(9)%
Gain (loss) on extinguishment of debt	1.8	(0.3)	2.1	(700)%
Income tax benefit	0.2	1.2	(1.0)	(83)%
Minority interest in subsidiary loss	2.2	5.7	(3.5)	(61)%
Net loss	$73.2	$90.4		

The following table sets forth a comparison of revenue by segment, for the years ended December 31, 2005 and 2004 (in millions):

	2005	2004	$ Change	% Change
Product revenue:				
454	$12.6	$—	$12.6	100%
Total	$12.6	$—		
Sequencing service revenue:				
454	$ 2.3	$—	$ 2.3	100%
Total	$ 2.3	$—		
Collaboration revenue:				
CuraGen	$ 4.8	$ 4.7	$ 0.1	2%
454	—	0.4	(0.4)	100%
Total	$ 4.8	$ 5.1		
Grant revenue:				
454	$ 2.8	$ 1.2	$ 1.6	133%
Total	$ 2.8	$ 1.2		
Milestone revenue:				
454	$ 1.0	$—	$ 1.0	100%
Total	$ 1.0	$—		

Product revenue. During 2005, 454 began selling its GS20 and proprietary kits and reagents, and recognized $12.6 million in revenue related to sales to its customers. During the first nine months of 2005, 454's customer base included genomic sequencing centers and academic institutions. In October 2005, Roche began selling and distributing the GS20 products worldwide. Under the Roche License Agreement, 454 manufactures and sells the GS20 related proprietary kits and reagents to Roche, at an agreed upon transfer price, and earns a royalty on sales to third parties completed by Roche.

Sequencing service revenue. The increase in 454's sequencing service revenue for year ended December 31, 2005 as compared to 2004, was related to initial sales of genomic analysis services.

Collaboration revenue. CuraGen's collaboration revenue for the year ended December 31, 2005 was consistent with 2004. In 2004, 454 was a development stage company and their sequencing technology was in the early stages of development. In 2004, 454's customer base included a small number of collaborators. In 2005, 454 emerged from a development stage company and established a commercial sequencing service business. In connection with these items in 2005 454 classified these activities as sequencing service revenue and not collaborative revenue.

Grant revenue. The increase in grant revenue for the year ended December 31, 2005, as compared to the year ended December 31, 2004, was a result of two federal grants awarded to 454 in May and September 2004 from the NHGRI, one of the NIH. These grants partially funded the continued scale up of 454's technology.

Milestone revenue. The increase in 454's milestone revenue for year ended December 31, 2005 as compared to 2004, was related to 2005 up-front milestones received from Roche that began to be amortized in the fourth quarter of 2005. Revenue is recognized for up-front milestones beginning on the later of either the date the milestone is earned or the date of the Roche commercial launch which was in October 2005, through the end of the Roche License Agreement in October 2010.

Cost of product revenue. Effective February 1, 2005, the date on which 454 successfully completed the installation of its first sequencing instrument at a customer site, 454 began to capitalize, in inventory, the costs of manufacturing instrumentation and reagents for commercial sale. Certain items that were previously capitalized as fixed assets were transferred into raw material at the net book value on February 1, 2005. In October 2005, 454 began selling the GS20 components to Roche at an agreed upon transfer price. 454 also earns a royalty on sales to third parties completed by Roche.

Cost of sequencing service revenue. The increase in 454's cost of sequencing service revenue for the year ended December 31, 2005 as compared to 2004, was related to initial sales of genomic analysis services.

Grant research expenses. The increase in grant research expenses for the year ended December 31, 2005 as compared to 2004, was a result of two federal grants awarded to 454 in May and September 2004 from the NIH, which partially funded the scale up of 454's technology. Grant research expenses for the first grant were recorded beginning in mid-May 2004 and for the second grant beginning at the end of September 2004. These expenses included personnel costs and lab supplies that were directly related to the research outlined in the grant award.

Research and development expenses. The following table sets forth a comparison of research and development expenses by segment, for the years ended December 31, 2005 and 2004 (in millions):

	2005	2004	$ Change	% Change
Research and development expenses:				
CuraGen	$57.2	$59.7	$(2.5)	(4)%
454	10.9	13.0	(2.1)	(16)%
Total	$68.1	$72.7		

Research and development expenses consist primarily of: contractual and manufacturing costs of our drug pipeline; salary and benefits; perpetual license fees and milestone payments; supplies and reagents; depreciation and amortization; and allocated facility costs. Our research and development efforts are concentrated on four major project areas: clinical candidates; 454 technology and product development; preclinical drug candidates; and collaborations. With the exception of 454, we budget and monitor our research and development costs by expense category, rather than by project, because these costs often benefit multiple projects and/or our technology platform.

Below is a summary that reconciles our total research and development expenses for the years ended December 31, 2005 and 2004 by the major categories mentioned above (in millions):

	2005	2004	$ Change	% Change
Contractual and manufacturing costs	$20.7	$16.6	$ 4.1	25%
Salary and benefits	15.5	22.2	(6.7)	(30)%
Perpetual license fees and milestone payments	10.9	7.8	3.1	40%
Supplies and reagents	6.9	11.7	(4.8)	(41)%
Depreciation and amortization	4.1	5.2	(1.1)	(21)%
Allocated facility costs	10.0	9.2	0.8	9%
Total research and development expenses	$68.1	$72.7		

The decrease in CuraGen's research and development expenses for the year ended December 31, 2005, as compared to 2004 was primarily due to reductions in salary and benefits, and supplies and reagents, in connection with the September 2005 and October 2004 restructuring plans; as well as a decrease in perpetual license fees offset by an increase of $7.2 million in milestone payments made to TopoTarget and increased contractual service costs related to clinical trials and manufacturing, and the Bayer metabolic disorder collaboration agreement.

The decrease in research and development expenses for 454 for the year ended December 31, 2005, as compared to 2004, was primarily due to lab supplies and reagents and contractual services recorded as grant research expenses in 2005 that were classified as research and development expenses in 2004. Although there was a net increase in personnel, various personnel that were in research and development in 2004 were moved into instrument and reagent production in 2005, and, as such, salary and benefits, supplies and reagents, and allocated facility costs which were expensed as research and development in 2004 were capitalized into inventory and expensed as costs of goods sold in 2005 when the corresponding products were sold. 454 also hired a number of additional research and development personnel in 2005.

As soon as we advance a potential clinical candidate into clinical trials, we begin to track the direct research and development expenses associated with that potential clinical candidate. The following table shows the cumulative direct research and development expenses as of December 31, 2005, as well as the current direct research and development expenses for the years ended December 31, 2005 and 2004 which were incurred on or after we started conducting a Phase I clinical trial for a clinical candidate *(in millions)*:

		Clinical Development Costs				
Therapeutic Area and Clinical Candidate	Class	Cumulative as of December 31, 2005 (since commencement of Phase I trial)	Year Ended December 31, 2005	Year Ended December 31, 2004	Indication	Trial Status
Cancer Supportive Care						
Velafermin	Protein	$25.6	$ 8.9	$10.5	Oral Mucositis	Phase II
Oncology						
Belinostat (PXD101)	Small Molecule	$19.0	$16.4	$ 2.6	Various Cancers	Phase II
Kidney Inflammation						
CR002	Antibody	$ 1.5	$ 1.0	$ 0.5	Kidney Inflammation	Phase I

General and administrative expenses. The following table sets forth a comparison of general and administrative expenses by segment, for the years ended December 31, 2005 and 2004 *(in millions)*:

	2005	2004	$ Change	% Change
General and administrative expenses:				
CuraGen	$12.2	$14.3	$(2.1)	(15)%
454	6.5	4.8	1.7	35%
Total	$18.7	$19.1		

The decrease in CuraGen's general and administrative expenses for the year ended December 31, 2005, as compared to 2004, was a result of careful control of expenses, as well as the 2005 and 2004 corporate restructurings and lower costs associated with maintaining the patent portfolio.

The increase in 454's general and administrative expenses for the year ended December 31, 2005, as compared to 2004, was attributable to the growth in the employee base as a result of the commercialization of 454's GS20.

Restructuring and related charges. In connection with the 2005 restructuring plan, we recorded a charge of $2.8 million, including $1.1 million related to employee separation costs, $1.5 million of operating lease obligations and $0.2 million of asset impairment costs. The cash requirements under the 2005 restructuring plan were $2.5 million, of which $1.0 million was paid prior to December 31, 2006. The remaining cash requirements of $1.5 million will be paid through 2007.

Interest income. Interest income for year ended December 31, 2005 increased slightly compared to 2004 primarily due to higher yields in our investment portfolio offset by lower cash and investment balances. We earned an average yield of 2.9% in 2005 as compared to 2.2% in 2004.

Interest expense. The decrease in interest expense for the year ended December 31, 2005 as compared to 2004 related to the second and third quarter 2005 repurchases of $14.0 million and $49.8 million, respectively, of our 6% convertible subordinated debentures due 2007.

Gain on extinguishment of debt. During the year ended December 31, 2005, we repurchased $63.8 million of our 6% convertible subordinated debentures due February 2007, for total consideration of $61.5 million, plus accrued interest to the date of repurchase of $1.2 million. As a result of these transactions we recorded a gain of $1.8 million in "Gain on extinguishment of debt," which is net of the write-off of the ratable portion of unamortized deferred financing costs relating to the repurchased debt.

Income tax benefit. CuraGen recorded an income tax benefit of $0.4 million during the year ended December 31, 2005 as a result of Connecticut legislation, which allows companies to obtain cash refunds from the State of Connecticut at a rate of 65% of their annual research and development expense credit, in exchange for forgoing carryforward of the research and development credit. For the years ended December 31, 2005 and 2004, the income tax benefit included adjustments resulting from the expiration of the State of Connecticut statute of limitations, as they relate to the Year 2001 and Year 2000 income tax benefit, respectively. During the year ended December 31, 2005, 454 recorded an income tax expense of $0.2 million as a result of 454's Federal Alternative Minimum Tax, or AMT liability. The 2005 AMT expense for 454 is shown as an offset to CuraGen's income tax benefit. Due to 454's history of operating losses, management has recorded a valuation allowance equal to the AMT deferred tax asset.

Minority interest in subsidiary loss. Minority interest in subsidiary loss for the year ended December 31, 2005 (which is the portion of 454's loss attributable to shareholders of 454 other than CuraGen) decreased as compared to 2004 due to the decrease in 454's losses during 2005.

Liquidity and Capital Resources

Since our inception, we have financed our operations and met our capital expenditure requirements primarily through: private placements of equity securities; convertible subordinated debt offerings; public equity offerings; revenues received under our collaborative research agreements; receipts of milestone payments; government grants; and sales and royalties from instruments and reagents. Since inception, we have not had any off-balance sheet arrangements. To date, inflation has not had a material effect on our business.

On February 2, 2007, we repaid at maturity the remaining $66.2 million balance of the 6% convertible subordinated debentures plus accrued interest of $2.0 million.

In November 2005, we completed the sale of the land we owned in Branford, Connecticut for $2.9 million. The sale resulted in a gain of $0.3 million, after a 2004 asset impairment charge of $1.9 million.

In October 2005, 454 and Roche announced the commercial launch, including worldwide sales and distribution, of the GS20 and reagents from 454 by Roche. Roche Applied Science, a business unit of Roche, is now selling 454's products worldwide through its extensive sales and marketing teams, distributing 454's products through its established supply chain, and providing technical support to purchasers of the GS20 and the associated proprietary kits and reagents. As of December 31, 2006, 454 had received $23.0 million in up-front milestone payments from Roche following 454's achievement of the initial milestones under the agreement, a milestone related to the launch of the GS20 and a milestone related to a number of instruments sold by Roche to Roche customers. Additionally, 454 earned a $5.0 million milestone in late December 2006 related to the launch of the FLX platform. This milestone was paid by Roche in January 2007. Total up-front milestones collected from Roche through January 31, 2007 were $28.0 million.

During 2005, we repurchased $63.8 million of our 6% convertible subordinated debentures due February 2007, for total consideration of $61.5 million, plus accrued interest to the date of repurchase of $1.2 million. As a result of these transactions, we recorded a gain of $1.8 million in "Gain on extinguishment of debt," which is net of the write-off of the ratable portion of unamortized deferred financing costs relating to the repurchased debt.

In August 2005, we issued 4,000,000 shares of our common stock at a public offering price of $5.50 per share. Net proceeds, after underwriting discounts and stock issuance costs, were $20.8 million. The net proceeds were used during August and September 2005 in the repurchases of our outstanding convertible subordinated debentures as described above.

Under the financial terms of the agreement entered into with TopoTarget in June 2004, we made a $5.0 million equity investment in TopoTarget, which was recorded as a Convertible Loan Receivable. On June 10, 2005, TopoTarget completed an initial public offering of 11,500,000 shares of common stock at a per share price of DKK 22,50 ($3.70 USD). Simultaneously, on June 10, 2005, the Convertible Loan Receivable in the amount of $5.3 million (including accrued interest) was automatically converted into 1,429,687 shares of TopoTarget common stock, providing us with an approximate 3.58% ownership in TopoTarget.

In May 2005, 454 entered into the Roche License Agreement for the promotion, sale, and distribution of 454's products, including the GS20 and 454's proprietary kits and reagents by Roche. Under the terms of the agreement, 454 may receive up to $62.0 million in license fees, milestones related to instrument releases, minimum royalties and research funding, in addition to a margin on products manufactured for Roche.

During 2004, 454 received two federal grants that are subject to review and audit by the grantor agencies. Such audits could lead to requests for reimbursement by the grantor agency for any expenditures disallowed under the terms of the grant. Additionally, any noncompliance with the terms of the grant could lead to loss of current or future awards.

Cash and investments. The following table depicts the components of our operating, investing and financing activities for the years ended December 31, 2006 and 2005, using the direct cash flow method *(in millions)*:

	2006	2005
Cash received from collaborators, customers and grantors	$ 38.1	$ 38.0
Cash paid to suppliers and employees	(92.7)	(86.1)
Restructuring and related charges paid	(1.5)	(1.4)
Interest income received	7.5	8.1
Interest expense paid	(8.5)	(12.2)
Income tax benefit received	0.8	0.5
Net cash and investments used in operating activities	(56.3)	(53.1)
Cash paid to acquire property and equipment	(1.8)	(9.4)
Proceeds from sale of fixed assets	0.2	3.4
Cash paid to acquire non-perpetual licenses	(0.8)	(0.8)
Net cash and investments used in investing activities	(2.4)	(6.8)
Cash received from employee stock option exercises	1.1	0.7
Cash received from the issuance of common stock, net of stock issuance costs	—	20.8
Cash paid for extinguishment of debt	—	(61.5)
Net cash and investments provided by (used in) financing activities	1.1	(40.0)
Unrealized gain (loss) on short-term investments and marketable securities	1.3	(1.7)
Net decrease in cash and investments	(56.3)	(101.6)
Cash and investments, beginning of period	226.5	328.1
Cash and investments, end of period	$170.2	$ 226.5

In accordance with our investment policy, we are utilizing the following investment objectives for cash and investments: (1) investment decisions are made with the expectation of minimum risk of principal loss, even with a modest penalty in yield; (2) appropriate cash balances and related short-term funds are maintained for immediate liquidity needs, and appropriate liquidity is available for medium-term cash needs; and (3) maximum yield is achieved.

Future Liquidity. We expect to continue to fund our operations through a combination of the following sources: cash and investment balances; instrument and reagent sales and royalties; collaboration revenue; milestone payments; interest income; grant revenue; potential public securities offerings; and/or private strategic-driven transactions. On February 2, 2007, we repaid the remaining $66.2 million balance of the 6% convertible subordinated debentures plus accrued interest of $2.0 million. During 2007, we plan to continue making substantial investments to advance our preclinical and clinical drug pipeline, as well as to advance 454's next-generation sequencing technologies. We do not anticipate any material capital expenditures in the near future. Accordingly, we foresee the following as significant uses of liquidity: contractual services related to clinical trials and manufacturing; salary and benefits; perpetual license fees; supplies and reagents; potential milestone payments; costs related to 454; and payments of interest to the holders of our convertible subordinated debt due in 2011.

We may use sources of liquidity for working capital, and for general corporate purposes and potentially for future acquisitions of complementary businesses or technologies. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount and extent of our acquisitions, our product development activities, and our investments in technology and the amount of cash generated by our operations. Actual expenditures may vary substantially from our estimates. Our failure to use sources of liquidity effectively could have a material adverse effect on our business, results of operations and financial condition.

We believe that our existing cash and investment balances and other sources of liquidity will be sufficient to meet our requirements through the middle of 2008. We consider our operating and capital expenditures to be crucial to our future success, and by continuing to make strategic investments in our preclinical and clinical drug pipeline, as well as 454, we believe that we are building substantial value for our shareholders. The adequacy of our available funds to meet our future operating and capital requirements (after repayment of our $66.2 million of 6% convertible subordinated debentures due February 2, 2007), including the repayment of the $110.0 million of 4% convertible subordinated notes due February 15, 2011, will depend on many factors. These factors include: the number, breadth, progress and results of our research, product development and clinical programs; the amounts and timing of sales of 454's products and services; the costs and timing of obtaining regulatory approvals for any of our products; examination of strategic options to leverage our investment in 454; in-licensing and out-licensing of pharmaceutical products; and costs incurred in enforcing and defending our patent claims and other intellectual property rights.

While we will continue to explore alternative sources for financing our business activities, including the possibility of public securities offerings and/or private strategic-driven common stock offerings, we cannot be certain that in the future these sources of liquidity will be available when needed or that our actual cash requirements will not be greater than anticipated. In appropriate strategic situations, we may seek financial assistance from other sources, including contributions by others to joint ventures, other collaborative or licensing arrangements for the development and testing of products under development and strategic options with respect to our investment in 454. However, should we be unable to obtain future financing either through the methods described above or through other means, we may be unable to meet the critical objective of our long-term business plan, which is to successfully develop and market pharmaceutical products, and may be unable to continue operations. This result could cause our shareholders to lose all or a substantial portion of their investment.

Contractual Obligations

In the table below, we set forth our enforceable and legally binding obligations, along with our future commitments related to all contracts that we are likely to continue, regardless of the fact that they are cancelable as of December 31, 2006. Some of the figures we include in this table under purchase commitments are based on management's estimates and assumptions about these obligations, including their duration, anticipated actions by third parties, progress of our clinical programs and other factors.

	Payments Due Year Ended December 31,						
	Total	**2007**	**2008**	**2009**	**2010**	**2011**	**Thereafter**
Long-term debt obligations (1)	$176.2	$66.2	$—	$—	$—	$110.0	$—
Interest on convertible subordinated debt (1)	21.8	6.4	4.4	4.4	4.4	2.2	—
Operating leases (2)	6.6	2.8	1.4	0.6	0.6	0.4	0.8
Purchase commitments (3)	28.0	16.7	3.9	1.6	1.3	1.3	3.2
Total	$232.6	$92.1	$ 9.7	$ 6.6	$ 6.3	$113.9	$ 4.0

(1) Refer to Note 11 to our consolidated financial statements for additional discussion.

(2) Refer to Note 6 to our consolidated financial statements for additional discussion.

(3) Includes: commitments for capital expenditures; costs associated with our clinical trial development and other supporting arrangements, which are subject to certain limitations and in certain circumstances cancellation clauses; and purchase orders and supply commitments issued to 454 vendors for production and research and development materials. Excludes amounts included on our balance sheet as liabilities and certain purchase obligations and potential future milestone payments as discussed below.

The expected timing of payment of the obligations discussed above is estimated based on current information. Timing of payments and actual amounts paid may be different depending on the time of receipt of goods or services or changes to agreed-upon amounts for some obligations.

Purchase obligations for CuraGen's supplies and reagents are not included in the table above, as its purchase orders typically represent authorizations to purchase rather than binding agreements. For the purposes of this table, contractual obligations for purchase of goods or services are defined as agreements that are enforceable and legally binding on us and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. CuraGen's purchase orders are based on current operating needs and are fulfilled by vendors within short time periods. In addition, CuraGen does not have significant agreements for the purchase of supplies and reagents specifying minimum quantities or set prices.

Under the Roche Research and Development Agreement, 454 is committed to invest minimum amounts for system research and development projects and application research and development projects. These internal research and development investments are not included in the table above, as these are not commitments for funds, but for internal research and development.

In addition, we have committed to make potential future milestone payments to third-parties as part of in-licensing and development programs. Payments under these agreements generally become due and payable only upon achievement of certain developmental, regulatory and/or commercial milestones. Because the achievement of these milestones is neither probable nor reasonably estimable, such contingencies have not been recorded on our consolidated balance sheet and are not included above.

Income Taxes

For income tax purposes, we do not file consolidated income tax returns with 454. As of December 31, 2006, we and 454 have tax net operating loss carryforwards available to reduce future federal and Connecticut taxable income, research and development tax credit carryforwards available to offset future federal and Connecticut income taxes and 454 has an AMT credit carryforward available to offset future federal income taxes as detailed below. Utilization of the net operating loss and tax credit carryforwards may be limited due to changes within each company's ownership, as defined within Section 382 of the Internal Revenue Code.

Net Operating Loss Carryforwards	Federal	Expire In	Connecticut	Expire In
CuraGen	$526.3	2008 to 2027	$463.2	2021 to 2027
454	$ 35.3	2023 to 2027	$ 34.9	2022 to 2027

Research and Development Tax Credit Carryforwards	Federal	Expire In	Connecticut	Expire In
CuraGen	$ 18.7	2009 to 2027	$ 13.6	2014 to 2022
454	$ 2.8	2020 to 2027	$ 3.6	2017 to 2022

Alternative Minimum Tax Credit Carryforwards	Federal	Expire In	Connecticut	Expire In
454	$ 0.3	N/A	N/A	N/A

Recently Enacted Pronouncements

In July 2006, the FASB issued FASB Interpretation No. 48, "Accounting for Uncertainty in Income Taxes", or FIN 48. FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with FASB Statement No. 109. "Accounting for Income Taxes." This interpretation prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. It also provides guidance on derecognition, classification, interest and penalties, accounting for taxes in interim periods and disclosure requirements. The provisions of FIN 48 are to be applied to all tax positions upon initial adoption of this standard. Only tax positions that meet the more-likely-than-not recognition threshold at the effective date may be

recognized or continue to be recognized upon adoption of FIN 48. The cumulative effect of applying the provisions of FIN 48 should be reported as an adjustment to the opening balance of retained earnings for that fiscal year. The provisions of FIN 48 are effective for fiscal years beginning after December 15, 2006. For us, this interpretation was effective beginning January 1, 2007. We have evaluated the impact this interpretation will have on our financial statements, and have concluded that the adoption of this new standard will not have a material impact on our financial position, results of operations or cash flows.

In September 2006, the FASB issued Statement of Financial Accounting Standards No. 157, "Fair Value Measurements", or SFAS 157. SFAS 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles and expands disclosures about fair value measurements. SFAS 157 is effective for fiscal years beginning after November 15, 2007. For us this statement will be effective as of January 1, 2008. We do not expect the adoption of SFAS 157 to have a material impact on our consolidated financial statements.

In September 2006, the SEC issued Staff Accounting Bulletin No. 108, "Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements", or SAB 108. SAB 108 was issued to eliminate the diversity of practice surrounding how public companies quantify financial statements misstatements. It requires the quantification of financial statement misstatements based on the effects of the misstatements on each of the company's financial statements and the related financial statement disclosures. The provisions of SAB 108 must be applied to annual financial statements no later than the first fiscal year ending after November 15, 2006. The adoption of SAB 108 did not have any impact on our December 31, 2006 consolidated financial statements.

In February 2007, the FASB issued Statement of Financial Accounting Standards No. 159, "The Fair Value Option for Financial Assets and Financial Liabilities—Including an amendment of FASB Statement No. 115," "Accounting for Certain Investments in Debt and Equity Securities", or SFAS 159. SFAS 159 permits entities to choose to measure many financial instruments and certain other items at fair value: The objective is to improve financial reporting by providing entities with the opportunity to mitigate volatility in reported earnings caused by measuring related assets and liabilities differently without having to apply complex hedge accounting provisions. SFAS 159 is effective for fiscal years beginning after November 15, 2007. For us, this statement will be effective beginning January 1, 2008. We do not expect the adoption of SFAS 159 to have a material impact on our consolidated financial statements.

Item 7A. ***Quantitative and Qualitative Disclosures About Market Risk***

Currently, we maintain approximately 37% of our cash and investments in financial instruments with original maturity dates of three months or less, 15% in financial instruments with original maturity dates of greater than three months and less than one year, and the remaining 48% in financial instruments with original maturity dates of equal to or greater than one year and less than five years. These financial instruments are subject to interest rate risk and will decline in value if interest rates increase. These investments have no risk related to foreign currency exchange, commodity prices and other relevant market risks. We estimate that a change of 100 basis points in interest rates would result in a $1.2 million decrease or increase in the fair value of our cash and investments.

Our outstanding current liabilities as of December 31, 2006 include $66.2 million of our 6% convertible subordinated debentures due February 2, 2007. Our outstanding long-term liabilities as of December 31, 2006 include $110.0 million of our 4% convertible subordinated notes due February 15, 2011, and the long-term portion of CuraGen and 454's deferred revenue in the amount of $18.0 million. As the debentures and notes bear interest at a fixed rate, our results of operations would not be affected by interest rate changes. Although future borrowings may bear interest at a floating rate, and would therefore be affected by interest rate changes, at this point we do not anticipate any significant future borrowings at floating interest rates, and therefore do not believe that a change of 100 basis points in interest rates would have a material effect on our financial condition.

Accordingly, we do not believe that there is any material market risk exposure with respect to derivative or other financial instruments that would require disclosure under this item.

As of December 31, 2006, the market value of our $66.2 million 6% convertible subordinated debentures due 2007, based on quoted market prices, was approximately $66.1 million, and the market value of our $110.0 million 4% convertible subordinated notes due 2011, based on quoted market prices, was approximately $91.3 million.

Item 8. ***Financial Statements and Supplementary Data***

CURAGEN CORPORATION AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS
(in thousands, except par value and share data)

	December 31, 2006	December 31, 2005
ASSETS		
Current assets:		
Cash and cash equivalents	$ 62,650	$ 20,757
Short-term investments	24,980	22,267
Marketable securities	82,523	183,504
Cash and investments	170,153	226,528
Accounts receivable	11,776	3,491
Income taxes receivable	543	709
Inventory	9,855	4,103
Prepaid expenses	3,644	1,522
Total current assets	195,971	236,353
Property and equipment, net	16,160	21,705
Intangible and other assets, net	15,068	12,399
Total assets	$ 227,199	$ 270,457
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,161	$ 2,943
Accrued expenses	4,747	3,864
Accrued payroll and related items	2,570	1,775
Interest payable	3,306	3,305
Current portion of deferred revenue	10,762	7,766
Other current liabilities	1,575	2,887
Current portion of convertible subordinated debt	66,228	—
Total current liabilities	90,349	22,540
Long-term liabilities:		
Convertible subordinated debt, net of current portion	110,000	176,228
Accrued long-term liabilities	81	518
Deferred revenue, net of current portion	18,040	14,250
Total long-term liabilities	128,121	190,996
Commitments and contingencies		
Minority interest in subsidiary	—	485
Stockholders' equity:		
Common Stock; $.01 par value, issued and outstanding 56,390,682 shares at December 31, 2006, and 55,642,080 shares at December 31, 2005	564	556
Additional paid-in capital	518,827	514,862
Accumulated other comprehensive income (loss)	2,310	(2,833)
Accumulated deficit	(512,972)	(453,133)
Unamortized stock-based compensation	—	(3,016)
Total stockholders' equity	8,729	56,436
Total liabilities and stockholders' equity	$ 227,199	$ 270,457

See accompanying notes to consolidated financial statements

CURAGEN CORPORATION AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Year Ended December 31,		
	2006	2005	2004
Revenue			
Product revenue	$ 19,416	$ 12,558	$ —
Sequencing service revenue	10,025	2,372	—
Collaboration revenue	3,799	4,825	5,132
Grant revenue	2,297	2,826	1,207
Milestone revenue	4,050	950	—
Total revenue	39,587	23,531	6,339
Operating expenses			
Cost of product revenue	11,586	4,688	—
Cost of sequencing service revenue	4,332	917	—
Grant research expenses	2,095	2,201	847
Research and development expenses	58,544	68,163	72,743
Asset impairment expenses	—	—	1,909
General and administrative expenses	22,456	18,686	19,102
Restructuring and related charges	—	2,817	4,000
Total operating expenses	99,013	97,472	98,601
Loss from operations	(59,426)	(73,941)	(92,262)
Interest income	7,475	8,271	8,266
Interest expense	(9,352)	(11,701)	(12,941)
Gain (loss) on extinguishment of debt	—	1,766	(294)
Loss before income tax benefit and minority interest in subsidiary loss	(61,303)	(75,605)	(97,231)
Income tax benefit	484	168	1,182
Minority interest in subsidiary loss	980	2,193	5,652
Net loss	($59,839)	($73,244)	($90,397)
Basic and diluted net loss per share	$ (1.09)	$ (1.41)	$ (1.81)
Weighted average number of shares used in computing basic and diluted net loss per share	54,896	51,991	49,943

See accompanying notes to consolidated financial statements

CURAGEN CORPORATION AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(in thousands except share data)

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Unamortized Stock-Based Compensation	Total	Total Comprehensive Loss
January 1, 2004	49,896,622	$499	$485,531	$ 1,524	($289,492)	($381)	$197,681	
Net loss	—	—	—	—	(90,397)	—	(90,397)	($90,397)
Unrealized losses on available-for-sale securities, net of reclassification adjustment (see disclosure below)	—	—	—	(2,638)	—	—	(2,638)	(2,638)
Comprehensive loss								($93,035)
Issuance of restricted stock	385,895	4	2,400	—	—	(2,400)	4	
Retirement of restricted stock	(6,777)	—	(46)	—	—	46	—	
Amortization and forfeitures of stock-based compensation	—	—	—	—	—	404	404	
Employee stock option activity	232,588	2	1,038	—	—	—	1,040	
Non-employee stock option activity	20,000	—	95	—	—	—	95	
Stock-based 401(k) plan employer match	118,210	1	707	—	—	—	708	
December 31, 2004	50,646,538	$506	$489,725	($1,114)	($379,889)	($2,331)	$106,897	
Net loss	—	—	—	—	(73,244)	—	(73,244)	($73,244)
Unrealized losses on available-for-sale securities, net of reclassification adjustment (see disclosure below)	—	—	—	(1,719)	—	—	(1,719)	(1,719)
Comprehensive loss								($74,963)
Issuance of common stock, net of stock issuance costs	4,000,000	40	20,808	—	—	—	20,848	
Issuance of restricted stock	767,875	8	3,115	—	—	(3,115)	8	
Retirement of restricted stock	(78,200)	—	(488)	—	—	488	—	
Amortization and forfeitures of stock-based compensation	—	—	—	—	—	1,942	1,942	
Employee stock option activity	181,832	1	617	—	—	—	618	
Non-employee stock option activity	30,000	—	659	—	—	—	659	
Stock-based 401(k) plan employer match	94,035	1	426	—	—	—	427	
December 31, 2005	55,642,080	$556	$514,862	($2,833)	($453,133)	($3,016)	$ 56,436	
Net loss	—	—	—	—	(59,839)	—	(59,839)	($59,839)
Unrealized gains on available-for-sale securities, net of reclassification adjustment (see disclosure below)	—	—	—	5,143	—	—	5,143	5,143
Comprehensive loss								($54,696)
Issuance of restricted stock	455,000	5	—	—	—	—	5	
Retirement of restricted stock	(31,625)	—	—	—	—	—	—	
Reversal of unamortized stock-based compensation	—	—	(3,016)	—	—	3,016	—	
Employee stock option activity	25,049	—	5,989	—	—	—	5,989	
Non-employee stock option activity	216,000	2	657	—	—	—	659	
Stock-based 401(k) plan employer match	84,178	1	335	—	—	—	336	
December 31, 2006	56,390,682	$564	$518,827	$ 2,310	($512,972)	$ —	$ 8,729	

See accompanying notes to consolidated financial statements

CURAGEN CORPORATION AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY—(Continued)

(in thousands (except share data)

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Unamortized Stock-Based Compensation	Total	Total Comprehensive Loss
Disclosure of 2004 comprehensive loss reclassification adjustment:								
Unrealized holding losses on available-for-sale securities arising during period								($2,657)
Reclassification adjustment for losses included in net loss								19
Unrealized losses on available-for-sale securities, net of reclassification adjustment								($2,638)
Disclosure of 2005 comprehensive loss reclassification adjustment:								
Unrealized holding losses on available-for-sale securities arising during period								($1,916)
Reclassification adjustment for losses included in net loss								197
Unrealized losses on available-for-sale securities, net of reclassification adjustment								($1,719)
Disclosure of 2006 comprehensive income reclassification adjustment:								
Unrealized holding gains on available-for-sale securities arising during period								$ 4,847
Reclassification adjustment for gains included in net loss								296
Unrealized gains on available-for-sale securities, net of reclassification adjustment								$ 5,143

See accompanying notes to consolidated financial statements

CURAGEN CORPORATION AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2006	2005	2004
Cash flows from operating activities:			
Net loss	($59,839)	($73,244)	($90,397)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	9,722	8,660	9,324
Asset impairment expense	—	187	2,960
Non-monetary compensation	6,029	2,582	641
Stock-based 401(k) employer plan match	336	427	708
(Gain) loss on extinguishment of debt	—	(1,766)	294
Non-cash interest income	881	1,521	3,048
Minority interest	(980)	(2,193)	(5,652)
Changes in assets and liabilities:			
Accrued interest receivable—cash and investments	305	531	457
Accounts receivable	(8,272)	(3,257)	(234)
Income taxes receivable	166	120	(400)
Inventory	(6,777)	(3,547)	—
Prepaid expenses	(2,122)	41	5
Other assets	(159)	(182)	(211)
Accounts payable	(1,739)	1,824	(3,385)
Accrued expenses	1,433	(26)	492
Accrued payroll and related items	795	(300)	211
Interest payable	1	(1,595)	1,150
Current portion of deferred revenue	2,996	3,522	1,234
Other current liabilities	(1,287)	1,420	(863)
Accrued long-term liabilities	(437)	18	—
Deferred revenue, net of current portion	3,790	14,250	—
Net cash used in operating activities	(55,158)	(51,007)	(80,618)
Cash flows from investing activities:			
Acquisitions of property and equipment	(1,774)	(9,412)	(9,645)
Proceeds from sale of fixed assets	158	3,382	12
Payments for intangible assets	(762)	(770)	(1,068)
Convertible loan to collaborator	—	—	(5,000)
Gross purchases of short-term investments	(32,157)	(35,049)	(122,807)
Gross sales of short-term investments	8,183	14,345	29,643
Gross maturities of short-term investments	21,382	82,410	81,833
Gross purchases of marketable securities	(11,711)	(94,687)	(118,079)
Gross sales of marketable securities	53,285	67,417	45,174
Gross maturities of marketable securities	59,368	60,292	74,620
Net cash provided by (used in) investing activities	95,972	87,928	(25,317)
Cash flows from financing activities:			
Proceeds from exercise of stock options	1,079	679	914
Proceeds from issuance of Common Stock	—	22,000	—
Payments of stock issuance costs	—	(1,152)	—
Payment for extinguishment of debt	—	(61,540)	(20,000)
Payments of financing costs	—	—	(3,769)
Proceeds from issuance of convertible debt	—	—	110,000
Payments on capital lease obligations	—	—	(204)
Net cash provided by (used in) financing activities	1,079	(40,013)	86,941
Net increase (decrease) in cash and cash equivalents	41,893	(3,092)	(18,994)
Cash and cash equivalents, beginning of year	20,757	23,849	42,843
Cash and cash equivalents, end of year	$ 62,650	$ 20,757	$ 23,849
Supplemental cash flow information:			
Interest paid	$ 8,487	$ 12,250	$ 10,694
Income tax benefit payments received, net of payments made	$ 859	$ 523	$ —
Acquisition/construction of property and equipment, unpaid at end of period	$ 9	$ 100	$ 1,074
Transfer of inventory to (from) property and equipment	$ 1,025	($556)	$ —

See accompanying notes to consolidated financial statements

CURAGEN CORPORATION AND SUBSIDIARY

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Summary of Significant Accounting Policies

Organization—CuraGen Corporation ("CuraGen"), is a biopharmaceutical development company dedicated to improving the lives of patients by developing novel protein, antibody and small molecule therapeutics for the treatment of cancer and cancer supportive care. CuraGen has taken a systematic approach to identifying and validating the most promising therapeutic targets from its past research into the human genome and it is now focused on developing and advancing potential therapeutics through preclinical and clinical development, and towards commercialization.

CuraGen's majority-owned subsidiary, 454 Life Sciences Corporation ("454"), has commercialized advanced technologies for high-throughput sequencing of DNA. 454's Genome Sequencer system performs rapid and comprehensive "whole genome sequencing," or the determination of the nucleotide sequence of entire genomes, "ultra-deep sequencing," or the accurate detection of mutations in target genes of interest, and "ultra-broad sequencing," or the surveying and characterization of large numbers of DNA molecules from a complex mixture. Currently 454's sequencing technology consists of the Genome Sequencer 20 Instrument ("GS20") and the Genome Sequencer FLX ("GS FLX"), and associated reagent kits, disposables and analysis software.

All dollar amounts are shown in thousands, except share and per share data.

As shown in the accompanying financial statements, CuraGen and 454 (the "Company") have incurred significant recurring losses and negative cash flows from operations, and may continue to incur such losses and negative cash flows in the future. In the near future, the Company's principal sources of liquidity will be its cash and investment balances; instrument and reagent sales and royalties; collaboration revenue; milestone payments; interest income; grant revenue; potential public securities offerings; and/or private strategic-driven transactions. However, should these sources of liquidity not be available when needed, or should the Company's actual cash requirements be greater than anticipated, the Company may be unable to meet the critical objective of its long-term business plan, which is to successfully develop and market pharmaceutical products, and it may be unable to continue operations. The Company's failure to use sources of liquidity effectively could have a material adverse effect on its business, results of operations and financial condition.

The Company is currently evaluating several measures to strengthen its cash position and help meet its payment obligations, including plans to provide additional sources of liquidity in the future, which include but are not limited to strategic options with respect to its investment in 454 and collaborative or licensing arrangements for the development and testing of products under development, In addition, the Company continues to carefully manage the amounts and timing of its actual expenditures for its product development activities. As a result of these above actions, the Company believes that its existing cash balances will be sufficient to fund the Company's operations through the middle of 2008. However, there can be no assurance that these measures will be successful to the extent necessary for the Company to remain current on its obligations, and therefore, it may be unable to meet the critical objective of its long-term business plan, which is to successfully develop and market pharmaceutical products, and it may be unable to continue operations.

Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates.

Principles of Consolidation—The consolidated financial statements include CuraGen and 454. All material intercompany accounts, transactions, and profits have been eliminated in consolidation (see Note 19).

Reclassifications—The 2005 and 2004 consolidated financial statements have been reclassified to conform to the classification used in 2006.

The Company has revised the consolidated statements of cash flows for the years ended December 31, 2005 and 2004 to reflect non-cash interest income of $1.5 million and $3.0 million, respectively, and accrued interest receivable—cash and investments of $0.5 million and $0.5 million, respectively, in the cash flows used in operating activities. In addition, the Company also revised the 2005 and 2004 gross inflows and outflows from purchases, maturities and sales of short-term investments and marketable securities in the cash flows provided by (used in) investing activities. These revisions had no effect on the Company's net loss or the decrease in cash and cash equivalents reported.

Cash and Investments—The Company considers investments readily convertible into cash, with an original maturity of three months or less to be cash equivalents. Investments with an original maturity greater than three months but less than one year are considered short-term investments. Investments with an original maturity equal to or greater than one year are designated as marketable securities. Both short-term investments and marketable securities are classified as available-for-sale securities, and are carried at fair value with the unrealized gains and losses reported in stockholders' equity under the caption "Accumulated other comprehensive income (loss)."

The Company periodically reviews its investment portfolio based on criteria established in Financial Accounting Standards No. 115 "Accounting for Certain Investments in Debt and Equity Securities" to determine if there is an impairment that is other than temporary. In testing for impairment, the Company considers, among other factors, the length of time and the extent of a security's unrealized loss, the financial condition and near term prospects of the issuer, economic forecasts, market or industry trends and the Company's ability and intent to hold securities to maturity. Interest on debt securities, amortization of premiums, accretion of discounts and realized investment gains and losses are included in interest income. The cost of securities sold is based on the specific identification method.

See Note 13 for further details on Available-for-Sale-Securities.

Inventory—Inventory is recorded at the lower of cost or market. Cost includes material, labor and manufacturing overhead costs. Cost is determined using the first-in-first-out method for non-lot controlled items and on the specific identification basis for lot controlled items. Lot controlled items relate to components in 454's instrument and reagent manufacturing process.

Property and Equipment—Property and equipment are recorded at cost. Additions, renewals and betterments that significantly extend the life of an asset are capitalized. Minor replacements, maintenance and repairs are charged to operations as incurred. Equipment is depreciated over the estimated useful lives of the related assets, ranging from three to five years, using the straight-line method. Leasehold improvements are amortized over the shorter of the estimated lives or the remaining terms of the leases, ranging from thirteen months to six years, using the straight-line method. When assets are retired or otherwise disposed of, the assets and related accumulated depreciation or amortization are eliminated from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations.

Impairment of Long-Lived Assets—The Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards No. 144, "Accounting for the Impairment or Disposal of Long Lived Assets," which establishes a single accounting model for long lived assets to be held for use. The Company regularly evaluates the recoverability of the net carrying value of its property, and intangible assets, when an indicator of impairment is present by comparing the carrying values to the estimated future undiscounted cash flows and fair

value of the long-lived asset. An impairment loss is recognized when the carrying value of the long-lived asset exceeds its undiscounted future cash flows and its fair value. The impairment write-down would be the difference between the carrying amount and the fair value of these long-lived assets. A loss on impairment would be recognized through a charge to earnings.

Licensing Fees—Licensing fees are paid for the right to market and sell certain technologies in CuraGen's platform and licensing fees for various purposes (see Note 15 and Note 16). 454 has also entered into other license agreements with certain suppliers and research organizations giving 454 the right to manufacture, market and sell 454's products (see Note 5). The amortization of license fees for the right to market and sell certain technologies in the 454's platform are included in selling, general and administrative expenses and those to support 454's research and development purposes are included in research and development expenses. Perpetual licenses taken on potential therapeutic products for which there is no current indication as to whether or not there is a future commercial market for sale, are expensed when incurred. Licenses acquired for which there is a specific period of benefit, are amortized by the Company over that period. The costs of non-perpetual licenses, which are included in Intangible and other assets, net, are amortized over the various lives of the licenses ranging from one to ten years.

Financing Costs—The Company includes deferred financing costs incurred in connection with the issuance of convertible subordinated debt in Intangible and other assets, net and amortizes these costs over the life of the debt. The amortization expense is included in interest expense. In the event that debt is repurchased, the Company writes off the related unamortized deferred financing costs and nets the write off with any gain or loss recognized on the extinguishment of the debt. (see Note 11).

Accumulated amortization was $3,796 and $2,931, respectively, as of December 31, 2006 and 2005. Amortization expense was $865, $1,049 and $1,129, respectively, for the years ended December 31, 2006, 2005 and 2004.

Patent Application Costs—The Company seeks patent protection on processes and products in various countries. All patent related costs are expensed to general and administrative expenses as incurred, as recoverability of such expenditures is uncertain.

Revenue Recognition—The Company recognizes revenue when all four criteria are met: (1) persuasive evidence that an arrangement exists; (2) delivery of the products has occurred or services have been rendered; (3) the selling price is fixed or determinable; and (4) the collectibility is reasonably assured, in accordance with Securities and Exchange Commission Staff Accounting Bulletin No. 104, "Revenue Recognition," which set forth guidelines for the timing of revenue recognition based upon factors such as passage of title, installation, payment and customer acceptance. Determination of criteria (2), (3) and (4) are based on management's judgment regarding delivery of products, the fee charged for products delivered and the collectibility of those fees.

Product Revenue

454's commercialized GS20 and GS FLX include instrument systems and reagents. In October 2005, Roche Diagnostics ("Roche") began selling and distributing the GS20 products. In December 2006, Roche began selling the GS FLX products. 454 sells the instrumentation, reagents and consumables to Roche at an agreed upon transfer price. Additionally, 454 earns a royalty on sales to third parties completed by Roche. Sales of instruments and reagents to Roche are recognized upon shipment of products under FOB shipping point as risk of loss transfers to Roche once 454's products are loaded onto a Roche carrier. Royalties on sales by Roche to third parties completed are recognized based upon royalty reports received from Roche at the end of each calendar

quarter. During 2005, 454 sold instruments directly to end users. Revenue from instruments sold directly by 454 was recognized upon the completion of installation of the equipment and training of customer personnel. For those customers, 454 determined the completion of each of these deliverables before revenue was recognized. Additionally, certain customers required that 454's instruments be tested prior to their acceptance of the instruments. For those customers, revenue was recognized upon acknowledgement of acceptance from the customer. Included with instruments sold directly by 454 is a maintenance contract which generally is for one year. Revenue for the maintenance contract was recognized ratably over the term.

Reagent sales that are directly sold by 454 are recognized upon shipment of the products under FOB shipping or upon receipt by 454's customer under FOB destination based upon terms and conditions outlined in 454 customers' purchase orders.

454's distribution agreement with Roche provides that estimated Average Selling Price ("ASP") be established at the beginning of each Contract year for instruments and reagents and represents the estimated price paid by the end user. In the third quarter of each calendar year, preliminary actual ASP is determined by Roche based on net sales of instruments and reagents during the previous three quarters of the calendar year. In the event that preliminary actual ASP is lower than estimated ASP, 454 is required to pay Roche for amounts overpaid. In the event that preliminary actual ASP is higher than estimated ASP Roche is required to pay 454 for underpaid amounts. In the first quarter of each calendar year the actual ASP for the preceding calendar year is determined based on Roche's actual Net Sales. Following the determination of the actual ASP for the preceding calendar year, Roche shall invoice 454 for any amount overpaid or pay 454 for underpaid amounts, depending on whether the actual ASP is lower or higher than the preliminary actual ASP. During 2006, the Company recorded a net increase in revenue of $21 related to the difference between preliminary actual ASP for 2005 and actual ASP for 2005, as well as the difference between estimated ASP for 2006 and preliminary actual ASP for 2006. Additional adjustments, if necessary, related to actual ASP for 2006 will be reflected when the corresponding reports are received from Roche.

Sequencing Service Revenue

Sequencing service revenue is recognized for fee for service arrangements with customers in the 454 Sequencing Center. Revenue related to services performed on a time and material basis is recognized when the resulting data is delivered to the Company's customers. Arrangements with multiple deliverables are accounted for under Emerging Issues Tasks Force issue number 00-21 "Revenue Arrangements with Multiple Deliverables." Under these arrangements, revenue attributable to each individual element is recognized upon delivery.

Collaboration Revenue

Collaboration revenue for CuraGen is generated primarily under the Pharmacogenomics Agreement (the "Bayer Agreement") with Bayer and for 454 under the Roche Research and Development Agreement between 454 and Roche ("the Roche Research and Development Agreement"). Payments under the terms of these agreements consist of non-refundable fixed quarterly payments received in advance under the Bayer Agreement and the Roche Research and Development Agreement.

The non-refundable fixed quarterly payments received in advance under the Bayer Agreement relate to the Company's future performance of services and are deferred and recognized as revenue when the future performance occurs, based upon the satisfaction of defined metrics of completion, as outlined in the Bayer Agreement, which include proportional performance and project specific deliverables. These metrics are reviewed internally each month to determine the work performed, deliverables met, and, if required, deliverables

accepted by Bayer. The Company estimates the time period over which services will be provided and the level of effort in each period. In the event that the Company under or overestimates the level of services performed or the costs of such services, actual revenues could differ from such estimates. The date on which some services commence, the level of services performed on or before a given date and the cost of such services are often subjective determinations. The Company makes judgments based upon the facts and circumstances known at the time and in accordance with generally accepted accounting principles.

Under the Roche Research and Development Agreement between 454 and Roche, Roche has an obligation to fund applications for sequencing DNA. Roche can fulfill this obligation by providing the Company with cash or providing the Company with reagents and Roche personnel. Payments, if any, are made quarterly, in advance. These payments are deferred and amortized into revenue on a straight line basis over the quarter in which they pertain.

Grant Revenue

Grant revenue is recorded when qualifying expenses are incurred for the research that is performed as set forth under the terms of 454's federal grant award agreements from the National Human Genome Research Institute (" NHGRI") one of the National Institutes of Health ("NIH").

Milestone Revenue

Under the exclusive five-year worldwide License, Supply and Distribution Agreement with F. Hoffman La Roche, ("Roche License Agreement"), 454 is entitled to receive both up-front non refundable milestone payments for certain events, including contract negotiation and signing, supplier agreement execution, the commercial launch of products, placement of a number of products, and future product launches, as well as potential future commission/royalty sales-based payments for significant cumulative sales by Roche. Up-front milestone payments under the Roche License Agreement are deferred and amortized into revenue on a straight line basis from the later of the date the payment was earned or the effective date of the agreement (October 2005) through the end of the agreement term (October 2010). Commission/royalty sales-based payments for significant cumulative sales by Roche under the Roche License Agreement will be recorded in revenue as earned, however to date the Company has not earned any commission/royalty sales-based payments for significant cumulative sales by Roche. Significant estimates included in milestone revenue are the identification of up-front non refundable payments as compared to commission/royalty sales-based payments, the period of amortization of up-front non refundable payments and the straight line method of amortization.

Accrued Expenses—The Company reviews open contracts and purchase orders, communicates with applicable personnel to identify services that have been performed on the Company's behalf and estimates the level of service performed and the associated costs incurred for the service when the Company has not yet been invoiced or otherwise notified of the actual costs. The majority of the Company's service providers invoice monthly in arrears for services performed. The Company makes estimates of its accrued expenses as of each balance sheet date in its financial statements based on facts and circumstances known. The Company also periodically confirms the accuracy of its estimates with the service providers and makes adjustments if necessary.

Warranty Reserves

454's return policies for product sales require that 454 either replace defective products with new products or repair the defective products. 454 accrues for warranty obligations based on management estimates of the amount that may be required to settle such potential obligations. 454 established an accrual for warranty obligations for products sold during 2006. These costs were not significant during 2005 and therefore no accrual had been established prior to 2006.

Research and Development Expenses—Research and development costs are charged to research and development expenses as incurred. Such costs primarily include clinical trial related costs such as contractual services and manufacturing costs, salary and benefits, perpetual license fees and milestone payments, supplies and reagents, depreciation of lab equipment and allocated facility costs. Amounts relating to protein (or compound, or drug) manufacturing activities, for which the physical drug products will be utilized in research and development, are expensed as incurred, as there is no current indication that there is a future commercial market for sale of any successful drug development from these therapeutics.

Stock-Based Compensation—The Company adopted Statement of Financial Accounting Standards No. 123 (revised 2004), "Share-Based Payment" ("SFAS 123R"), effective January 1, 2006. SFAS 123R requires recognition of the fair value of stock-based compensation in net earnings. Previously Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" ("SFAS 123") required only expanded disclosures of stock-based compensation arrangements with employees, and encouraged (but did not require) compensation cost to be measured based on the fair value of the equity instruments awarded. Companies were permitted to continue to apply Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees" ("APB 25") for equity instruments awarded to employees, which recognized compensation cost based on the intrinsic value of the equity instruments awarded. The Company continued to apply APB 25 for purposes of its stock-based compensation awards to employees through December 31, 2005, and accordingly recorded no compensation expense for option grants unless the option grants had an exercise price less than the fair market value of the underlying stock at the date of grant.

CuraGen has one active stock-based compensation plan, the 1997 Employee, Director and Consultant Stock Plan ("1997 Stock Plan") and one inactive stock-based compensation plan, the 1993 Stock Option and Incentive Award Plan ("1993 Stock Plan").

454 has one active stock-based compensation plan, the 2006 Equity Incentive Plan ("454 2006 Stock Plan") and one inactive stock-based compensation plan, the 2000 Employee, Director and Consultant Stock Plan ("454 2000 Stock Plan"). The 454 2006 Stock Plan was approved by the stockholders of 454 effective May 22, 2006. Under the active plans, restricted stock, stock options and other stock-related awards may be granted to directors, officers, employees and consultants or advisors of CuraGen and 454. No future awards may be granted under the inactive plans. To date, stock-based compensation issued under the plans has consisted of incentive and non-qualified stock options and restricted stock. Generally, stock options are granted to employees at exercise prices equal to the respective fair market values of the common stock of CuraGen and 454 at the dates of grant, and have terms of 10 years. The Company recognizes stock-based compensation expense for stock option grants over the requisite service period of the individual stock option grants, which equals the vesting period. Generally, stock option grants to employees fully vest between three to five years from the grant date.

The Company has transitioned to fair-value-based accounting for stock-based compensation under SFAS 123R using the modified version of the prospective application method ("modified prospective application method"). Under the modified prospective method, restatement of prior financial statements is not required; and, SFAS 123R applies to new awards and to awards modified, repurchased or cancelled on or after January 1, 2006. Additionally, compensation cost for the portion of awards that are outstanding as of January 1, 2006, for which the requisite service has not been rendered (generally referring to unvested awards), is recognized as the remaining requisite service is rendered after January 1, 2006.

Compensation cost for purposes of the pro forma disclosures required under SFAS 123 prior to January 1, 2006 was calculated on a straight-line basis over the requisite service period for each separately vesting portion of an award as if the awards were in-substance, multiple awards, which resulted in an acceleration of compensation cost. Effective with the adoption of SFAS 123R, the Company records compensation cost for new awards on a straight-line basis over the requisite service period for the entire award.

In addition, the Company estimated forfeitures when calculating compensation expense for SFAS 123 pro forma disclosures, and adjusted the estimate of forfeitures over the requisite service period based on the extent to which actual forfeitures differed from such estimates. Changes in estimated forfeitures are recognized through a cumulative true-up adjustment in the period of change and also impact the amount of compensation expense to be recognized in future periods. The Company continued to use this methodology after the adoption of SFAS 123R. During 2006, the Company recorded in operating expenses a cumulative true-up adjustment of $464. The Company will continue to use this methodology after the adoption of SFAS 123R. With respect to accounting for the compensation expense related to restricted stock awards, the Company previously recognized forfeitures as they occurred. However, effective with the adoption of SFAS 123R, the Company now estimates forfeitures for purposes of calculating compensation expense related to restricted stock. The impact on previously reported compensation expense related to restricted stock where forfeitures were recognized as incurred was not material and was recorded in operating expenses.

Prior to the adoption of SFAS 123R, the Company used the Black-Scholes option valuation model to estimate the fair value of stock options granted to employees for purposes of SFAS 123 disclosure. Upon the adoption of SFAS 123R, the Company continues to use the Black-Scholes option valuation model for purposes of valuing all new awards and awards modified, repurchased or cancelled on or after January 1, 2006.

Historically, CuraGen has used the following methods to determine the factors input into the Black-Scholes model: historical volatility is used to determine the expected stock price volatility factor; risk-free interest rates are based on the U.S. Treasury yield curve in effect at the time of grant, for the period corresponding to the approximate expected term of the options; and the expected term of the options has been calculated using CuraGen's historical exercise patterns to estimate future exercise patterns. Effective with the adoption of SFAS 123R, CuraGen continues to utilize the same methodology for purposes of estimating the expected stock price volatility and the risk-free interest rates, however, for purposes of estimating the expected term, CuraGen uses the simplified approach as outlined in Staff Accounting Bulletin No. 107 (Topic 14) ("SAB 107"), whereby the expected term is equal to the average of the vesting term and the contractual term.

Historically, 454 has used the following methods to determine the factors input into the Black-Scholes model: the volatilities of similar entities with publicly traded stock, to determine the expected stock price volatility of 454's non-public stock; risk-free interest rates are based on the U.S. Treasury yield curve in effect at the time of grant, for the period corresponding to the approximate expected term of the options; and the expected term of the options has been calculated using 454's historical exercise patterns to estimate future exercise patterns. Effective with the adoption of SFAS 123R, 454 continues to utilize the same methodology for purposes of estimating the expected stock price volatility and the risk-free interest rates, however, for purposes of estimating the expected term, 454 uses the simplified approach as outlined in SAB 107, whereby the expected term is equal to the average of the vesting term and the contractual term.

For purposes of restricted stock grants, the grant date fair value is calculated as the fair market value of the stock on the date of grant less the purchase price of the restricted stock paid by the grantee, which is equal to the $.01 par value of the stock. CuraGen recognizes stock-based compensation expense for restricted stock grants over the requisite service period of the individual grants, which equals the vesting period. Generally, restricted stock grants to employees fully vest between two and three years from the grant date.

SFAS 123R requires the presentation of pro forma information for periods prior to the adoption as if the Company had accounted for all stock-based compensation under the fair value method. For purposes of pro forma disclosure, the estimated fair value of the options at the date of grant is amortized to expense over the requisite service period, which equals the vesting period. Employee stock-based compensation shown below

includes the amortization of restricted stock compensation expense recorded in the consolidated statements of operations during the periods presented. The following table illustrates the effect on net loss and earnings per share as if the fair value recognition provisions had been applied to the Company's employee stock-based compensation.

	Year Ended December 31, 2005	Year Ended December 31, 2004
Net loss, as reported	($73,244)	($90,397)
Employee stock-based compensation expense included in net loss	1,945	404
Total employee stock-based compensation expense determined under the fair-value based method for all awards	(5,202)	(4,192)
Pro forma net loss	($76,501)	($94,185)
Basic and diluted net loss per share:		
As reported	($1.41)	($1.81)
Pro forma	($1.47)	($1.89)

Upon adoption of SFAS 123R, the Company recognizes the compensation expense associated with stock options granted to employees after December 31, 2005, and the unvested portion of previously granted employee stock option awards that were outstanding as of December 31, 2005, in the consolidated statements of operations. During the year ended December 31, 2006, the Company recognized compensation expense of $3,266 in the consolidated statements of operations with respect to employee stock options. As of December 31, 2006 the Company had capitalized compensation expense for employee stock options of $10 into inventory. During the year ended December 31, 2006, the Company also recognized compensation expense of $2,620 in the consolidated statements of operations with respect to restricted stock. Due to the CuraGen and 454 net loss positions, no tax benefit was recorded during the period. Upon the adoption of SFAS 123R on January 1, 2006, the Company reversed the $3,016 balance in the unamortized stock-based compensation account to additional paid-in-capital in accordance with SFAS 123R. Compensation expense related to the shares of restricted stock will be recognized in the Company's statements of operations over the vesting periods.

For the year ended December 31, 2006, the adoption of SFAS 123R had the effect of increasing net loss by $3,081, or a $0.06 increase in basic and diluted net loss per share, on amounts that would have been reported using the intrinsic value method under APB 25.

The fair value of options granted during the years ended December 31, 2006, 2005 and 2004 were estimated as of the grant date using the Black-Scholes option valuation model with the following weighted average assumptions:

	Year Ended December 31,		
	2006	2005	2004
Expected stock price volatility—CuraGen	79%	81%	82%
Expected stock price volatility—454	30%	33%	33%
Expected risk-free interest rate—CuraGen	4.28%	3.54%	3.65%
Expected risk-free interest rate—454	4.29%	3.94%	3.65%
Expected option term in years—CuraGen	6.25	4.6	6.1
Expected option term in years—454	6.25	7.8	8.0
Expected dividend yield—CuraGen and 454	0%	0%	0%

The approximate weighted-average grant date fair values using the Black-Scholes option valuation model of all stock options granted during the years ended December 31, 2006, 2005 and 2004 were as follows:

	Year Ended December 31,		
	2006	2005	2004
CuraGen	$2.78	$3.50	$5.77
454	$1.40	$1.24	$1.13

As of December 31, 2006 there was $4,041 of total unrecognized compensation expense related to unvested stock option grants under the 1993 Stock Plan, 1997 Stock Plan, 454 2000 Stock Plan and 454 2006 Stock Plan. This expense is expected to be recognized over a weighted-average period of 1.85 years.

As of December 31, 2006, there was $2,077 of total unrecognized compensation expense related to unvested restricted stock issuances under the 1997 Stock Plan. This expense is expected to be recognized over a weighted-average period of 1.54 years.

Comprehensive Income, (Loss)—Statement of Financial Accounting Standards No. 130, "Reporting Comprehensive Income" ("SFAS 130"), requires reporting and displaying of comprehensive income (loss) and its components. In accordance with SFAS 130, the accumulated balance of other comprehensive income (loss) is disclosed as a separate component of stockholders' equity and is comprised of unrealized gains and losses on short-term investments and marketable securities.

Income Taxes—Income taxes are provided for as required under Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes." This statement requires the use of the asset and liability method in determining the tax effect of the "temporary differences" between the tax basis of assets and liabilities and their financial reporting amounts (see Note 10).

Loss Per Share—Basic loss per share ("LPS") is computed by dividing net loss by the weighted average number of shares of Common Stock outstanding for the period. Diluted LPS reflects the potential dilution that could occur if options or other contracts to issue Common Stock were exercised or converted into Common Stock. Due to the loss from operations, convertible subordinated debt, stock options granted under CuraGen's stock option plans but not yet exercised, unvested restricted stock and warrants granted but not yet exercised are anti-dilutive and therefore not considered for the diluted LPS calculations. Anti-dilutive potential common shares, consisting of convertible subordinated debt, outstanding stock options, unvested restricted stock and outstanding warrants were 19,725,238, 19,781,324 and 20,141,605 at December 31, 2006, 2005 and 2004, respectively.

Fair Value of Financial Instruments—Statement of Financial Accounting Standards No. 107, "Disclosures about Fair Value of Financial Instruments" requires the disclosure of fair value information for certain assets and liabilities, whether or not recorded in the balance sheets, for which it is practical to estimate that value. The Company has the following financial instruments: cash and cash equivalents, receivables, accounts payable, accrued expenses and certain other liabilities. The Company considers the carrying amount of these items to approximate fair value due to their short-term nature. In addition, the Company has short-term investments, marketable securities and an investment in TopoTarget which are recorded at fair value (see Note 13 and Note 15). The Company also has convertible subordinated debt (see Note 11).

Segments—The FASB issued Statement of Financial Accounting Standards No. 131, "Disclosures About Segments of an Enterprise and Related Information," which establishes standards for reporting information on operating segments in interim and annual financial statements. An enterprise is required to separately report

information about each operating segment that engages in business activities from which the segment may earn revenues and incur expenses, whose separate operating results are regularly reviewed by the chief operating decision maker regarding allocation of resources and performance assessment and which exceeds specific quantitative thresholds related to revenue, profit or loss and assets. During 2006, 2005 and 2004 the Company met these requirements, and accordingly has two reportable segments (see Note 19).

Recently Enacted Pronouncements—In July 2006, the FASB issued FASB Interpretation No. 48, "Accounting for Uncertainty in Income Taxes" ("FIN 48"). FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with FASB Statement No. 109, "Accounting for Income Taxes." This interpretation prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. It also provides guidance on derecognition, classification, interest and penalties, accounting for taxes in interim periods and disclosure requirements. The provisions of FIN No. 48 are to be applied to all tax positions upon initial adoption of this standard. Only tax positions that meet the more-likely-than-not recognition threshold at the effective date may be recognized or continue to be recognized upon adoption of FIN 48. The cumulative effect of applying the provisions of FIN 48 should be reported as an adjustment to the opening balance of retained earnings for that fiscal year. The provisions of FIN 48 are effective for fiscal years beginning after December 15, 2006. For the Company, this interpretation was effective beginning January 1, 2007. The Company has evaluated the impact this interpretation will have on its financial statements, and has concluded that the adoption of this new standard will not have a material impact on its financial position, results of operations or cash flows.

In September 2006, the FASB issued Statement of Financial Accounting Standards No. 157, "Fair Value Measurements" ("SFAS 157"). SFAS 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles and expands disclosures about fair value measurements. SFAS 157 is effective for fiscal years beginning after November 15, 2007. For the Company this statement will be effective as of January 1, 2008. The Company does not expect the adoption of SFAS 157 to have a material impact on its consolidated financial statements.

In September 2006, the SEC issued Staff Accounting Bulletin No. 108, "Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements" ("SAB 108"). SAB 108 was issued to eliminate the diversity of practice surrounding how public companies quantify financial statements misstatements. It requires the quantification of financial statement misstatements based on the effects of the misstatements on each of the company's financial statements and the related financial statement disclosures. The provisions of SAB 108 must be applied to annual financial statements no later than the first fiscal year ending after November 15, 2006. The adoption of SAB 108 did not have any impact on the Company's December 31, 2006 consolidated financial statements.

In February 2007, the FASB issued Statement of Financial Accounting Standards No. 159, "The Fair Value Option for Financial Assets and Financial Liabilities—Including an amendment of FASB Statement No. 115, "Accounting for Certain Investments in Debt and Equity Securities" ("SFAS 159"). SFAS 159 permits entities to choose to measure many financial instruments and certain other items at fair value. The objective is to improve financial reporting by providing entities with the opportunity to mitigate volatility in reported earnings caused by measuring related assets and liabilities differently without having to apply complex hedge accounting provisions. SFAS 159 is effective for fiscal years beginning after November 15, 2007. For the Company, this statement will be effective beginning January 1, 2008. The Company does not expect the adoption of SFAS 159 to have a material impact on its consolidated financial statements.

2. Accounts Receivable

Accounts receivable is summarized as follows:

	December 31, 2006	December 31, 2005
Trade receivables	$ 4,753	$2,554
Milestones receivable	5,000	—
Royalties receivable	1,158	517
Grants receivable	—	395
Other receivables	926	41
Allowance for doubtful accounts	(61)	(16)
Total accounts receivable	$11,776	$3,491

The increase to 454's allowance for doubtful accounts was $45 and $16 in 2006 and 2005, respectively, and the amounts were recorded as bad debt expense. Roche represents $9,163 or 78% and $2,452 or 70% of total accounts receivable at December 31, 2006 and 2005, respectively.

3. Inventory

A summary of 454's inventory is as follows:

	December 31, 2006	December 31, 2005
Raw material	$4,991	$2,098
Work in process	2,333	1,336
Finished goods	2,532	669
Total	$9,856	$4,103

454's inventory consists of instrumentation, reagents and disposables. During the year ended December 31, 2006, 454 transferred $1,025 of laboratory equipment from inventory to property and equipment. This equipment is to be used in 454's research and development facility and fee for service facility. This equipment has been placed in service and is being depreciated on a straight line basis, consistent with 454's property and equipment policy. On February 1, 2005, the date on which 454 successfully completed the installation of its first sequencing instrument at a customer site, 454 began to capitalize, in inventory the costs of manufacturing instruments, reagents and consumables for commercial sale. Included in inventory on February 1, 2005 was raw material, which was previously capitalized as a fixed asset and valued at net book value on February 1, 2005 of $556.454 wrote down certain inventory items by $80 and $27, to net realizable value during 2006 and 2005, respectively.

4. Property and Equipment

Property and equipment consisted of the following:

	December 31, 2006	December 31, 2005
Laboratory equipment	$19,437	$16,642
Leasehold improvements	14,807	14,618
Office equipment	10,010	12,161
Property in progress	73	892
Total property and equipment	44,327	44,313
Less accumulated depreciation and amortization	28,167	22,608
Total property and equipment, net	$16,160	$21,705

Depreciation and amortization expense for property and equipment was $7,866, $7,033 and $6,545, for the years ended December 31, 2006, 2005 and 2004, respectively. Property in progress relates to leasehold improvements and laboratory equipment for which the costs were incurred but the assets have not yet been placed in service. In November 2005, the Company sold the land it owned in Branford, Connecticut for proceeds of $2,900. The land was originally purchased for the construction of a corporate headquarters and protein production facility. The sale resulted in a gain of approximately $300, net of the 2004 asset impairment expense of $1,909 recorded as a result of an independent market value appraisal which the Company had performed on the land during the third quarter of 2004.

5. Licensing Fees

In 2003, 454 entered into a license agreement with Biotage AB (formerly Pyrosequencing AB) to license specific technology in certain fields of use. As part of this agreement, 454 is required to pay Biotage AB a minimum non-refundable $4,500 payment of which $2,500 was paid in 2003, $500 was paid in each of the years from 2004 to 2006 and is payable in the third quarter of 2007. As of December 31, 2006, the Company has recorded a net intangible asset and a $500 current liability for the 2007 minimum payment under this license agreement.

In August 2004, 454 amended the license agreement with Biotage AB to extend the exclusive field of use for performing different DNA sequencing reactions in one process cycle. Under this amended agreement, 454 has the option to make annual maintenance payments to Biotage AB to retain the extended exclusive field. 454 exercised this option in 2004, 2005 and 2006. 454 has capitalized each of the payments as an intangible asset and amortized the asset over a period of 12 months, equal to the maintenance period. As of December 31, 2006 and 2005, respectively, 454 has recorded a $166 and $146 net intangible asset, related to these maintenance payments.

The term of the amended license is from August 18, 2003 through the latest expiration date of the patents listed in the agreement, which is to be determined on the seventh anniversary of the agreement. The Company is amortizing the $4,541 asset, related to the minimum non-refundable payment on a straight-line basis over the estimated useful life of the license which management has determined to be ten years.

Licensing fees, included in Intangible and other assets, net, consisted of the following:

	December 31,	
	2006	2005
Licensing fees	$4,980	$5,016
Less accumulated amortization	1,695	1,230
Total licensing fees	$3,285	$3,786

Certain fully amortized licensing fees were written-off during 2006 and 2005. Related amortization expense was $763, $871 and $1,355, respectively, for the years ended December 31, 2006, 2005 and 2004.

Estimated aggregate amortization expense for each of the five succeeding fiscal years is as follows, as of December 31, 2006:

Year Ended December 31,	
2007	$625
2008	473
2009	471
2010	471
2011	471

6. Leases

Operating Leases

The Company enters into lease agreements for its operations. Total rent expense under all operating leases for 2006, 2005 and 2004 was approximately $1,702, $2,341 and $2,296, respectively. The future minimum rental payments for all operating leases, are as follows as of December 31, 2006:

Year Ended December 31,	
2007	$2,815
2008	1,419
2009	628
2010	576
2011	436
Thereafter	770
Total	$6,644

7. Deferred Revenue

Deferred revenue is summarized as follows:

	December 31,	
	2006	2005
Upfront/milestone payments	$ 6,133	$ 3,800
Prepaid royalties	3,000	—
Sequencing services	948	505
Product sales	592	253
Collaboration revenue	89	3,208
Current portion of deferred revenue	10,762	7,766
Upfront/milestone payments	16,866	14,250
Collaboration revenue	1,174	—
Deferred revenue, net of current portion	18,040	14,250
Total deferred revenue	$28,802	$22,016

For further discussion of deferred revenue see Note 1.

8. Major Collaborators and Customers, and Geographical Information

The Company has entered into certain agreements with external customers and collaborators to provide services and/or products. In 2005, 454 began selling instruments and reagents, and also continued selling sequencing services. 454 commenced recognition of Roche royalty revenue during the fourth quarter of 2005 (see Note 17). In addition, there are no long-lived assets in countries other than the United States. Revenues from collaborators and customers representing 10% or more of the Company's total product, sequencing service, and collaboration revenues are as follows:

	Year Ended December 31,					
	2006		2005		2004	
	$	%	$	%	$	%
Company A	$21,264	64%	$4,567	23%	—	—
Company B	*	*	4,633	23%	$3,041	59%
Company C	*	*	1,979	10%	*	*
Company D	*	*	*	*	1,295	25%

* less than 10%

Revenue (excluding grant and milestone revenue) by country, based on the location of each of the customers is as follows:

	Year Ended December 31,		
	2006	2005	2004
United States	$22,322	$11,861	$1,773
Germany	7,409	6,322	3,041
Switzerland	1,775	105	40
All others	1,734	1,467	278
Total	$33,240	$19,755	$5,132

9. Stockholders' Equity

Authorized Capital Stock

CuraGen's authorized capital stock consists of 250,000,000 shares of Common Stock, par value of $.01 per share ("Common Stock"), 5,000,000 shares of Preferred Stock, par value of $.01 per share and 3,000,000 shares of Non-Voting Common Stock. At December 31, 2006, the Company had reserved 1,037,609 shares of Common Stock for issuance pursuant to the 6% convertible subordinated debentures due in 2007 and 11,356,719 shares of Stock for issuance pursuant to the 4% convertible subordinated notes due in 2011 (see Note 11). In addition, as of December 31, 2006, 86,664 and 7,128,331 shares of Common Stock had been reserved for issuance pursuant to the 1993 Stock and the 1997 Stock Plan, respectively.

454's authorized capital stock consists of 100,000,000 shares of Common Stock, par value of $.01 per share ("454 Common Stock") and 38,000,000 shares of Preferred Stock, par value of $.01 per share ("454 Preferred Stock"), of which 12,000,000 shares are designated as Series A Convertible Preferred Stock, 8,000,000 shares are designated as Series B Convertible Preferred Stock, 6,404,854 shares are designated as Series C Convertible Preferred Stock and 1,595,146 shares are designated as Series D Convertible Preferred Stock. At December 31, 2006, 454 had issued and outstanding: 282,910 shares of 454 Common Stock; 12,000,000 shares of Series A Convertible Preferred Stock; 8,000,000 shares of Series B Convertible Preferred Stock; 6,404,854 shares of Series C Convertible Preferred Stock; and 1,595,146 shares of Series D Convertible Preferred Stock. Additionally, at December 31, 2006, 454 had 4,447,163 shares of 454 Common Stock reserved for issuance pursuant to the 454 2000 Stock Plan and 1,500,000 shares of 454 Common Stock reserved for issuance pursuant to the 454 2006 Stock Plan.

Common Stock

In August 2005, the Company issued 4,000,000 shares of its Common Stock at a public offering price of $5.50 per share. Net proceeds, after underwriting discounts and stock issuance costs, were $20,848. The net proceeds were used during August and September 2005 for repurchases of the Company's outstanding convertible debt.

Stockholder Rights Plan

In March 2002, the Board of Directors of the Company adopted a stockholder rights plan and declared a dividend distribution of one preferred share purchase right for each outstanding share of the Company's Common Stock. Each right entitles registered holders of the Company's Common Stock to purchase one one-hundredth of a share of a new series of junior participating Preferred Stock, designated as "Series A Junior Participating

Preferred Stock." The rights generally will be exercisable only if a person (which term includes an entity or group) (i) acquires 20 percent or more of the Company's Common Stock or (ii) announces a tender offer, the consummation of which would result in ownership by that person, entity or group of 20 percent or more of the common stock. Once exercisable, the stockholder rights plan allows the Company's stockholders (other than the acquiror) to purchase Common Stock of the Company or of the acquiror at a substantial discount.

Stock Options

CuraGen's 1993 Stock Plan was adopted by its Board of Directors and stockholders in December 1993 and subsequently amended by the Board of Directors in May 1997. The 1993 Stock Plan provided for the issuance of stock options and stock awards to officers, directors, advisors, employees, and affiliates of CuraGen. Of the 3,000,000 shares of Common Stock which were originally reserved for issuance under the 1993 Stock Plan, options to purchase 86,664 shares were outstanding as of December 31, 2006 and 1,576,504 stock options had been exercised under the 1993 Stock Plan as of December 31, 2006. Effective October 1997, upon a resolution by the Board of Directors, CuraGen will not grant any further options under the 1993 Stock Plan.

A summary of all stock option activity under the 1993 Stock Plan during the years ended December 31, 2004, 2005 and 2006 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding January 1, 2004	372,980	$2.38		
Granted	—			
Exercised	(58,916)	1.63		
Canceled or lapsed	—			
Outstanding December 31, 2004	314,064	2.52	1.63	$1,457
Granted	—			
Exercised	(91,200)	1.56		
Canceled or lapsed	—			
Outstanding December 31, 2005	222,864	2.91	1.10	160
Granted	—			
Exercised	(128,400)	1.83		
Canceled or lapsed	(7,800)	5.00		
Outstanding December 31, 2006	86,664	4.33	0.63	40
Exercisable December 31, 2004	314,064	2.52	1.63	1,457
Exercisable December 31, 2005	222,864	2.91	1.10	160
Exercisable December 31, 2006	86,664	4.33	0.63	40

The total intrinsic value of options exercised under the 1993 Stock Plan during the years ended December 31, 2006, 2005 and 2004 were $258, $382 and $262 respectively.

The following table presents weighted average price information about significant option groups under the 1993 Stock Plan exercisable at December 31, 2006:

Range of Exercise Prices	Number of Options Outstanding and Exercisable	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price
$3.75-5.00	86,664	0.63	$4.33
	86,664		

CuraGen's 1997 Stock Plan was approved by its Board of Directors in October 1997 and by its stockholders in January 1998. The 1997 Stock Plan provides for the issuance of stock options and stock grants ("Stock Rights") to employees, directors and consultants of CuraGen. A total of 3,000,000 shares of Common Stock were originally reserved for issuance under the 1997 Stock Plan; in May 1999, upon approval of the stockholders, the amount reserved was increased to 7,000,000; and, in May 2003, upon approval of the stockholders, the amount reserved was increased to 10,500,000. The 1997 Stock Plan is administered by the Compensation Committee of the Board of Directors of CuraGen ("the Compensation Committee"). The Compensation Committee has the authority to administer the provisions of the 1997 Stock Plan and to determine the persons to whom Stock Rights will be granted, the number of shares to be covered by each Stock Right and the terms and conditions upon which a Stock Right may be granted. As of December 31, 2006, CuraGen had 6,237,624 options outstanding under the 1997 Stock Plan and an additional 890,707 available for grant. In addition, 1,636,862 stock options had been exercised under the 1997 Stock Plan as of December 31, 2006.

A summary of all stock option activity under the 1997 Stock Plan during the years ended December 31, 2004, 2005 and 2006 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding January 1, 2004	4,960,756	$14.11		
Granted	987,775	8.00		
Exercised	(193,672)	4.17		
Canceled or lapsed	(709,172)	14.01		
Outstanding December 31, 2004	5,045,687	13.28	5.07	$6,593
Granted	1,224,625	5.42		
Exercised	(120,632)	3.75		
Canceled or lapsed	(966,369)	13.80		
Outstanding December 31, 2005	5,183,311	11.54	6.02	18
Granted	1,673,070	3.86		
Exercised	(112,649)	3.22		
Canceled or lapsed	(506,108)	14.69		
Outstanding December 31, 2006	6,237,624	9.37	6.32	2,166
Exercisable December 31, 2004	3,108,524	15.03	4.12	4,530
Exercisable December 31, 2005	3,286,775	14.02	4.75	18
Exercisable December 31, 2006	3,559,479	12.53	4.78	900
Shares Expected to Vest December 31, 2006	1,958,054	5.23	8.37	933

The total intrinsic value of options exercised under the 1997 Stock Plan during the years ended December 31, 2006, 2005 and 2004 were $51, $251 and $521 respectively.

The following table presents weighted average price information about significant option groups under the 1997 Stock Plan exercisable at December 31, 2006:

Range of Exercise Prices	Number of Options Exercisable	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price
$ 2.57-3.78	419,350	7.54	$ 3.25
3.85-4.80	902,473	7.16	4.25
5.03-7.38	1,026,844	5.55	6.05
8.41-8.71	270,085	6.89	8.68
15.83-22.50	317,725	4.98	16.68
24.94-31.66	280,385	3.95	26.98
41.13-58.33	342,617	3.03	52.48
	3,559,479		

During 2002, 2004, 2005 and 2006, the Compensation Committee approved grants for shares of restricted stock. Pursuant to the provisions of the 1997 Stock Plan, the purchase price of the restricted stock is equal to the par value of the Company's Common Stock, and each grant of restricted stock is subject to certain repurchase rights of the Company.

A summary of all restricted stock activity under the 1997 Stock Plan during the years ended December 31, 2004, 2005 and 2006 is as follows:

	Number of Shares of Restricted Stock	Weighted Average Grant Date Fair Value
Outstanding January 1, 2004	143,556	$6.48
Granted	385,895	6.22
Restrictions lapsed	(71,779)	6.48
Repurchased upon employee termination	(6,777)	6.99
Outstanding December 31, 2004	450,895	6.24
Granted	772,875	4.06
Restrictions lapsed	(97,250)	6.36
Repurchased upon employee termination	(83,200)	6.13
Outstanding December 31, 2005	1,043,320	4.63
Granted	455,000	4.13
Restrictions lapsed	(460,070)	5.31
Repurchased upon employee termination	(31,625)	5.03
Outstanding December 31, 2006	1,006,625	4.08

The total fair value of restricted shares vested during the year ended December 31, 2006, 2005 and 2004 was $1,823, $548 and $351, respectively.

All repurchased shares are immediately retired upon resolutions by the Board of Directors. As of December 31, 2006, the remaining 551,625 outstanding shares of restricted stock which were issued in 2005 will vest on the second anniversary of each grant date, with the lapsing of the repurchase rights. The 455,000 outstanding shares of restricted stock which were issued in 2006 will partially vest on the first, second and third anniversary of each grant date.

The 454 2000 Stock Plan was approved by the 454 Board of Directors and stockholders in September 2000. The 454 2000 Stock Plan provides for the issuance of stock options and stock grants to employees, directors and consultants of 454. A total of 5,000,000 shares of 454 Common Stock were originally reserved for issuance under the 454 2000 Stock Plan. The 454 2000 Stock Plan is administered by the Board of Directors of 454. The Board of Directors of 454 has the authority to administer the provisions of the 454 2000 Stock Plan and to determine the persons to whom Stock Rights will be granted, the number of shares to be covered by each Stock Right and the terms and conditions upon which a Stock Right may be granted. As of December 31, 2006, 454 had 4,447,163 options outstanding. In addition, 282,910 stock options had been exercised under the 454 2000 Stock Plan as of December 31, 2006. No future awards may be granted under the 454 2000 Stock Plan subsequent to the adoption of the 454 2006 Stock Plan.

A summary of all stock option activity under the 454 2000 Stock Plan during the years ended December 31, 2004, 2005 and 2006 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding January 1, 2004	3,411,984	$2.47		
Granted	466,000	2.50		
Exercised	(4,417)	2.50		
Canceled or lapsed	(116,433)	2.50		
Outstanding December 31, 2004	3,757,134	2.47	7.10	$ 101
Granted	936,600	2.73		
Exercised	(34,334)	2.50		
Canceled or lapsed	(463,833)	2.50		
Outstanding December 31, 2005	4,195,567	2.53	6.23	3,031
Granted	758,000	3.55		
Exercised	(196,226)	2.52		
Canceled or lapsed	(310,178)	2.60		
Outstanding December 31, 2006	4,447,163	2.70	5.90	4,681
Exercisable December 31, 2004	2,247,259	2.45	6.57	101
Exercisable December 31, 2005	2,749,221	2.48	5.15	2,109
Exercisable December 31, 2006	2,803,946	2.51	4.60	3,475
Shares Expected to Vest December 31, 2006	1,293,922	3.09	8.32	856

The total intrinsic value of options exercised under the 454 2000 Stock Plan during the years ended December 31, 2006, 2005 and 2004 were $210, $7 and $0 respectively.

The following table summarizes information about stock options under the 454 2000 Stock Plan at December 31, 2006:

Range of Exercise Prices	Number of Options Outstanding	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price
$1.25-2.50	3,218,685	4.75	$2.47
2.75	177,000	8.31	2.75
3.00	310,478	8.46	3.00
3.25	7,500	2.00	3.25
3.50	571,000	8.88	3.50
3.75	162,500	9.24	3.75
Total	4,447,163		

Range of Exercise Prices	Number of Options Exercisable	Weighted Average Exercise Price
$1.25-2.50	2,569,129	$2.46
2.75	35,400	2.75
3.00	167,542	3.00
3.50	1,875	3.50
3.75	30,000	3.75
Total	2,803,946	

On May 22, 2006 the stockholders of 454 approved the 454 2006 Stock Plan. The 454 2006 Stock Plan authorizes the grant of up to 1,500,000 shares of the common stock of 454 plus an annual increase to be added on the first day of each of 454's fiscal years during the period beginning in fiscal year 2007 and ending on the second day of fiscal year 2016 equal to the lesser of (i) 1,500,000 shares of common stock, (ii) 3% of the outstanding shares on such date or (iii) an amount determined by the Board of Directors of 454. 454 did not increase the number of authorized shares of the common stock on the first day of fiscal year 2007 under the 454 2006 Stock Plan. The 454 2006 Stock Plan provides for the issuance of incentive stock options to employees of 454 and CuraGen and non-qualified stock options, stock appreciation rights, restricted stock, restricted stock units and other stock-based awards to employees, directors and consultants of 454 and CuraGen. As of December 31, 2006, 454 had 132,500 options outstanding and an additional 1,367,500 available for grant under the 454 2006 Stock Plan. No stock options had been exercised under the 454 2006 Stock Plan as of December 31, 2006.

A summary of all stock option activity under the 454 2006 Stock Plan during the years ended December 31, 2006 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding January 1, 2006	—			
Granted	152,500	$3.75	—	—
Canceled or lapsed	(20,000)	3.75		
Outstanding December 31, 2006	132,500	3.75	9.74	—
Exercisable December 31, 2006	10,000	3.75	9.74	—
Shares Expected to Vest December 31, 2006	107,131	3.75	9.74	—

The following table summarizes information about stock options under the 454 2006 Stock Plan at December 31, 2006:

Range of Exercise Prices	Number of Options Outstanding	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price
$3.75	132,500	9.7	$3.75
Total	132,500		

Range of Exercise Prices	Number of Options Exercisable	Weighted Average Exercise Price
$3.75	10,000	$3.75
Total	10,000	

10. Income Taxes

The Company provides for income taxes using the asset and liability method. The difference between the income tax benefit and the amount that would be computed by applying the statutory Federal income tax rate to net loss is attributable to the following:

	Year Ended December 31,		
	2006	2005	2004
Loss before income tax benefit	($60,323)	($73,412)	($91,579)
Expected tax benefit at 35%	$ 21,113	$ 25,694	$ 32,053
Minority interest for which no tax benefit is available	343	767	1,978
Other items	(381)	5	261
Connecticut taxes, including research and development credits subject to carryforward, net of federal benefit	4,302	5,016	7,336
Federal research and development credits subject to carryforward	764	1,944	2,524
Increase in valuation allowance on deferred tax asset	(25,657)	(33,258)	(42,970)
Total income tax benefit	$ 484	$ 168	$ 1,182

The income tax benefits were recorded as a result of Connecticut legislation, which allows companies to obtain cash refunds from the State of Connecticut at a rate of 65% of their annual research and development expense credit, in exchange for forgoing carryforward of the research and development credit. For the years ended December 31, 2006 and 2005, the income tax benefit included adjustments resulting from the expiration of the State of Connecticut statute, as they relate to the Year 2002 and Year 2001 income tax benefit, respectively. During the year ended December 31, 2005, 454 recorded an income tax expense of $235 primarily as a result of 454's Federal Alternative Minimum Tax ("AMT") liability. The 2005 AMT expense for 454 is shown as an offset to CuraGen's income tax benefit.

Temporary differences and carryforwards that give rise to the deferred income tax assets are as follows:

	December 31, 2006	December 31, 2005
Net deferred income tax assets:		
Net operating loss carryforwards	$ 220,838	$ 200,270
Tax credit carryforwards	33,215	29,431
Deferred revenue	7,317	7,197
Stock options and restricted stock	2,359	993
Depreciation and amortization	2,707	1,389
Accumulated other comprehensive loss (income)	921	(1,130)
Other	681	213
	$ 268,038	$ 238,363
Valuation allowance	(268,038)	(238,363)
Total	$ —	$ —

As the Company has no prior earnings history, a valuation allowance has been established due to the Company's uncertainty in its ability to benefit from the federal and Connecticut net operating loss carryforwards. A tax benefit of approximately $26,915 related to stock options, will be credited to equity when the benefit is realized. The increase in the valuation allowance was $29,675, $32,574 and $41,069, for the years ended December 31, 2006, 2005 and 2004, respectively.

For income tax purposes, CuraGen does not file consolidated income tax returns with 454. As of December 31, 2006, CuraGen and 454 have tax net operating loss carryforwards available to reduce future federal and Connecticut taxable income, research and development tax credit carryforwards available to offset future federal and Connecticut income taxes and 454 has an AMT credit carryforward available to offset future federal income taxes as detailed below. Utilization of the net operating loss and tax credit carryforwards may be limited due to changes within each company's ownership, as defined within Section 382 of the Internal Revenue Code.

Net Operating Loss Carryforwards	Federal	Expire In	Connecticut	Expire In
CuraGen	$526,267	2008 to 2027	$463,245	2021 to 2027
454	$ 35,312	2023 to 2027	$ 34,924	2022 to 2027

Research and Development Tax Credit Carryforwards	Federal	Expire In	Connecticut	Expire In
CuraGen	$ 18,690	2009 to 2027	$ 13,607	2014 to 2022
454	$ 2,779	2020 to 2027	$ 3,560	2017 to 2022

Alternative Minimum Tax Credit Carryforwards	Federal	Expire In	Connecticut	Expire In
454	$ 253	N/A	N/A	N/A

11. Convertible Subordinated Debt

6% Convertible Subordinated Debentures Due 2007

In 2000, the Company completed an offering for $150,000 of 6% convertible subordinated debentures due February 2, 2007 and received net proceeds of approximately $145,600. During 2005 and 2004, the Company repurchased $83,772 of its 6% convertible subordinated debentures due in 2007, for total consideration of

$81,540, plus accrued interest of $1,221 to the date of repurchase, and recorded a net gain of $1,472 in Gain on extinguishment of debt, which includes the write-off of the ratable portion of unamortized deferred financing costs relating to the repurchased debt.

The debentures may be resold by the initial purchasers to qualified institutional buyers under Rule 144A of the Securities Act and to non-U.S. persons outside the United States under Regulation S under the Securities Act. The debentures are convertible at the election of the Company into Common Stock at any time prior to their maturity at a conversion price of $63.8275 per share, or a total of 1,037,609 shares of Common Stock issuable upon conversion of the notes as of December 31, 2006. On December 31, 2006, the market value of the debentures, based on quoted market prices, was approximately $66,063.

The Company pays cash interest on the debentures on February 2 and August 2 of each year. Related interest expense for the each of the years ended December 31, 2006, 2005 and 2004 was $3,974, $6,181 and $7,950, respectively.

See Note 21 which describes the repayment of the $66,228 remaining balance of the 6% convertible subordinated debentures in February 2007 upon their maturity.

4% Convertible Subordinated Notes Due 2011

In February 2004, the Company completed an offering of $110,000 of 4% convertible subordinated notes due February 15, 2011 and received net proceeds of approximately $106,200.

The notes may be resold by the initial purchasers to qualified institutional buyers under Rule 144A of the Securities Act and to non-U.S. persons outside the United States under Regulation S under the Securities Act. The notes are convertible by the holders of the notes into the Company's Common Stock at any time prior to the close of business on the maturity date of the notes, unless previously redeemed or repurchased, at a conversion rate of approximately $9.69 per share of Common Stock, or a total of 11,356,719 shares of Common Stock issuable upon conversion of the notes as of December 31, 2006.

In addition, during the period commencing February 18, 2009, to and including February 14, 2010, the Company has the right to redeem the notes at a redemption price equal to 101.143% of the principal amount of the notes plus accrued and unpaid interest, if any, to, but not including, the redemption date; and beginning on February 15, 2010, the Company has the right to redeem the notes at a redemption price equal to 100.571% of the principal amount of the notes plus accrued and unpaid interest, if any, to, but not including, the redemption date. The market value of the notes, based on quoted market prices, was approximately $91,300 on December 31, 2006.

The Company pays cash interest on the notes on February 15 and August 15 of each year. Related interest expense for the years ended December 31, 2006, 2005 and 2004 was $4,400, $4,400 and $3,793, respectively.

12. Minority Interest in Subsidiary

454 was formed in 2000 as CuraGen's majority-owned subsidiary, and as of December 31, 2006, CuraGen's majority ownership in 454 was approximately 65%. 454 has commercialized advanced technologies for whole genome, ultra-deep and ultra-broad sequencing.

Minority interest in subsidiary loss is the portion of 454's loss attributable to shareholders of 454 other than CuraGen. During the third quarter 2006, the cumulative losses applicable to the minority interest in subsidiary exceeded the minority interest in the equity capital of 454, therefore, going forward, all future losses applicable to the minority interest will be charged to CuraGen, until such time as 454 has future income and/or financing from the minority interest. For the year ended December 31, 2006, 24% of 454's net loss was allocated to the minority interest in subsidiary as compared to 34% in prior periods.

13. Available-for-Sale Securities

The Company purchases short-term investments and marketable securities consisting of debt securities, which have been designated as "available-for-sale" as required by Statement of Financial Accounting Standards No. 115, "Accounting for Certain Investments in Debt and Equity Securities." Available-for-sale securities are carried at fair value with the unrealized gains and losses reported in stockholders' equity under the caption Accumulated other comprehensive income (loss). The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity. Interest on debt securities, amortization of premiums and accretion of discounts is included in interest income. The cost of securities sold is based on the specific identification method.

The amortized cost, gross unrealized gains and losses and estimated fair value based on published closing prices of securities at December 31, 2006 and 2005, by contractual maturity, are shown below. Contractual maturities of mortgage backed and asset-backed securities are allocated in the tables based on the expected maturity date. The investment in Topotarget is classified as an available-for-sale long-term marketable security and is included in Intangible and other assets, net, on the December 31, 2006 balance sheet at a fair value of $9,163 which includes an unrealized gain of $3,875.

	December 31, 2006			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Available-for-sale securities:				
Due in one year or less	$ 57,310	$ 3	$ 623	$ 56,690
Due in one through three years	44,116	6	792	43,330
Due in three through five years	7,642	—	159	7,483
Total Available-for sale securities	$109,068	$ 9	$1,574	$107,503

The investment in Topotarget was also classified as an available-for-sale long-term marketable security and is included in Intangible and other assets, net, on the December 31, 2005 balance sheet at a fair value of $5,289 which includes an unrealized gain of $2.

	December 31, 2005			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Available-for-sale securities:				
Due in one year or less	$104,568	$25	$ 907	$103,686
Due in one through three years	78,965	3	1,504	77,464
Due in three through five years	25,073	11	463	24,621
Total Available-for sale securities	$208,606	$39	$2,874	$205,771

For the year ended December 31, 2006 the Company realized gross gains of $1 and gross losses of $297 on securities sold. For the year ended December 31, 2005, the Company realized gross gains of $5 and gross losses of $202 on securities sold.

The following tables show the gross unrealized losses and fair values of the Company's investments in individual securities that have been in a continuous unrealized loss position deemed to be temporary for less than 12 months, aggregated by contractual maturity:

	December 31, 2006	
	Fair Value	Unrealized Losses
Due in one year or less	$12,847	$ 4
Due in one through three years	—	—
Due in three through five years	—	—
	$12,847	$ 4

	December 31, 2005	
	Fair Value	Unrealized Losses
Due in one year or less	$29,491	$ 85
Due in one through three years	31,806	401
Due in three through five years	14,959	166
	$76,256	$652

The following table shows the gross unrealized losses and fair values of the Company's investments in individual securities that have been in a continuous unrealized loss position deemed to be temporary for more than 12 months, aggregated by contractual maturity:

	December 31, 2006	
	Fair Value	Unrealized Losses
Due in one year or less	$ 37,157	$ 619
Due in one through three years	36,060	792
Due in three through five years	6,777	159
	$ 79,994	$1,570

	December 31, 2005	
	Fair Value	Unrealized Losses
Due in one year or less	$ 61,640	$ 822
Due in one through three years	41,234	1,104
Due in three through five years	8,934	296
	$111,808	$2,222

The Company periodically reviews its investment portfolios and its investment in TopoTarget A/S ("TopoTarget"), a publicly-traded company on the Copenhagen Stock Exchange, to determine if there is an impairment that is other than temporary, and as of the balance sheet date, December 31, 2006, has not experienced any impairments in its investments that were other than temporary.

14. Restructuring and Related Charges

In June 2003, CuraGen announced a restructuring plan intended to focus resources on continuing to advance its pipeline of protein, antibody, and small molecule therapeutics into preclinical and clinical development. In connection with the June 2003 restructuring plan, a charge of $2,888 was recorded in the second quarter of 2003, including $1,742 related to employee separation costs, $1,046 of operating lease obligations and $100 of asset impairment costs. The cash requirements under the June 2003 restructuring plan were $2,681, of which $2,484 was paid prior to December 31, 2006. The remaining cash requirements of $197 will be paid through 2008 and relate to remaining operating lease payments.

In September 2005, CuraGen underwent a corporate restructuring to focus on advancing its therapeutic pipeline through clinical development. In connection with the September 2005 restructuring plan, a charge of $1,280 was recorded in the third quarter of 2005, including $1,111 related to employee separation costs, $130 of operating lease obligations and $39 of asset impairment costs. The cash requirements under the September 2005 restructuring plan were $1,057, all of which were paid prior to June 30, 2006.

In November 2005, CuraGen underwent a corporate restructuring to focus on advancing its therapeutic pipeline through clinical development. In connection with the November 2005 restructuring plan, a charge of $1,537 was recorded in the fourth quarter of 2005, including $1,396 of operating lease obligations and $141 of asset impairment costs. The cash requirements under the November 2005 restructuring plan were $1,396, of which $826 was paid prior to December 31, 2006. The remaining cash requirements of $570 will be paid through 2007 and relate to remaining operating lease payments.

15. TopoTarget A/S Collaboration and License Agreement

In June 2004, the Company and TopoTarget entered into a license and collaboration agreement to develop and commercialize PXD101, a novel histone deacetylase ("HDAC") inhibitor for the treatment of solid and hematological cancers, which is currently in a Phase II clinical trial in patients with multiple myeloma, and two Phase I trials in patients with advanced solid tumors and hematological malignancies. The two companies are also working together to identify additional candidates from TopoTarget's HDAC inhibitor library for clinical development in the treatment of cancer and inflammatory diseases. Under the terms of the agreement, the Company acquired exclusive rights to develop and commercialize PXD101 in North America, Asia and all other markets excluding Europe. TopoTarget retained commercialization rights in Europe.

Under the financial terms of the agreement, during 2004, the Company made a $5,000 equity investment in TopoTarget, which was recorded as a Convertible Loan Receivable and was included in Intangible and other assets, net on the December 31, 2004 balance sheet. The loan was due May 10, 2009, unless TopoTarget completed an Initial Public Offering on the Copenhagen Stock Exchange ("IPO"), at which time the loan must convert into TopoTarget common stock at the IPO subscription price. The loan began accruing interest quarterly on June 30, 2004, at an annual rate of 6% and such interest was added to the principal amount of the loan on a quarterly basis if not paid by TopoTarget.

On June 10, 2005, TopoTarget completed an IPO of 11,500,000 shares of common stock at a per share price of DKK 22,50 ($3.698 USD). Simultaneously, on June 10, 2005, the Convertible Loan Receivable in the amount of $5,288 (including accrued interest) was automatically converted into 1,429,687 shares of TopoTarget common stock, providing the Company with an approximate 3.58% ownership in TopoTarget at fair value.

The Company accounts for its investment in TopoTarget based on the market value of the stock of TopoTarget as reported on the Copenhagen Stock Exchange. This investment is classified as an available-for-sale long-term marketable security and is included in Intangible and other assets, net, on the December 31, 2006 balance sheet at a fair value of $9,163 which includes an unrealized gain of $3,875.

In November 2006, the Company granted exclusive worldwide rights to LEO Pharma to develop, manufacture, and commercialize PXD118490, a preclinical HDAC inhibitor, for the treatment of psoriasis and other dermatological disorders. Under the terms of the agreement between TopoTarget and LEO Pharma, TopoTarget received during 2006 initial payments totaling 2,000 euros (approximately $2,600). In addition, TopoTarget is eligible to receive additional milestone payments and tiered royalties on any future product sales. Under the terms of an existing agreement between TopoTarget and the Company, the Company will receive 50% of all payments received by TopoTarget under the licensing agreement between TopoTarget and LEO Pharma which will be amortized into revenue on a straight-line basis commencing in the month the agreement was signed through April 2022, the date the first original patent will expire in the United States.

16. Seattle Genetics, Inc. Collaboration Agreement

In June 2004, the Company and Seattle Genetics, Inc. ("Seattle Genetics") entered into a collaboration agreement to license Seattle Genetics' proprietary antibody-drug conjugate ("ADC") technology for use with the Company's proprietary antibodies for the potential treatment of cancer. The Company paid an upfront fee of $2,000 for access to the ADC technology for use in one of its proprietary antibody programs. In February 2005, the Company also exercised its option to access Seattle Genetics' ADC technology for use with a second antibody program in exchange for a $1,000 payment. In June 2006, the Company paid a milestone payment for the enrollment of the first patient in the first Phase I clinical trial of CR011-vcMMAE for the treatment of metastatic melanoma. All payments discussed above were fully expensed at the time of payment, pursuant to the Company's accounting policy for such fees.

The Company is responsible for research, product development, manufacturing and commercialization of all products under the collaboration, and will pay maintenance and material supply fees as well as research support payments for any assistance provided by Seattle Genetics in developing ADC products.

17. Agreements with F. Hoffmann-La Roche Ltd

License, Supply and Distribution Agreement

In May 2005, 454 entered into the Roche License Agreement for the promotion, sale, and distribution of 454's high-throughput Genome Sequencer systems, including proprietary kits and reagents, by Roche. In October 2005, Roche began promoting, selling and distributing 454's products, including the GS20 and reagents. 454 manufactures and supplies instrument systems and reagents to Roche at an agreed upon transfer price, and earns a royalty on sales to third parties completed by Roche. Under the terms of the agreement, Roche may sell 454's products to all markets, with the exception of regulated diagnostics. Roche has the rights to first negotiation with respect to the distribution of 454's products for use in the regulated diagnostic market and for renewal of the distribution agreement contingent upon meeting minimum performance criteria. In 2005, 454 earned and received $19,000 in event specific milestone payments from Roche, consisting of $11,500 of pre-commercialization event specific milestone payments and $7,500 for the commercial launch of 454's high-throughput GS20. In 2006, 454 earned and received a $4,000 event specific milestone for the placement of a number of GS20 instruments and $5,000 for the launch of the GS FLX System and reagents, which was received in January 2007. As of January 31, 2007, 454 has earned $28,000 in milestones from Roche.

Research and Development Agreement

In May 2005, 454 entered into the Roche Research and Development Agreement to conduct research and development of systems and applications. Under this agreement, 454 has minimum funding requirements for 454's system development projects, for which 454 is solely responsible for funding. In addition, 454 and Roche

have minimum investment requirements for application development projects. Roche has the option to fund their portion of application development projects by providing personnel, materials or money. 454 is to fund its portion of application development through internal research and development efforts. 454 is to fund system development projects with no less than $8,500 and fund application development projects with no less than $1,500, annually, until the commercial launch of version 2.0 of the product. After commercial launch of version 2.0, 454 shall fund all projects with a minimum of $10,000 annually.

18. Grant Awards

In May 2004, 454 received a two-year, $2,400 federal grant from the NHGRI, one of the NIH. The grant, entitled "Massively Parallel High Throughput, Low Cost Sequencing" will partially fund the scale up of 454's technology toward sequencing larger genomes.

In October 2004, 454 was awarded a three-year, $5,000 grant from the NHGRI. The grant, entitled "The 454 Life Sciences Massively Parallel System for DNA Sequencing Technology," aims to achieve the NIH's initial goal of reducing the cost of whole mammalian genome sequencing by 100-fold, or to approximately $100,000 per genome, and to establish a path toward the $1,000 genome.

Each of these grants allowed 454 to recover all expenses that were directly related to the research outlined in the grant award for 90 days prior to the grant award date. These grants are subject to review and audit by the federal government and any such audit could lead to requests for reimbursement for any expenditure disallowed under the terms of the grant. Additionally, any noncompliance with the terms of these grants could lead to loss of current or future awards. During 2006, 2005 and 2004, 454 recognized $2,297, $2,826 and $1,207 of grant revenue, respectively, and $2,095, $2,201 and $847 of grant research expenses, respectively.

19. Segment Reporting

The Company currently operates in two business segments: CuraGen and 454. CuraGen is a biopharmaceutical development company dedicated to improving the life of patients by developing novel protein, antibody and small molecule therapeutics for the treatment of cancer and cancer supportive care. 454, the Company's majority-owned subsidiary, has commercialized advanced technologies for high-throughput sequencing of DNA. 454's Genome Sequencer system perform rapid and comprehensive "whole genome sequencing," or the determination of the nucleotide sequence of entire genomes, "ultra-deep sequencing," or the accurate detection of mutations in target genes of interest, and "ultra-broad sequencing," or the surveying and characterization of large numbers of DNA molecules from a complex mixture. The operations of 454 are run by a separate management team and governed by a separate Board of Directors made up of members of CuraGen's management team and Board of Directors. (See Note 8 for geographical details of the Company's revenues, as well as long-lived assets).

	December 31,	
	2006	2005
Cash and investments:		
CuraGen	$164,393	$211,238
454	5,760	15,290
Total	**$170,153**	**$226,528**
Total assets:		
CuraGen	$196,382	$247,493
454	34,881	30,119
Intercompany eliminations	(4,064)	(7,155)
Total	**$227,199**	**$270,457**

	Year Ended December 31,		
	2006	2005	2004
Revenue:			
CuraGen	$ 2,802	$ 4,954	$ 4,714
454	37,288	18,957	1,930
Intercompany eliminations	(503)	(380)	(305)
Total	**$39,587**	**$23,531**	**$ 6,339**
Operating expenses:			
CuraGen	$57,654	$72,503	$80,235
454	41,862	25,349	18,671
Intercompany eliminations	(503)	(380)	(305)
Total	**$99,013**	**$97,472**	**$98,601**
Net loss:			
CuraGen	$56,661	$69,038	$79,558
454	4,158	6,399	16,491
Minority interest in subsidiary loss	(980)	(2,193)	(5,652)
Total	**$59,839**	**$73,244**	**$90,397**
Depreciation and amortization:			
CuraGen	$ 7,343	$ 6,292	$ 6,889
454	2,379	2,368	2,435
Total	**$ 9,722**	**$ 8,660**	**$ 9,324**
Capital expenditures:			
CuraGen	$ 411	$ 8,017	$ 8,267
454	1,386	1,618	1,395
Intercompany eliminations	(23)	(223)	(17)
Total	**$ 1,774**	**$ 9,412**	**$ 9,645**

20. Summary of Selected Quarterly Financial Data (Unaudited)

	Quarter Ended			
	March 31	June 30	Sept. 30	Dec. 31
2006:				
Total revenue	$ 10,169	$ 10,662	$ 9,857	$ 8,899
Total operating expenses	23,807	24,891	25,717	24,598
Loss from operations	(13,638)	(14,229)	(15,860)	(15,699)
Net loss	(13,864)	(14,299)	(15,880)	(15,796)
Basic and diluted net loss per share	(0.25)	(0.26)	(0.29)	(0.29)
2005:				
Total revenue	$ 3,430	$ 4,290	$ 5,242	$10,569
Total operating expenses	22,555	21,059	28,194	25,664
Loss from operations	(19,125)	(16,769)	(22,952)	(15,095)
Net loss	(19,399)	(15,680)	(22,538)	(15,627)
Basic and diluted net loss per share	(0.39)	(0.31)	(0.43)	(0.28)

21. Subsequent Event—*Repayment of 6% Convertible Subordinated Debentures*

On February 2, 2007, the Company repaid the remaining $66,228 balance outstanding on the 6% convertible subordinated debentures plus accrued interest of $1,986.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
of CuraGen Corporation
Branford, Connecticut

We have audited the accompanying consolidated balance sheets of CuraGen Corporation and its subsidiary (the "Company") as of December 31, 2006 and 2005, and the related consolidated statements of operations, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2006. We also have audited management's assessment, included in "Management's Annual Report on Internal Control over Financial Reporting", which is included in Item 9A, that the Company maintained effective internal control over financial reporting as of December 31, 2006 based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on these financial statements, an opinion on management's assessment, and an opinion on the effectiveness of the Company's internal control over financial reporting 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 misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, evaluating management's assessment, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2006 and 2005, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2006, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, management's

assessment that the Company maintained effective internal control over financial reporting as of December 31, 2006, is fairly stated, in all material respects, based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Furthermore, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2006, based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

As discussed in Note 1 to the consolidated financial statements, effective January 1, 2006, the Company adopted the fair value method of accounting for stock-based compensation as required by Statement of Financial Accounting Standards No. 123R, *Share Based Payment*.

/s/ Deloitte & Touche LLP

Hartford, Connecticut
March 12, 2007

Item 9. ***Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

Not applicable.

Item 9A. Controls and Procedures

1. Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2006. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act of 1934 is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our chief executive officer and chief financial officer concluded that, as of December 31, 2006, our disclosure controls and procedures were effective at the reasonable assurance level.

2. Internal Controls over Financial Reporting

(a) Management's Annual Report on Internal Control over Financial Reporting

The management of CuraGen Corporation, together with our consolidated majority-owned subsidiary, 454 Life Sciences Corporation, is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) or 15d-15(f) promulgated under the Securities Exchange Act of 1934 as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the 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.

CuraGen's management, with the supervision and participation of the Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2006. In making this assessment, management used the criteria set forth by the Committee of

Sponsoring Organizations of the Treadway Commission (COSO) in "Internal Control-Integrated Framework." Based on this assessment, management has concluded that, as of December 31, 2006, the Company's internal control over financial reporting is effective based on those criteria.

(b) Management's assessment of the effectiveness of our internal control over financial reporting as of December 31, 2006 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in its report entitled Report of Independent Registered Public Accounting Firm, which is included herein on page 87.

(c) Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the fiscal quarter ended as of December 31, 2006 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. ***Other Information***

Not applicable.

PART III

Item 10. ***Directors, Executive Officers and Corporate Governance***

The response to this item is incorporated by reference from the discussion under the captions "Director Compensation," "Section 16(a) Beneficial Ownership Reporting Compliance," "Code of Ethics and Corporate Code of Conduct," and "Executive Officers and Executive Compensation," in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

Item 11. ***Executive Compensation***

The response to this item is incorporated by reference from the discussion under the caption "Executive Compensation" in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

Item 12. ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The response to this item is incorporated by reference from the discussion under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

Item 13. ***Certain Relationships and Related Transactions, and Director Independence***

The response to this item is incorporated by reference from the discussion under the captions "Employment Agreements, Termination of Employment and Change in Control Arrangements" and "Certain Relationships and Related Transactions" in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

Item 14. ***Principal Accountant Fees and Services***

The response to this item is incorporated by reference from the discussion under the caption "Principal Accountant Fees and Services" in our Proxy Statement for the 2007 Annual Meeting of Stockholders.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

ITEM 15 (a)(1) ***Financial Statements***

The following Financial Statements are included in Item 8:

Consolidated Balance Sheets as of December 31, 2006 and 2005

Consolidated Statements of Operations for the Years Ended December 31, 2006, 2005 and 2004

Consolidated Statements of Changes in Stockholders' Equity for the Years Ended December 31, 2006, 2005 and 2004

Consolidated Statements of Cash Flows for the Years Ended December 31, 2006, 2005 and 2004

Notes to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

ITEM 15 (a)(2) ***Financial Statement Schedules***

All schedules are omitted because they are not applicable or the required information is shown in the financial statements or the notes thereto.

ITEM 15 (a)(3) ***Exhibits***

Reference is made to the index to Exhibits on page 108.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Dated: March 14, 2007

CURAGEN CORPORATION

By: /s/ DAVID M. WURZER
David M. Wurzer
Executive Vice President,
Chief Financial Officer and Treasurer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title
/s/ FRANK M. ARMSTRONG, M.D. **Frank M. Armstrong, M.D.**	President and Chief Executive Officer (principal executive officer of the registrant)
/s/ DAVID M. WURZER **David M. Wurzer**	Executive Vice President, Chief Financial Officer and Treasurer (principal financial and accounting officer of the registrant)
/s/ VINCENT T. DEVITA, JR., M.D. **Vincent T. DeVita, Jr., M.D.**	Director Dated: March 9, 2007
/s/ DAVID R. EBSWORTH, PH.D. **David R. Ebsworth, Ph.D.**	Director Dated: March 9, 2007
/s/ JOHN H. FORSGREN **John H. Forsgren**	Director Dated: March 9, 2007
/s/ JAMES J. NOBLE, M.A., F.C.A. **James J. Noble, M.A., F.C.A.**	Director Dated: March 12, 2007
/s/ ROBERT E. PATRICELLI, J.D. **Robert E. Patricelli, J.D.**	Director Dated: March 13, 2007
/s/ JONATHAN M. ROTHBERG, PH.D. **Jonathan M. Rothberg, Ph.D.**	Director Dated: March 10, 2007
/s/ PATRICK J. ZENNER **Patrick J. Zenner**	Director Dated: March 9, 2007

EXHIBIT INDEX

Exhibit No.	Description	Incorporated by Reference to: Form and SEC File No.	SEC Filing Date	Exhibit No.	Filed with this 10-K
	Certificate of Incorporation and By-Laws				
3.1	Restated Certificate of Incorporation of the Registrant	S-1/A (333-38051)	3-13-1998	3.3	
3.2	Certificate of Amendment of the Restated Certificate of Incorporation of the Registrant	10-Q (000-23223)	8-12-2003	3.2	
3.3	Certificate of Designation, Series A Junior Participating Preferred Stock of the Registrant	10-K (000-23223)	3-26-2003	3.3	
3.4	Amended and Restated By-Laws of the Registrant	10-Q (000-23223)	11-4-2005	4.1	
3.5	Amended and Restated Certificate of Incorporation of 454 Life Sciences Corporation	10-Q (000-23223)	8-9-2006	3.1	
	Instruments Defining the Rights of Security Holders				
4.1	Form of Common Stock Certificate of the Registrant	S-1/A (333-38051)	3-13-1998	4.2	
4.2	Indenture dated as of February 2, 2000 between the Registrant and The Chase Manhattan Bank, as trustee	S-3 (333-32756)	3-17-2000	4.1	
4.3	Indenture dated as of February 17, 2004 between the Registrant and The Bank of New York, as trustee	10-K (000-23223)	3-11-2004	4.5	
4.4	Stockholder Rights Agreement, dated March 27, 2002, by and between the Registrant and American Stock Transfer and Trust Company	10-K (000-23223)	4-1-2002	4.4	
	Material Contracts—Equity Compensation Plans and Related Agreements				
10.1#	1993 Stock Option and Incentive Award Plan of the Registrant, as amended and restated through May 12, 1997	10-K (000-23223)	3-14-2005	10.1	
10.2#	1997 Employee, Director and Consultant Stock Plan of the Registrant, as amended and restated through January 26, 2005	8-K (000-23223)	2-7-2005	99.2	
10.3#	Form of Non-Qualified Stock Option Agreement (Pre May 3, 2006) (Standard) of the Registrant	8-K (000-23223)	2-7-2005	99.3	
10.4#	Form of Non-Qualified Stock Option Agreement (Pre May 3, 2006) (Director & Officer) of the Registrant (Filed as Exhibit 99.4)	8-K (000-23223)	2-7-2005	99.4	
10.5#	Form of Non-Qualified Stock Option Agreement (Effective May 3, 2006) (Standard) of the Registrant	10-Q (000-23223)	8-9-2006	10.5	
10.6#	Form of Non-Qualified Stock Option Agreement (Effective May 3, 2006) (Director & Officer) of the Registrant	10-Q (000-23223)	8-9-2006	10.6	

Exhibit No.	Description	Incorporated by Reference to			Filed with this 10-K
		Form and SEC File No.	SEC Filing Date	Exhibit No.	
10.7#	Form of Incentive Stock Option Agreement of the Registrant	8-K (000-23223)	2-7-2005	99.5	
10.8#	Form of Restricted Stock Agreement of the Registrant	8-K (000-23223)	2-7-2005	99.6	
10.9#	Executive Incentive Plan of the Registrant	8-K (000-23223)	2-7-2005	99.1	
10.10#	454 Life Sciences Corporation 2000 Employee, Director and Consultant Stock Plan (Effective June 6, 2000)	8-K (000-23223)	2-7-2005	99.7	
10.11#	454 Life Sciences Corporation 2006 Equity Incentive Plan	8-K (000-23223)	5-24-06	99.1	
10.12#	454 Life Sciences Corporation Form of Non-Qualified Stock Option Agreement (Standard), granted under the 2000 Employee, Director and Consultant Stock Plan	8-K (000-23223)	2-7-2005	99.8	
10.13#	454 Life Sciences Corporation Form of Non-Qualified Stock Option Agreement (Director), granted under the 2000 Employee, Director and Consultant Stock Plan	8-K (000-23223)	2-7-2005	99.9	
10.14#	454 Life Sciences Corporation Form of Incentive Stock Option Agreement granted under the 2000 Employee, Director and Consultant Stock Plan	8-K (000-23223)	2-7-2005	99.10	
10.15#	454 Life Sciences Corporation Form of Nonstatutory Stock Option Agreement granted under the 2006 Equity Incentive Plan	8-K (000-23223)	5-24-06	99.2	
10.16#	454 Life Sciences Corporation Form of Incentive Stock Option Agreement, granted under the 2006 Equity Incentive Plan	8-K (000-23223)	5-24-06	99.3	
10.17#	Revised Board of Directors Compensation Policy of the Registrant, approved March 29, 2006	10-Q (000-23223)	5-10-2006	10.6	
10.18#	Executive Officer Compensation Summary				*
10.19#	Non-Employee Director Compensation Summary				*
	Material Contracts—Stock Purchase, Registration Rights and Underwriting Agreements				
10.20	Resale Registration Rights Agreement dated as of February 2, 2000 among the Registrant and Lehman Brothers Inc., Morgan Stanley & Co. Incorporated and Dain Rauscher Incorporated, as the initial purchasers	S-3 (333-32756)	3-17-2000	4.2	
10.21	Purchase Agreement, dated June 5, 2000, between 454 Life Sciences Corporation, the Registrant and several purchasers	10-K (000-23223)	3-11-2004	10.25	
10.22	Purchase Agreement, dated September 18, 2003, between 454 Life Sciences Corporation, the Registrant and several purchasers	10-K (000-23223)	3-11-2004	10.26	

Exhibit No.	Description	Incorporated by Reference to			Filed with this 10-K
		Form and SEC File No.	SEC Filing Date	Exhibit No.	
10.23	Purchase Agreement dated February 10, 2004, between the Registrant and Bear, Stearns & Co., Inc.	10-K (000-23223)	3-11-2004	10.30	
10.24	Registration Rights Agreement dated February 17, 2004 among the Registrant and Bear, Stearns & Co. Inc., as the initial purchaser	10-K (000-23223)	3-11-2004	10.31	
10.25	Underwriting Agreement, dated August 9, 2005, by and between the Registrant and Bear, Stearns & Co., Inc.	8-K (000-23223)	8-10-2005	1.1	
10.26	Stock Purchase Agreement, dated January 12, 2001, by and between Bayer AG and the Registrant	10-K (000-23223)	3-28-2001	10.26	
	Material Contracts—Leases				
10.27	Lease, as amended and restated, through July 1, 2005, (Branford) by and between T.K.J. Associates, LLC and the Registrant	10-Q (000-23223)	11-4-2005	10.3	
10.28	Lease Agreement dated December 23, 1996 (New Haven) by and between the Registrant and Fusco Harbour Associates, LLC	S-1 (333-38051)	10-16-1997	10.1	
10.29	Memorandum of Lease for Lease Agreement dated December 23, 1996 and amended on October 27, 1997 and August 31, 1998 (New Haven) between the Registrant and Fusco Harbour Associates, LLC	10-K (000-23223)	3-26-1999	10.1	
10.30	Third, Fourth, Fifth and Sixth Amendments to Lease Agreements dated January 1, 2001, June 5, 2001, March 12, 2002 and May 8, 2002, respectively, (New Haven) by and between the Registrant and Fusco Harbour Associates, LLC	10-K (000-23223)	3-26-2003	10.1	
10.31	Lease, dated January 13, 2004, (Branford) by and between ZFI Group, LLC and the Registrant	10-K (000-23223)	3-11-2004	10.29	
10.32	Lease Agreement dated May 24, 2001 between the Registrant and 16 Commercial Street Associates, LLC	10-K (000-23223)	4-1-2002	10.27	
10.33	Amendment, Assignment and Assumption of Lease with Landlord's Consent and Novation, dated August 23, 2005, (Branford) by and between 16 Commercial Street Associates, LLC, the Registrant and 454 Life Sciences Corporation	10-Q (000-23223)	11-4-2005	10.1	
10.34	Lease Agreement dated May 18, 2001 and Amendment to Lease Agreement dated November 29, 2001 (Branford) between 454 Corporation, Inc. and 20 Commercial Street Associates, LLC	10-K (000-23223)	4-1-2002	10.28	
10.35	Second Amendment of Lease Agreement, dated August 23, 2005, (Branford) by and between 20 Commercial Street Associates, LLC and 454 Life Sciences Corporation	10-Q (000-23223)	11-4-2005	10.2	

Exhibit No.	Description	Incorporated by Reference to			Filed with this 10-K
		Form and SEC File No.	SEC Filing Date	Exhibit No.	
10.36	Lease Agreement for Portion of Property, dated December 7, 2006, (Branford) by and between 1 Commercial Street Associates, LLC and 454 Life Sciences Corporation				*
	Material Contracts—Collaboration, Supply, License, Distribution Agreements				
10.37†	Metabolic Disorder Collaboration Agreement, dated January 12, 2001, by and between Bayer Corporation and the Registrant	10-K (000-23223)	3-28-2001	10.24	
10.38†	Amendment, dated November 11, 2005, to Metabolic Disorder Collaboration Agreement, dated January 12, 2001, by and between Bayer Corporation and the Registrant	10-K (000-23223)	3-14-2006	10.30	
10.39†	Amendment, dated May 30, 2006, to Metabolic Disorder Collaboration Agreement, dated January 12, 2001, by and between Bayer Corporation and the Registrant	10-Q (000-23223)	8-9-2006	10.1	
10.40†	Pharmacogenomics Agreement, dated January 12, 2001, by and between the Registrant and Bayer AG	10-K (000-23223)	3-28-2001	10.25	
10.41†	Amendment dated December 19, 2003 to Pharmacogenomics Agreement, dated January 12, 2001, by and between the Registrant and Bayer AG	10-K (000-23223)	3-11-2004	10.12	
10.42†	Amended and Restated Technology Transfer and License Agreement, dated June 23, 2003, by and between the Registrant and 454 Life Sciences Corporation	10-K (000-23223)	3-11-2004	10.27	
10.43†	License Agreement, dated August 18, 2003, by and between Pyrosequencing AB and 454 Life Sciences Corporation	10-K (000-23223)	3-11-2004	10.28	
10.44†	Second Restated Collaboration Agreement, dated April 12, 2004 and amended October 19, 2004, between Abgenix, Inc. and the Registrant	10-Q (000-23223)	8-6-2004	10.1	
10.45†	License and Collaboration Agreement, dated as of June 3, 2004, between TopoTarget A/S and the Registrant	10-Q (000-23223)	8-6-2004	10.2	
10.46†	Collaboration Agreement, dated June 18, 2004, between Seattle Genetics, Inc. and the Registrant	10-K (000-23223)	3-14-2006	10.38	
10.47†	License, Supply and Distribution Agreement dated May 11, 2005 between 454 Life Sciences Corporation and F. Hoffmann-La Roche Ltd	10-Q (000-23223)	8-5-2005	10.2	
10.48†	Research and Development Agreement between 454 Life Sciences Corporation and F. Hoffmann-La Roche Ltd	10-Q (000-23223)	8-5-2005	10.3	

Exhibit No.	Description	Incorporated by Reference to: Form and SEC File No.	SEC Filing Date	Exhibit No.	Filed with this 10-K
10.49†	First Amendment to License, Supply and Distribution Agreement dated May 11, 2005 and amended December 19, 2005, between 454 Life Sciences Corporation and F. Hoffmann-La Roche Ltd				*
10.50†	Second Amendment to License, Supply and Distribution Agreement dated May 11, 2005 and amended October 24, 2006, between 454 Life Sciences Corporation and F. Hoffmann-La Roche Ltd				*
10.51†	Third Amendment to License, Supply and Distribution Agreement dated May 11, 2005 and amended December 19, 2006, between 454 Life Sciences Corporation and F. Hoffmann-La Roche Ltd				*
	Material Contracts—Employment Agreements				
10.52#	Chairmanship Agreement, dated August 30, 2005, between the Registrant, 454 Life Sciences Corporation and Jonathan M. Rothberg, Ph.D.	8-K (000-23223)	9-9-2005	99.1	
10.53#	Employment Agreement, dated September 1, 2006, between the Registrant and Frank M. Armstrong, M.D.	8-K (000-23223)	9-8-06	99.1	
10.54#	Employment Agreement, dated September 1, 2006, between the Registrant and Paul M. Finigan	8-K (000-23223)	9-8-06	99.2	
10.55#	Employment Agreement, dated September 1, 2006, between the Registrant and Timothy M. Shannon, M.D.	8-K (000-23223)	9-8-06	99.3	
10.56#	Employment Agreement, dated September 1, 2006, between the Registrant and Elizabeth A. Whayland	8-K (000-23223)	9-8-06	99.4	
10.57#	Employment Agreement, dated September 1, 2006, between the Registrant and David M. Wurzer	8-K (000-23223)	9-8-06	99.5	
10.58#	Employment Agreement, dated September 1, 2006, between 454 Life Sciences Corporation and Christopher K. McLeod	8-K (000-23223)	9-8-06	99.6	
	Additional Exhibits				
12.1	Ratio of Earnings to Fixed Charges				*
14.1	Code of Ethics for the Chief Executive Officer and Senior Financial Officers of the Registrant, dated November 12, 2003	10-K (000-23223)	3-11-2004	14.1	
14.2	Corporate Code of Conduct of the Registrant, dated March 1, 2004	10-K (000-23223)	3-11-2004	14.2	
21.1	Subsidiaries of the Registrant				*
23.1	Consent of Deloitte & Touche LLP				*
31.1	Certification by Chief Executive Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				*

Exhibit No.	Description	Incorporated by Reference to			Filed with this 10-K
		Form and SEC File No.	SEC Filing Date	Exhibit No.	
31.2	Certification by Chief Financial Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				*
32.1	Certification by Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				*

Management contracts or compensatory plans or arrangements required to be filed as an exhibit hereto pursuant to Item 15(a) of Form 10-K.

† Confidential treatment requested as to certain portions, which portions have been separately filed with the Securities and Exchange Commission.

BOARD OF DIRECTORS

Robert E. Patricelli, J.D.
Non-executive Chairman of the Board of CuraGen Corporation
Chairman and Chief Executive Officer of Women's Health USA Inc., and Evolution Benefits, Inc.

Frank M. Armstrong, M.D.
President and Chief Executive Officer of CuraGen Corporation

Vincent T. DeVita, Jr., M.D.
Amy and Joseph Perella Professor of Medicine at Yale Cancer Center and Yale School of Medicine and past Director of the National Cancer Institute

David R. Ebsworth, Ph.D.
Former Chief Executive Officer of Oxford Glycosciences PLC and Former President and General Manager of the Pharmaceutical Business Group for Bayer AG

John H. Forsgren
Retired Vice Chairman of the Board, Executive Vice President and Chief Financial Officer of Northeast Utilities Systems

James J. Noble, M.A., F.C.A.
Former Chief Executive Officer of Avidex Ltd.

Jonathan M. Rothberg, Ph.D.
Founder of CuraGen Corporation, Founder and Chairman of 454 Life Sciences

Patrick J. Zenner
Former President and Chief Executive Officer of Hoffmann-La Roche Inc. North America

MANAGEMENT TEAMS

CURAGEN CORPORATION

Frank M. Armstrong, M.D.
President and Chief Executive Officer

Timothy M. Shannon, M.D.
Executive Vice President of Research and Development and Chief Medical Officer

David M. Wurzer
Executive Vice President, Chief Financial Officer and Treasurer

Paul M. Finigan, J.D.
Senior Vice President and General Counsel

Steven A. Henck, Ph.D.
Senior Vice President of Operations

Mary E. Taylor, M.P.H.
Senior Vice President of Regulatory Affairs

Elizabeth A. Whayland
Senior Vice President of Finance and Corporate Secretary

Henri S. Lichenstein, Ph.D.
Vice President of Product Development

454 LIFE SCIENCES CORPORATION

Christopher K. McLeod
Chief Executive Officer and President

Peter J. Dacey
Vice President of Finance and Operations and Corporate Secretary

Michael Egholm, Ph.D.
Vice President of Molecular Biology

Marcel Margulies, Ph.D.
Vice President of Engineering

Mary L. Schramke, Ph.D.
Vice President of Marketing

David P. Smith, Ph.D.
Vice President of Manufacturing

Katherine A. Webster
Vice President of Sequencing Center Sales

CORPORATE INFORMATION

Annual Meeting

The Annual Meeting of Stockholders will be held on Wednesday, May 2, 2007 at the Omni New Haven Hotel at Yale. Detailed information about the meeting is contained in the Notice of Annual Meeting and Proxy Statement sent with a copy of the annual report to each stockholder of record as of March 15, 2007.

Corporate Headquarters
CuraGen Corporation
322 East Main Street
Branford, CT 06405
Phone: (203) 481-1104
(888) 436-6642
Fax: (203) 483-2552

Corporate Website
For further information, the company's website provides additional information on CuraGen's research and development programs, clinical trials, investor relations, and career opportunities. The site can be accessed at www.curagen.com.

Stock Listing
CuraGen is listed on the NASDAQ Global Market under the symbol CRGN.

Transfer Agent
Communications concerning stock transfer requirements, lost certificates and change of address should be directed to the company's transfer agent:

American Stock Transfer and Trust Company
59 Maiden Lane
Plaza Level
New York, NY 10038
Phone: (800) 937-5449
Fax: (718) 236-2641
Web: www.amstock.com

Investor Relations
CuraGen invites interested parties to contact:

Glenn Schulman, PharmD, MPH
Director of Investor Relations
CuraGen Corporation
322 East Main Street
Branford, CT 06405
Phone: (888) 436-6642, ext. 6555
Fax: (203) 483-2550
Email: investors@curagen.com
Web: www.curagen.com

Independent Auditors
Deloitte & Touche LLP
Hartford, CT

Statements contained or incorporated by reference in this Annual Report that are not based on historical fact are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Exchange Act. Forward-looking statements can be identified by terminology such as "anticipate," "believe," "could," "could increase the likelihood," "estimate," "expect," "intend," "is planned," "may," "should," "will," "will enable," "would be expected," "look forward," "may provide," "would" or similar terms, variations of such terms or the negative of those terms. These forward-looking statements regarding future events and our future results are based on current expectations, estimates, forecasts and projections, and the beliefs and assumptions of our management. We cannot assure investors that our expectations and assumptions will prove to have been correct. Important factors could cause our actual results to differ materially from those indicated or implied by forward-looking statements. Such factors that could cause or contribute to such differences include those factors discussed in our Annual Report on Form 10-K for the year ended December 31, 2006 under the section "Risk Factors" as well as other documents that may be filed by us from time to time with the Securities and Exchange Commission. We undertake no intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Design and Photography by 1919 Creative Studio, New York, NY

CURAGEN THERAPEUTIC PORTFOLIO
CLINICAL AND PRECLINICAL CANDIDATES.

PROJECT	MODALITY	MECHANISM	INDICATION	IN VIVO	PRECLINICAL	PHASE I	PHASE IB	PHASE II
VELAFERMIN (CG53135)	O	Growth Factor	Oral Mucositis—Prevention					
BELINOSTAT (PXD101)	OOO	HDAC Inhibitor	*CuraGen Sponsored:*					
			T-cell Lymphoma: monotherapy					
			Ovarian Cancer: plus paclitaxel/carboplatin					
			Multiple Myeloma: plus Velcade®					
			Colorectal: plus 5-fluorouracil					
			Solid Tumors: Oral PXD101					
			NCI Sponsored:					
			AML: monotherapy					
			B-cell: monotherapy					
			Mesothelioma: monotherapy					
			Ovarian: monotherapy					
			MDS: monotherapy					
			Hepatocellular: monotherapy					
			Advanced Tumors: plus Velcade®					
			Solid Tumors: plus retinoic acid					
			Hematologic Tumors: plus azacitidine					
CR011-vcMMAE	OOOO	GPNMB	Metastatic Melanoma					
CR002	OO	PDGF-D	Kidney Inflammation					
CR014-vcMMAE	OOOO	TIM-1	Kidney, Ovarian cancer					
CR012	OO	SLPI	Ovarian, Colorectal cancer					
CR007	OO	Ten-M2	Renal cell carcinoma, Glioma					
CR064	OO	ANGPTL4	Renal, Colorectal cancer					
CR074-INF	OO	MMP13	Arthritis, joint injury					
CR074-ONC	OO	MMP13	Breast, Colorectal cancer					
CR014-INF	OO	TIM1	Arthritis, Asthma					
PX106491	OOO	HDAC Inhibitor	Lupus					
PX-HDS	OOO	HDAC Inhibitor	Huntington's Disease					
CG57069	O	Ten-M3	Anti-angiogenic					
CG54020	O	EPHA8r	Breast, Lung cancer					
CG54455	O	FGF-22	IBD, Wound Healing					
CG51896	O	Semaphoren 6A-1	Renal, Colon cancer					

AS OF MARCH 2007

O Protein

O O Antibody

O O O Small molecule

O O O O Antibody-drug conjugat

Stage definitions:
In vivo – product is initially being tested in animal models or being scaled-up for initial animal testing
Preclinical – product activity has been established in animal models and preparations being made for clinical development
Phase I and beyond – clinical development

CuraGen has not received marketing approval for any of its products

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Fax: (203) 483-2552
Web: www.curagen.com

END