

GENVEC INC (GNVC)

10-K

Annual report pursuant to section 13 and 15(d)

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2009

or

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

For the transition period from . . . to . . .

COMMISSION FILE NUMBER: 0-24469

GENVEC, INC.

(Exact name of Registrant as specified in its charter)

DELAWARE
(State or other jurisdiction of
incorporation or organization)

23-2705690
(I.R.S. Employer
Identification Number)

65 WEST WATKINS MILL ROAD, GAITHERSBURG, MD
(Address of principal executive offices)

20878
(Zip code)

Registrant's telephone number, including area code: **240-632-0740**

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

Title of Each Class
Common Stock, Par Value \$0.001 Per Share

Name of Each Exchange on Which Registered
The NASDAQ Stock Market

Securities registered pursuant to section (12g) of the Act: Preferred Share Purchase Rights

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 Securities Exchange Act of 1934. Yes No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter 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 whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark 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 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, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company

(Do not check if a smaller reporting company)

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Securities Exchange Act of 1934. Yes No

As of June 30, 2009 the aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant based on the closing sale price of such stock as reported by the NASDAQ Global Market on such date was \$71,700,482. For purposes of this calculation, shares of common stock held by directors, officers, and stockholders whose ownership exceeds 10 percent of the common stock outstanding at June 30, 2009 were excluded. Exclusion of such shares held by any person should not be construed to indicate that the person possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the Registrant, or that the person is controlled by or under common control with the Registrant.

As of February 28, 2010 there were 124,871,515 shares of the Registrant's common stock, par value \$0.001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain portions of the Registrant's Definitive Proxy Statement for its 2010 Annual Meeting of Stockholders are incorporated by reference into Part III of this report.

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GENVEC, INC.

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This report includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements also may be included in other statements that we make. All statements that are not descriptions of historical facts are forward-looking statements and are based on management's estimates, assumptions and projections that are subject to risks and uncertainties. These statements can generally be identified by the use of forward-looking words like "believe," "expect," "intend," "may," "will," "should," "anticipate," or similar terminology.

Although we believe that the expectations reflected in our forward-looking statements are reasonable as of the date we make them, actual results could differ materially from those currently anticipated due to a number of factors, including risks relating to:

- Our financial condition, the sufficiency of our existing cash, cash equivalents, marketable securities, and cash generated from operations and our ability to lower our operating costs;
- Our access to additional cash and working capital and our ability to raise capital to fund clinical programs and future operations, including through sales of common or preferred stock, the issuance of debt, or collaborative arrangements;
 - Certain of our product candidates being in the early stages of development;
- Uncertainties with, and unexpected results and related analyses relating to, clinical trials of our product candidates (including the length of time required to enroll suitable patient subjects and our ability to secure clinical trial sites);
 - The timing, amount, and availability of revenues from our government-funded vaccine programs;
 - The timing and content of future FDA regulatory actions related to us, our product candidates, or our collaborators;
 - Our ability to find collaborators or commercialize our product candidates; and
- The scope and validity of patent protection for our product candidates and our ability to commercialize products without infringing the patent rights of others.

Further information on the factors and risks that could affect our business, financial condition and results of operations is set forth under Item 1A in this Annual Report and is contained in our other filings with the Securities and Exchange Commission (SEC). The filings are available on our website at www.genvec.com or at the SEC's website, www.sec.gov.

These forward-looking statements speak only as of the date of this Annual Report and we assume no duty to update our forward-looking statements.

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PART I

ITEM 1. BUSINESS

OVERVIEW

GenVec, Inc. (GenVec, we, our, or the Company) is a clinical stage biopharmaceutical company developing novel, gene-based therapeutic drugs and vaccines. Our lead therapeutic product candidate, TNFerade™ biologic (TNFerade), is being developed for use in the treatment of cancer. TNFerade is currently the subject of a randomized, controlled, Phase 3 pivotal trial, known as PACT, for first-line treatment of inoperable, locally advanced pancreatic cancer. Interim data supporting a potential survival advantage in the TNFerade group were disclosed in November 2008. Interim data, based on an analysis after one-third of deaths necessary to complete the trial, demonstrated an approximately 25% lower risk of death in the TNFerade plus standard of care (SOC) arm relative to the SOC alone arm (Hazard Ratio = 0.753; 95% Confidence Interval [0.494 – 1.15]). At this time, an independent Data Safety Monitoring Board reviewed the interim analysis data and recommended the trial continue as planned.

In November 2008, TNFerade was granted Fast Track designation by the U.S. Food and Drug Administration (FDA) for its proposed use in the treatment of locally advanced pancreatic cancer. In November 2009, the FDA granted orphan drug designation for TNFerade for the treatment of patients with pancreatic cancer. In January 2010, GenVec announced that 184 events (deaths) had occurred in the PACT trial. This event, which represents two-thirds of the total events expected in the trial, triggered the next interim analysis of overall survival in the trial. GenVec expects data from this interim analysis to be available in March or April of 2010.

TNFerade is also being evaluated for possible use in the treatment of other types of cancer. Using our core adenovector technology, TNFerade stimulates the production of tumor necrosis factor alpha (TNF), a known anti-tumor protein, in cells of the tumor. Clinical trials have been conducted and encouraging results have previously been reported in studies for esophageal cancer, head and neck cancer, rectal cancer, and soft tissue sarcomas. We expect to initiate a Phase 1 clinical trial in prostate cancer in 2010.

Our core technology has the important advantage of localizing protein delivery in the body. This is accomplished by using our adenovector platform to locally deliver genes to cells, which then direct production of the desired protein. In the case of TNFerade, this approach reduces side effects typically associated with systemic delivery of the TNF protein. For vaccines, the goal is to induce a broad immune response against a target protein or antigen. This is accomplished by using the adenovector to deliver a gene that causes production of an antigen, which then stimulates the desired immune reaction by the body.

Our research and development activities have also yielded additional therapeutic product candidates that utilize our technology platform and we believe represent potential commercial opportunities. For example, preclinical research in hearing loss and balance disorders suggests delivery of the atonal gene using GenVec's adenovector technology may have the potential to restore hearing and balance function. We have recently entered into a research collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. (Novartis), which focuses on the discovery and development of novel treatments for hearing loss and balance disorders. There are currently no effective treatments available for patients who have lost all balance function, and hearing loss remains a major unmet medical problem.

In partnership with our collaborators, we also have multiple vaccines in development. All of these programs are funded by third-parties and utilize our core adenovector technology. One vaccine candidate targets the prevention of a major animal health problem, foot-and-mouth disease (FMD). Development efforts for this program are supported by the U.S. Department of Homeland Security and in collaboration with the U.S. Department of Agriculture. We anticipate a conditional license application for a FMD vaccine will be filed in late 2010. In addition, we have a collaboration with the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH) to develop a human immunodeficiency virus (HIV) vaccine and an influenza virus vaccine. We also have a program with the U.S. Naval Medical Research Center and the PATH Malaria Vaccine Initiative to develop vaccines for malaria. GenVec also has grant-supported preclinical programs to develop vaccine candidates for the prevention of respiratory syncytial virus (RSV) and herpes simplex virus type 2 (HSV-2).

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As a clinical stage biopharmaceutical company, our business and our ability to execute our strategy to achieve our corporate goals are subject to numerous risks and uncertainties. Material risks and uncertainties relating to our business and our industry are described in Item 1A of this Form 10-K. The description of our business in this Form 10-K should be read in conjunction with the information in Item 1A and the Financial Statements found under Item 8 of Part II of this Annual Report, which includes additional financial information about our total assets, revenue, measures of profit and loss, and financial information.

OUR STRATEGY

Our primary objective is to develop and commercialize products with significant medical benefits. We plan to achieve this objective through the following strategies:

Develop and commercialize our lead product candidate, TNFerade, for the treatment of cancer. We intend to seek marketing approval for TNFerade for the treatment of locally advanced pancreatic cancer and build the commercial value of TNFerade by expanding its clinical use in a variety of cancers. We are seeking to secure strategic partnerships to support TNFerade registration and commercialization efforts. Based on the survival data obtained to date, we believe using TNFerade in the indication of locally advanced pancreatic cancer represents a feasible path to commercialization.

Develop and commercialize additional product opportunities through strategic collaborations and partnerships. We are engaged in seeking strategic collaborations and partnerships to further develop and potentially commercialize our therapeutic and vaccine product candidates. Our preferred strategy is to consider collaborative arrangements with third parties for some or all aspects of development, manufacturing, marketing, and sales of products developed from our product candidates that we believe will require broad marketing capabilities and marketing outside of the U.S. In January 2010, we announced a collaboration with Novartis to discover and develop novel treatments for hearing loss and balance disorders. We intend to seek corporate partnerships in the following programs:

- Vaccine against HSV-2, which is the virus responsible for most cases of genital herpes.
- Vaccine against RSV, which is the most common viral cause of lower respiratory infections in infants and young children.
- Vaccines against foot-and-mouth disease, which is a major, worldwide animal health problem.

Maintain our leadership in adenovirus vectors and further develop our core technologies. We intend to continue to enhance our gene delivery capabilities through internal research as well as external collaborations and possible acquisitions. We have received peer-reviewed external funding from the U.S. government and from nonprofit foundations to improve our technology platform for vaccine and gene delivery applications. For example, we have received funding to develop our cell line technology for antigen discovery and for a second-generation product candidate to treat cancer. We intend to further strengthen our technologies relating to process development, formulation, and manufacturing through our existing and future relationships.

THERAPEUTIC PRODUCT DEVELOPMENT PROGRAMS

TNFerade. Our most advanced product candidate for human disease is TNFerade, a novel approach to treating cancer. Administered directly into tumors, TNFerade is an adenovector, or DNA carrier, which contains the gene for tumor necrosis factor-alpha (TNF), a potent immune system protein with well-documented anti-cancer effects. TNFerade works by causing cells in the tumor to produce and secrete TNF. TNF binds to cells in the tumor, leading to the death of cells in the tumor. We are developing TNFerade for use in combination with radiation and/or chemotherapy for the treatment of various cancers.

TNFerade has been granted Fast Track product designation by the U.S. Food and Drug Administration (FDA) for its proposed use in the treatment of locally advanced pancreatic cancer. Fast Track designation can potentially facilitate the expedited FDA review of Biologics License Applications, which are required as part of the FDA review of biologic products. Fast Track designation is reserved for products that demonstrate the potential to treat a life-threatening condition and that have demonstrated the potential to address unmet medical needs for that condition. Fast Track designation does not apply to a product alone but to a combination of a product and a specific indication.

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TNFERade has also been granted orphan drug status for the treatment of pancreatic cancer. The FDA grants orphan drug designation to drugs that may provide a significant therapeutic advantage over existing treatments and target conditions affecting 200,000 or fewer U.S. patients per year. Orphan drug designation provides potential financial and regulatory incentives including study design assistance, waiver of FDA user fees, tax credits, and up to seven years of market exclusivity upon marketing approval. Emerging clinical data suggest TNFERade may prolong the survival of patients with locally advanced pancreatic cancer when combined with front-line therapy. Clinical data also suggest TNFERade has activity against a variety of types of cancer.

In two separate Phase 1 trials (solid tumors and soft tissue sarcomas), TNFERade, in conjunction with standard radiation therapy, demonstrated that it was generally well tolerated. Tumor size reduction of 25% or greater was observed in more than 70% of patients in 12 different tumor types, including pancreatic, rectal, melanoma, small cell lung, breast, and sarcoma. Results from the Phase 1 trial in solid tumors were published in the February 15, 2004 issue of the *Journal of Clinical Oncology*. The Phase 1 study of 14 patients with soft tissue sarcoma, published in the September 1, 2004 issue of *Clinical Cancer Research*, demonstrated TNFERade activity in a tumor type for which the TNF protein has been approved for use in Europe.

Based on the results of our Phase 1 studies, we initiated a Phase 2, dose-escalation study in 50 patients with locally advanced pancreatic cancer to determine the best therapeutic dose of TNFERade in combination with standard chemoradiation. Results from this study suggested activity, including an apparent dose related improvement in survival. Based on these data, we initiated a randomized, controlled, Phase 2 study of 74 patients. In consultation with the FDA, this Phase 2 study was amended in March 2006 to become a Phase 2/3, 330-patient pivotal (PACT) trial that would support registration of TNFERade for this indication. The primary endpoint for the PACT trial was originally based on 12-month survival.

We conducted an initial safety and efficacy analyses of the Phase 2/3 trial in the fourth quarter of 2006. In December 2006, we reported the preliminary analysis of safety data based on the first 40 patients treated and survival data on the first 51 patients treated. The safety analysis indicated there was no significant difference in the occurrence of serious adverse events (including thrombotic events) between the treatment and control groups. The efficacy data indicated a potentially emerging trend of an overall survival advantage in patients receiving TNFERade.

In January 2008, we reported an agreement with the FDA to change the primary efficacy endpoint of the trial from 12-month survival to overall survival. A benefit in overall survival can be considered a basis for full regulatory approval of TNFERade for this indication. We also agreed we would conduct two additional interim analyses of overall survival following one-third (92) and two-thirds (184) of the total events (deaths) for the study, with the potential to stop the trial for futility or if there was clear evidence of the drug's efficacy.

In April 2008, we presented data at the annual meeting of the American Association of Cancer Research illustrating the activity of TNFERade when used in combination with gemcitabine in preclinical models of pancreatic cancer. The results of the research show that a combination of TNFERade and standard chemotherapy results in superior anti-tumor activity compared to chemotherapy alone. This research may lead to clinical studies of TNFERade in settings where radiotherapy is not indicated.

In November 2008, interim data were released based on an analysis after one-third (92) of deaths expected in the trial. Interim results demonstrated an approximately 25% lower risk of death in the TNFERade plus standard of care (SOC) arm relative to the SOC alone arm. Kaplan-Meier analysis of data demonstrated that overall survival at 12 months was 39.9% in the TNFERade plus SOC arm versus 22.5% in the SOC alone arm. Overall survival at 18 months was 30.5% in the TNFERade plus SOC arm versus 11.3% in the SOC alone arm. At 24 months, overall survival was 10.6% in the TNFERade plus SOC arm versus 11.3% in the SOC alone arm. Median survival was 9.9 months in both arms of the trial. The encouraging hazard ratio of 0.753 (Confidence Interval [0.494 – 1.15]) was mostly due to survival advantages occurring after the median rank. Additional details from this interim analysis were presented at the annual meeting of the American Society of Clinical Oncology in June 2009.

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In January 2010, we announced that 184 events (deaths) had occurred in the PACT trial. This event, which represents two-thirds of the total events required to complete the study, triggered the next interim analysis of overall survival in the trial. Data from this interim analysis is expected to be available in March or April of 2010.

In March 2010, preclinical research on TNFerade was published in *Molecular Therapy* demonstrating that local treatment of an animal tumor with TNFerade suppresses metastases to lymph nodes by activating CD8+ T cells. Activation of these anti-tumor cells is mediated by Interferon- γ , a known potent immune regulator. In addition to impacting local disease, the potential ability of TNFerade to suppress metastatic disease provides additional insight into the mechanism by which TNFerade may extend the lives of cancer patients.

New treatments for pancreatic cancer are urgently needed. According to a 2009 publication of the American Cancer Society, pancreatic cancer is the fourth leading cause of cancer deaths in the U. S., and the number of cases diagnosed increases year to year. In 2009, the American Cancer Society projected approximately 42,470 new cases of pancreatic cancer would be diagnosed that year in the U. S., and nearly all of these patients will die from their disease.

Additional Indications. TNFerade has been and is currently being evaluated for its potential use in the treatment of several other cancers including:

- **Head and Neck Cancer.** In 2009, the American Cancer Society projected approximately 48,000 new cases of head and neck cancer would be diagnosed in the United States that year. In January 2007, we initiated two separate Phase 2/3 studies at the University of Chicago to explore the use of TNFerade as a component of standard of care treatment for head and neck cancer, a disease where local control is crucial for effective treatment and is considered an accepted regulatory endpoint for this indication. Both studies were funded in part by the National Cancer Institute (NCI) of the NIH. The first study examined TNFerade as a second-line treatment for inoperable, recurrent tumors. In May 2008, encouraging data from this study were presented at the annual meeting of the American Society for Clinical Oncology. It was reported that 9 of 10 evaluable patients in the trial achieved an objective response to treatment. Of these patients, four achieved complete clinical response by Response Evaluation Criteria in Solid Tumor (RECIST) criteria. In February 2010, the trial was concluded having successfully determined the maximum tolerated dose (MTD). In the future, we intend to explore the continued development of TNFerade for this patient population. The second study was a single-site study intended to address elderly or frail patients with new onset, locally advanced disease. This trial was terminated due to poor enrollment.
- **Esophageal Cancer.** In 2009, the American Cancer Society projected 16,470 new cases of esophageal cancer would be diagnosed that year. It is projected in 2009 approximately 14,530 people will die from this disease. A Phase 2, multi-center, dose-escalating study of TNFerade in patients with resectable stage II and III esophageal cancer was conducted to assess the overall survival of patients. In January 2010, we presented the following data on this study: following treatment with TNFerade and chemoradiation, the median overall survival of patients in this study was 47.7 months. This compares favorably to a literature review of comparable studies showing median survival ranging from 9.7 to 34 months.
- **Rectal Cancer.** In 2009, the American Cancer Society projected 40,870 new cases of rectal cancer would be diagnosed in the United States that year. A Phase 2 trial occurred to assess the ability of TNFerade to improve tumor responses in conjunction with standard chemoradiation. This single-site study was done in collaboration with the NCI and was designed to compare TNFerade plus standard of care therapy with standard of care therapy in the treatment of patients with biopsy-proven rectal cancer. One objective of this study was to achieve better surgical outcomes in these patients, such as avoidance of colostomy. Encouraging early data were presented at the Annual Meeting of the American Society for Therapeutic Radiology and Oncology in October 2007. Prior to treatment, four of the first seven patients enrolled in the study were classified as highly likely to need sphincter-removing surgery with colostomy. Subsequent to TNFerade plus chemoradiation, all seven patients

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who underwent surgical resection had successful sphincter sparing procedures. Five of the seven patients achieved pathological complete response defined by the presence of less than 10% viable tumor. In 2009, the principal investigator departed the NCI and the study had to be discontinued.

- **Prostate Cancer.** In 2009, the American Cancer Society projected 192,280 new cases of prostate cancer would be diagnosed that year. This 2009 report also projected approximately 27,360 people died from this disease last year. In 2010, we expect to initiate a Phase 1 trial at the University of Chicago to explore the use of TNFerade as a component of standard of care treatment for prostate cancer, a disease where local control is crucial for effective treatment. This single-site study is being conducted in collaboration with, and with the financial support of, the NCI.

Next Generation Cancer Program. With funding from the NIH, we are exploring additional approaches to utilizing our technology in the treatment of cancer. In September 2009 we received a Phase 1 Small Business Innovation and Research (SBIR) grant from the NCI of the National Institutes of Health (NIH) to support research exploring a new approach to metastatic cancer treatment. Under this grant, valued at approximately \$300,000, GenVec will investigate the hypothesis that the delivery of a specific gene will stimulate an antitumor response that could control cancer metastases.

Hearing and Balance Disorders. In a collaboration with Novartis, our hearing and balance disorders program investigates delivery of the atonal gene in the inner ear. Our research program is focused on the restoration of hearing and balance function through the regeneration of critical cells of the inner ear. Hearing and balance require specialized cells of the inner ear called sensory hair cells. During embryonic development, a gene termed atonal (Atoh1) induces the generation of these cells. In multiple animal models we have demonstrated that the production of the Atoh1 protein results in the formation of new inner ear sensory hair cells and the restoration of hearing and balance function. There are currently no marketed drug therapies in the U.S. to treat hearing loss or balance disorders.

In December 2007, we received a sub-award under a grant from the National Institute on Deafness and Other Communication Disorders (NIDCD), of the NIH, to develop a gene-based drug therapy to treat severe balance disorders. Under this grant, GenVec will support preclinical research in collaboration with the University of Kansas Medical Center, leading to the development of a drug candidate for clinical testing.

In January 2010, we announced a collaboration with Novartis to discover and develop novel treatments for hearing loss and balance disorders. Under terms of the agreement, we licensed the world-wide rights to our preclinical hearing loss and balance disorders program to Novartis. We received a \$5.0 million upfront payment and Novartis purchased \$2.0 million of our common stock. In addition, subject to negotiation of a development agreement, we expect to receive funding from Novartis for a research program focused on developing additional adenovectors for hearing loss. If certain clinical, regulatory, and sales milestones are met, we are eligible to receive up to an additional \$206.6 million, in milestone payments in addition to royalties on future sales.

VACCINE DEVELOPMENT PROGRAMS

In addition to our therapeutic product development programs, we are working with collaborators to develop vaccines using our adenovector technology. We are currently developing a vaccine in animal health against FMD and preventative vaccines for malaria, HIV, RSV, and HSV-2.

Foot-and-mouth disease (FMD). FMD is a highly contagious viral disease affecting cows and other animals with cloven hoofs. With our government collaborators, we are developing vaccine and anti-viral candidates for the prevention and containment of FMD outbreaks. Initial testing with a vaccine against FMD showed that inoculated cattle challenged with the virus causing FMD did not develop symptoms. Pending the results of field safety trials, we anticipate a conditional license application for a FMD vaccine will be filed in late 2010.

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We have entered into the following agreements related to our FMD vaccine program:

- **U.S. DEPARTMENT OF HOMELAND SECURITY (DHS)**

In January 2007, we signed a three-year contract with the Department of Homeland Security (DHS) to support the development and manufacture of novel adenovector-based vaccines against FMD. Under the agreement, we received \$6.0 million in 2007 for program funding for the first year and had the possibility to receive up to \$15.1 million over three years if DHS exercised its renewal options under the contract.

In August 2007, the DHS executed the first renewal option under this agreement, which provided \$5.6 million in 2008 to support the development of vaccines for FMD and raised the total value of the three-year agreement to \$17.5 million if all renewal options are exercised.

In July 2008, the DHS executed the second renewal option under this agreement, which provided \$6.6 million of funding and raised the total value of the agreement to \$18.2 million.

In February 2010, we signed a new contract with the DHS to continue the development of adenovector-based vaccines against FMD. Under this new agreement, GenVec will receive \$3.8 million in program funding the first year and an additional \$0.7 million if DHS exercises its renewal option under the contract. Under this contract, we will use our adenovector technology to develop additional FMD-serotype candidate vaccines and also explore methods to increase the potency and simplify the production process of adenovector-based FMD vaccines.

- **U.S. DEPARTMENT OF AGRICULTURE (USDA)**

In August 2004, we signed a one-year, \$304,000 cooperative agreement with the U.S. Department of Agriculture (USDA) for the development of vaccine candidates against FMD.

In March 2006, we received a 20-month, \$1.7 million extension of our agreement with the USDA, which was funded through an interagency agreement by the U.S. Department of Homeland Security. The purpose of the agreement is to further advance the development of our proprietary cell line and adenovector technology for the generation of countermeasure vaccines and anti-viral agents to prevent the spread of FMD. This agreement was completed in December 2007.

Malaria. With our collaborators we are generating vaccine candidates for the prevention of malaria. We have produced clinical supplies of a multi-antigen vaccine candidate and, under the auspices of the U.S. Naval Medical Research Center (NMRC), a Phase 1/2a clinical study was initiated in January 2007. Data from the low-dose cohort in this trial were presented at the Malaria Vaccines for World Conference in September 2007, and showed that this vaccine was well tolerated and induced strong T-cell responses against the target antigens in all volunteers at this low dose.

In June 2008, data from the higher-dose cohort of volunteers were presented at the Keystone Symposium — Malaria Immunology, Pathogenesis, and Vaccine Perspectives. These data also showed that the malaria vaccine candidate induced strong T-cell responses against the target antigens in all volunteers. In April 2009, data from the challenge phase of this trial were presented at the Annual Conference on Vaccine Research. In this trial, a vaccine utilizing a single antigen did not confer protection in human volunteers in spite of significant immune system activation. A challenge trial utilizing a multi-antigen approach has been completed and data are expected in the second quarter of 2010.

Additionally, a five-antigen vaccine is being developed in collaboration with PATH's Malaria Vaccine Initiative (MVI) and the NMRC. This vaccine is currently in preclinical testing. There are currently over 300 million cases of malaria in the world each year typically resulting in over two million deaths annually, mostly among children. In April 2008, we received a Small Business Innovation and Research (SBIR) grant from the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH) to support our malaria vaccine program. This grant, valued at approximately \$600,000 over two years, is being used to develop enhancements to our vectors for vaccine applications against malaria. In July 2009, we received a grant from the NIAID, valued at approximately \$600,000 over two years that will be used to identify new antigens for malaria vaccine development.

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We have entered into the following agreements related to our malaria vaccine program:

- **U.S. Naval Medical Research Center (NMRC).** In January 2003, we entered into a collaboration with the NMRC, which included a Collaborative Research and Development Agreement (CRADA) and a two-year, \$1.9 million contract to develop and construct vaccines against malaria and dengue virus using our proprietary adenovector technologies and production cell line. Under the CRADA, NMRC has provided us with optimized malaria genes to be used in the development of the adenovector-based vaccines as well as providing preclinical evaluation of the vaccine candidates.

In January 2005, we signed a one-year, \$1.6 million fixed price contract for the production of malaria vaccines under current Good Manufacturing Practices (cGMP) standards. The NMRC tested the vaccine candidates in preclinical and animal models to assess safety and effectiveness. In conjunction with the preclinical evaluation of the vaccine, we provided regulatory support to NMRC for an Investigational New Drug application with the FDA. A Phase 1/2a clinical trial conducted by NMRC and funded by the United States Agency for International Development (USAID), the Military Infectious Diseases Research Program, and the Congressionally Directed Medical Research Program was initiated in January 2007.

In September 2007, we entered into a CRADA with the U.S. Military Malaria Vaccine Program at the Walter Reed Army Institute of Research and the NMRC for the development and preclinical testing of a malaria vaccine candidate against *Plasmodium vivax* (*P. vivax*). More than 50% of malaria cases in U.S. military personnel are caused by *P. vivax*, which is debilitating upon primary infection and can cause recurrent illness years after infection occurs. This malaria strain has a significant negative impact on world economic productivity and is a major threat to military preparedness. In addition to the CRADA, we signed a one-year, \$247,000 contract with the Department of Defense to construct and test the adenovector-based vaccine against *P. vivax*.

- **PATH's Malaria Vaccine Initiative (MVI).** In March 2004, we signed a two-year, \$2.6 million Collaborative Research Development and Supply Agreement with PATH's MVI for the development, production, and evaluation of vaccines against malaria. Under the contract, we are responsible for constructing adenovector-based vaccine candidates using our proprietary cell line and second-generation adenovector technology. The contract includes \$547,000 for work to be performed under a separate CRADA with the Navy Medical Research Center (NMRC). Under the CRADA, the NMRC will provide us with optimized malaria genes to be used in the development of the adenovector vaccines as well as provide preclinical evaluation of the vaccine candidates. In August 2006, contract funding for the Collaborative Research Development and Supply Agreement was increased to \$3,164,000 and the term was extended through August 2007. In May 2007, we amended and extended our existing Collaborative Research, Development, and Supply Agreement with MVI. The amendment included up to \$750,000 in additional funding in 2007 to continue advancing a new multivalent malaria vaccine toward clinical evaluation. We also received additional funding of approximately \$72,000 under separate amendments in September 2007.

In March 2009, we signed a one-year contract with MVI to support the development of vaccines to fight malaria. This contract was valued at approximately \$770,000 and will continue work funded by MVI that began in 2004. The scope of work under this contract includes the development and testing of novel adenovirus-based vaccines. In July 2009, this contract was amended and extended two years and is now valued at approximately \$2.0 million.

Global HIV Vaccine. With our collaborators we are developing and providing adenovector-based vaccine candidates targeted against the major strains of HIV present in the world. The Vaccine Research Center (VRC) of the NIAID has completed multiple Phase 1 and Phase 2a clinical trials involving this vaccine candidate, including an international, 480-subject study. In addition, this vaccine candidate is being tested as a therapeutic vaccine in a 15-subject, Phase 1 study with the objective to determine safety and collect evidence of efficacy as measured by immunogenicity and reduction in viral load.

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The VRC has completed multiple Phase 1 and Phase 2a clinical trials involving this vaccine candidate. The NIAID is currently evaluating trial designs for testing proof-of-concept for the control of HIV viral load. GenVec manufactured the adenovirus vector component for this trial.

We have entered into the following agreements related to our HIV vaccine program:

- **National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH).** In December 2001, the VRC at the NIAID selected us to collaborate in the development of a worldwide preventative HIV vaccine candidate. In April 2003, this collaboration was expanded to include the development of a SARS vaccine candidate, and in February 2006, it was expanded to include an influenza vaccine candidate. We have a cost-plus fixed fee subcontract managed for the VRC through SAIC-Frederick, Inc (SAIC), a subsidiary of Science Applications International Corporation, which became effective in January 2002. Under the subcontract, we are responsible for constructing and producing adenovector-based vaccine candidates utilizing our proprietary cell line and second-generation adenovector technology. The program encompasses a base year and six option years. During the fourth quarter of 2008, the program entered an additional option year, resulting in committed funding for fiscal year 2009 of \$2.1 million. As a result of this funding, the VRC contract now has a total value of approximately \$56.7 million since it was first initiated in 2001.

In November 2009, we entered into a new contract with SAIC for the development of influenza and HIV vaccines pursuant to SAIC's prime grant from the National Cancer Institute. Work under this contract will include generation of HIV vaccine candidates, generation of a universal flu vaccine, process and assay development for manufacture of vaccine candidates for clinical testing, and continued support of the HIV vaccine candidates currently in clinical testing. This four-year contract has a total value of over \$22 million if all options are exercised. We will receive approximately \$2.6 million under the base period of the contract, which runs through September 30, 2010. There is no assurance that work will be requested in future periods.

In September 2006, we entered into an additional agreement directly with the NIAID that provides up to \$52 million over five years. This agreement is composed of an initial \$7 million commitment with an additional \$45 million remaining if the NIAID exercises its annual renewal options. Under the agreement, we will support the transfer of our manufacturing and purification processes to the VRC to further clinical development of an HIV vaccine, including development of a larger-scale manufacturing and product-release process necessary for further clinical grade HIV vaccine production. We will also receive funding for the continued development of next-generation HIV vaccine candidates. In connection with the agreement, we granted the NIAID a non-exclusive research license for our proprietary adenovector, production cell line, manufacturing process, and formulation technologies for HIV vaccines. The program consists of a base year and four option years. In September 2009, the NIAID executed its third option period and the program entered its fourth year of funding during the fourth quarter of 2009. GenVec will receive up to \$2.3 million for the fourth year, which will support the generation of HIV vaccine candidates with GenVec's alternate adenovirus serotype technology. To date, the NIAID has funded \$18.8 million under the agreement with one option year remaining.

Respiratory Syncytial Virus (RSV). In March 2007, we entered into a CRADA with the NIAID to develop vaccines for the prevention and treatment of RSV, which can cause severe lower respiratory tract infections. RSV infections can occur at any age, but typically occur in the elderly or in those with compromised cardiac, pulmonary, or immune systems. RSV is the most common viral cause of lower respiratory infections in infants and young children. Initial vaccine candidates are in preclinical testing. In May 2008, we received a two-year, \$600,000 SBIR grant from the NIH to support work under this program.

HSV-2. We are developing vaccines for the prevention and treatment of HSV-2, the virus responsible for most cases of genital herpes. In March 2008, we received a two-year, \$600,000 Phase 1 SBIR grant from the NIH. This is intended to support work being conducted in a collaborative effort by GenVec, the Vaccine and Infectious Disease Institute at Fred Hutchinson Cancer Research Center, and the University of Washington.

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TECHNOLOGY PLATFORM

Adenovirus Vector Technology. Our core technology is based on the use of modified adenoviruses. Adenoviruses are naturally occurring viruses that reproduce in certain tissues, spread, and can cause ailments such as a form of the common cold. We use modified adenoviruses, commonly called adenovectors, to deliver genes to cells. Our product candidates combine a gene with an adenovector. We design our vectors so they cannot reproduce themselves or cause diseases. This limits toxicity, including unwanted effects on target cells and the surrounding tissues. We have multiple proprietary versions of adenovectors to suit different applications in therapeutic and vaccine products.

When administered to tissues, our vectors enter target cells, causing them to produce the protein encoded by the inserted gene. In addition, adenovectors can be re-engineered to alter their performance characteristics, potentially including their ability to selectively deliver genes to targeted tissue.

We believe adenoviruses are an excellent starting point for generating vectors because they efficiently deliver genes, can be readily modified, and have the following safety characteristics:

- Adenoviruses are naturally eliminated from cells and tissues;
- Vectors derived from adenoviruses have been generally well tolerated in clinical testing when administered locally; and
- Thousands of patients have been treated with adenovectors with very few serious adverse events related to these vectors.

We believe our differentiated gene delivery technology enables us to:

- Put genes or antigens rapidly into vectors to evaluate function and usefulness in therapy;
- Deliver our product candidates to specific organs or cell types to avoid systemic exposure;
- Achieve efficient delivery of gene or antigen to, and stimulate protein expressions in, target cells;
- Control the amount and duration of therapeutic protein production to allow flexibility in treating different diseases; and
 - Scale our manufacturing process for commercial production.

Local Delivery and Expression of Genes. To achieve local production of proteins, we administer our product candidates directly to the site of disease using standard medical devices such as injection catheters or syringes. Direct administration of our product candidates into diseased tissue allows us to increase effectiveness by achieving high concentrations of the protein at disease sites while improving safety by avoiding exposure throughout the body. For example, we have used percutaneous injection to administer TNFerade directly to tumors.

New Adenovector Platforms. We have generated vectors based on different serotypes of adenovirus. These vectors have the potential to improve vaccine potency, avoid pre-existing adenovirus neutralizing antibodies, and to generate mucosal immune responses. In addition, new serotypes of adenovirus vectors are being explored as second-generation oncology drugs, therapeutics, and vaccine candidates.

Proprietary Cell Lines. We have developed a proprietary production cell line 293-ORF6, which supports the growth of all virus and vector serotypes tested to date. We have developed 293-ORF6 cells and a modification of these cells, M2A, to meet the needs for manufacture of our therapeutic and vaccine products. M2A cells have been developed to produce vectors, in particular vaccine vectors, that express antigens or proteins that interfere with the growth of the vector. In August 2009, we received a Phase 2 Small Business Innovation and Research grant from the NIAID to support the development of our cell line and vector production technology. This grant is valued at approximately \$2.5 million over three years.

Control of Gene Expression. Our technology also allows us to modify the location, duration, and rate of therapeutic gene expression. We alter gene expression by inserting a sequence of DNA, called a promoter, into our vectors adjacent to the therapeutic gene. For some diseases, long-term expression of the therapeutic gene is required to achieve a clinical benefit. In TNFerade, local production of the TNF protein in cancerous

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tissue subject to radiation treatment and chemotherapy is regulated by inserting a specific proprietary promoter that increases protein production after radiation and/or chemotherapy.

RESEARCH AND DEVELOPMENT

As a clinical stage biopharmaceutical company developing biologic products, and to support the activities discussed above, we have significant research and development expenditures each year. Our research and development expenses were \$24.7 million, \$33.8 million, and \$26.0 million for the years ended December 31, 2009, 2008, and 2007, respectively. These expenses were divided between our research and development platforms in the following manner:

<i>(in millions)</i>	Year ended December 31,		
	2009	2008	2007
TNFERade	\$ 13.5	\$ 21.3	\$ 15.0
Vaccines	10.4	11.6	11.0
Other Clinical Programs	0.8	0.9	—
Total	\$ 24.7	\$ 33.8	\$ 26.0

INTELLECTUAL PROPERTY

We generally seek patent protection for our technology and product candidates in the U.S. and abroad. We have submitted patent applications that are pending in the U.S. and other countries. The patent position of biotechnology firms generally is highly uncertain and involves complex legal and factual questions. Our success will depend, in part, on whether we can:

- Obtain patents to protect our own products;
- Obtain licenses to use the technologies of third parties, which may be protected by patents;
- Protect our trade secrets and know-how; and
- Operate without infringing the intellectual property and proprietary rights of others.

Patent Rights and Licenses. We and our licensors have patents and continue to seek patent protection for technologies that relate to our product candidates, as well as technologies that may prove useful for future product candidates. As of December 31, 2009, we hold or have licenses to 268 issued, allowed, or pending patents worldwide, 89 of which are issued or allowed in the U.S. These patents and patent applications pertain to genes that encode therapeutic proteins; expression control elements that regulate the production of the therapeutic proteins by such genes and targeting technology for enhanced target cell selectivity of our product candidates; cell lines used to manufacture our product candidates; methods of constructing, producing (including purification, quality control, and assay techniques), storing, and shipping our product candidates; methods of administering our product candidates; and methods of treating disease using our product candidates.

TNFERade. We have issued patents and pending patent applications pertaining to the adenovectors, the expression control elements used in TNFERade to increase production of the TNF protein by the TNF gene upon exposure to radiation and/or chemotherapy, and the methods of using TNFERade for treating disease. We have an exclusive worldwide license to issued patents, the last of which expires in 2026, pertaining to radiation-induced gene expression and a radiation-inducible promoter enabling controlled production of therapeutic proteins from gene therapy products, including TNFERade. We are aware, however, of issued patents and pending patent applications of third parties pertaining to the delivery of adenovectors and the treatment of cancer and tumors. It could be alleged that TNFERade conflicts with the issued patents as well as patents that may issue on these patent applications. We have taken licenses to patents covering the use of TNFERade from private companies and academic institutions that involve the payment of milestones and royalties.

In May 1993, we entered into a license agreement with ARCH Development Corporation, a non-profit corporation associated with the University of Chicago (Arch) that has subsequently been restated and amended. Concurrently with entering into that agreement, we also entered into a license agreement with ARCH Development Corporation and the Dana-Farber Cancer Institute, Inc. (DFCI). Pursuant to these

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two license agreements, which we refer to together as the UC-Tech Agreements, ARCH and DFCI granted us exclusive, worldwide royalty bearing licenses to certain intellectual property rights pertaining to TNFerade. We have previously made a \$50,000 milestone payment under the UC-Tech Agreements pursuant to provisions that require us to make a milestone payment equal to \$50,000 at the time of filing of an Investigational New Drug Application on a licensed product and \$250,000 at the time of filing of a New Drug Application (NDA) on a licensed product (up to a certain maximum number of NDAs). No royalty payments have been made to date, and prior to commercialization of a licensed product, we have no royalty obligations pursuant to the UC-Tech Agreements. The UC-Tech Agreements are terminable by the licensors if we are in material breach of the agreements that we fail to cure or if we become insolvent. We also have the right to terminate the agreements for an uncured material breach or for convenience with prior notice. The UC-Tech Agreements continue in full force until the expiration of all patents or applications covered thereby, unless otherwise terminated. The latest expiring patent under the UC-Tech Agreements expires on September 22, 2026.

Targeted Vectors. We have issued patents expiring beginning in 2014 and pending patent applications covering our technology that allow for the delivery of genes in adenovectors to essentially all cell types, as well as our targeted vectors, which are designed for the purpose of creating product candidates that deliver genes in adenovectors only to selected cells. We are aware, however, of issued patents and pending patent applications of third parties relating to such vectors. It could be alleged that our targeted vectors conflict with such existing or future patents.

In May 1998, we entered into an Amended and Restated Exclusive License Agreement with the Cornell Research Foundation, which was subsequently amended. Pursuant to the Cornell agreement we license certain proteins, genes, gene vectors and similar biological materials that relate to our adenovector platform. We are obligated to pay Cornell a yearly maintenance fee of \$50,000 (creditable against any royalties payable in that year). No royalty payments have been made to date, and prior to commercialization of a licensed product, we have no royalty obligations to Cornell. The Cornell agreement may be terminated by Cornell or by us in the event of an uncured material breach by the other party, or by us for any reason with prior written notice. The Cornell agreement continues in full force until the expiration of all patents or applications covered thereby, unless otherwise terminated. The latest expiring patent under the Cornell agreement expires on July 31, 2020.

Licenses to Genes. To create our product candidates, we combine our vectors with genes intended to produce proteins with therapeutic potential. We have secured licenses to applicable genes for this purpose. We often seek to obtain exclusivity, consistent with our business needs, when securing such licenses. In return for the rights we receive under our gene licenses, we typically are required to pay royalties based on any commercial sales of the applicable product during a specified time period, as well as provide additional compensation, including up-front license fees and product development-related milestone payments. We have licensed the Atoh1 gene from the Baylor College of Medicine. This license is worldwide and is exclusive for gene therapy applications.

Any of our licenses may be terminated by the licensor if we are in material breach of a term or condition of the particular license agreement, or if we become insolvent. In addition, some of our licenses require us to achieve specific milestones.

Production, Purification, Quality Assessment, and Formulation Technology. We have issued patents expiring beginning in 2019 and pending patent applications pertaining to the production, purification, quality assessment, and formulation of our product candidates. In particular, we have issued patents covering the process for manufacturing our product candidates, the purification of our product candidates applicable to both research and commercial scales, methods of assessing and confirming the quality and purity of our product candidates for clinical testing and commercialization, and product formulations that improve the stability of product candidates and allow our product candidates to be conveniently stored, shipped, and used. We are aware, however, of issued patents and pending patent applications of third parties relating to these and other aspects of production, purification, quality assessment, and formulation technology. It could be alleged that our production, purification, quality assessment, and formulation technology conflict with such existing or future patents.

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We anticipate that we, and our current and future licensors, will continue to seek to improve existing technologies, develop new technologies and, when possible, secure patent protection for such improvements and new technologies.

Certain patents pertaining to our product candidates may be eligible for Patent Term Extension under 35 U.S.C. § 156. The term of any patent that claims a human drug product (including human biological products), a method of using a drug product, or a method of manufacturing a drug product is eligible for an extension to restore that portion of the patent term that has been lost as a result of FDA review subject to certain limitations.

Trade Secrets. To a more limited extent, we rely on trade secret protection and confidentiality agreements to protect our interests. It is our policy to require our employees, consultants, contractors, manufacturers, collaborators, and other advisors to execute confidentiality agreements upon the commencement of employment, consulting, or collaborative relationships with us. We also require signed confidentiality agreements from any entity that is to receive confidential data. With respect to employees, consultants, and contractors, the agreements generally provide that all inventions made by the individual while rendering services to us shall be assigned to us as our property.

MANUFACTURING AND SUPPLY

Technology for Production, Purification, Quality Assessment, and Formulation. We believe our proprietary production technology and know-how facilitate the production, purification, quality assessment, and formulation of our product candidates. The structure of our vectors and the procedures for their production and purification enable us to minimize the presence of contaminants. We believe our proprietary positions provide a competitive advantage in the following areas:

- **Production and Scale-Up.** We produce our adenovectors using cell lines grown under standardized and controlled conditions. We have developed specialized proprietary cell lines for production of our vectors. We have designed our production processes to be scalable for commercial production and to reduce the potential for contamination.
- **Purification.** We have proprietary methods for the purification of our vectors that we believe are scalable to commercial levels as well as suitable for small-scale use in discovery and testing of new product candidates.
- **Quality Assessment.** We have established proprietary methods to assess and confirm the quality and purity of vectors for research purposes and clinical testing. We use advanced techniques to determine the physical characteristics of our product candidates as a means to establish product consistency and purity. We have an issued U.S. patent covering this technology. We believe these methods are also suitable for quality assessment of commercial production.
- **Formulation.** We have developed a novel product formulation that improves the stability of our vectors and is covered by issued U.S. patents. Our formulation allows products to be conveniently stored, shipped, and used. For research purposes, our formulation enhances the ease and reproducibility of testing.

Manufacturing Strategy. We are developing our capability to use third-party manufacturers for current Good Manufacturing Practices (cGMP) production of our product candidates for late stage clinical trials. Our research and development facility is located in Gaithersburg, Maryland where we have established laboratories and staff to support the non-cGMP production and process development of more advanced manufacturing processes and characterization methods for our product candidates. We believe many of the production and assay technologies developed for TNFerade, and those developed more recently under our HIV vaccine contract with NIH, are suitable for our other product development programs.

We intend to continue developing our own manufacturing and testing capabilities while continuing to use third-party contractors in areas where we lack sufficient internal capability. Any plans to expand internal manufacturing capabilities at our facility, including the facilities necessary to manufacture, test, and package

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an adequate supply of finished products in order to meet our long-term clinical needs and projected commercial needs, will require significant resources and will be subject to ongoing government approval and oversight.

We currently have two suppliers for our manufacturing components, including components necessary to produce TNFerade. Currently we procure raw materials, including specialized components known as resins, for our product purification and testing methods from a limited number of suppliers. We also procure nutrients used to support the growth of microorganisms or other cells from Life Technologies Corporation. We have plans in place to develop more than one supplier for each of the critical supplies for a product candidate before the time that such product candidate is commercialized.

In January 2008, we entered into a manufacturing development agreement with Cobra Bio manufacturing Plc (Cobra) for TNFerade. The manufacturing development agreement involved technology transfer, scale-up, and validation of the manufacturing process for TNFerade through cGMP consistency lots that were to be produced at Cobra's facility in Oxford, United Kingdom. In March 2009, we entered into a letter agreement amending the manufacturing development agreement with Cobra. Under the terms of the letter agreement, at our direction Cobra agreed to suspend its activities under the original agreement until the end of the second quarter of 2009. Effective June 30, 2009, per the terms of the letter agreement, we terminated the manufacturing development agreement. We are currently evaluating manufacturing strategies for TNFerade.

OUR COMPETITION

Competition in the discovery and development of new methods for treating disease is intense. We face, and will continue to face, intense competition from pharmaceutical and biotechnology companies, as well as academic and research institutions and government agencies both in the U. S. and abroad. We face significant competition from organizations pursuing the same or similar technologies used by us in our drug discovery efforts and from organizations developing pharmaceuticals that are competitive with our potential therapeutic and vaccine product candidates.

Most of our competitors, either alone or together with their collaborative partners, have substantially greater financial resources and larger research and development staffs than we do. In addition, most of these organizations, either alone or together with their collaborators, have significantly greater experience than we do in developing products, undertaking preclinical testing and clinical trials, obtaining FDA and other regulatory approvals of products, and manufacturing and marketing products. Additional mergers and acquisitions in the pharmaceutical industry may result in even more resources being concentrated among our competitors. These companies, as well as academic institutions, governmental agencies, and private research organizations, also compete with us in recruiting and retaining highly qualified scientific personnel and consultants. Our ability to compete successfully with other companies in the pharmaceutical and biotechnology field also depends to a considerable degree on the continuing availability of capital to us.

We are aware of products under development or manufactured by competitors that are used for the prevention or treatment of diseases we have targeted for product development. For example, Abraxis BioScience, AB Science, Taiho, Amgen, Celgene, MediGene, Merck, Lorus Therapeutics, and others have products or development programs for the treatment of pancreatic cancer. We are aware of several development-stage and established entities, including major pharmaceutical and biotechnology firms, which are actively engaged in infectious disease vaccine research and development. These include Sanofi-Aventis, Novartis, GlaxoSmithKline, MedImmune, Inc., (a wholly owned subsidiary of AstraZeneca), Merck, Pfizer, Wyeth, Crucell, Intercell, Vical, and Novavax among others.

We believe our competitive success will be based on the efficacy and safety of our products, as well as our ability to create and maintain scientifically advanced technology, attract and retain skilled scientific and management personnel, obtain patents or other protection for our products and technology, obtain regulatory approvals, and manufacture and successfully market our products either independently or through outside parties. We will rely on corporate collaborators for support of some product candidates and enabling technologies and intend to rely on corporate collaborators for the development, manufacturing, and marketing of some future product candidates. Generally, our strategic alliance agreements do not preclude the corporate collaborator from pursuing development efforts utilizing approaches distinct from that, which is the subject of the

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alliance. Our product candidates, therefore, may be subject to competition with a potential product under development by a corporate collaborator.

GOVERNMENT REGULATION

Regulation of Biological Products. The research, development, testing, manufacture, quality, safety, effectiveness, labeling, packaging, storage, approval, marketing, advertising, and promotion of any biological products developed by us or our collaborators are subject to regulation by federal, state, local, and foreign governmental authorities. In the U.S., new drugs are subject to extensive regulation under the Federal Food, Drug, and Cosmetic Act, and biological products, such as TNFerade and vaccines, are subject to regulation both under provisions of that Act and under the Public Health Services Act. The process of obtaining FDA approval for a new product is costly and time-consuming, and the outcome is not guaranteed. If approved, drug products are subject to ongoing regulation, and maintaining compliance with appropriate federal, state, local, and foreign statutes and regulations will require the expenditure of substantial time and financial resources.

The steps required before our proposed investigational products may be marketed in the U.S. include:

- Performance of preclinical (animal and laboratory) tests;
- Submission to the FDA of an Investigational New Drug (IND) application, which must become effective before human clinical trials may commence;
- Performance of adequate and well-controlled human clinical trials to establish the safety and efficacy of the investigational product in the intended target population for each indication for which approval is sought;
 - Performance of a consistent and reproducible manufacturing process intended for commercial use;
 - Submission to the FDA of a Biologics License Application (BLA); and
 - FDA approval of the BLA before any commercial sale or shipment of the biologic product.

Preclinical studies may take several years to complete. The results of these studies, together with manufacturing information and analytical data, are submitted as part of an IND application to the FDA. The FDA must review the IND prior to the commencement of human clinical trials. Unless the FDA raises concerns (such as concerns that human research subjects will be exposed to unreasonable risks), the IND will become effective thirty days following its receipt by the FDA, and the clinical trials covered by the IND may commence.

Clinical trials typically are conducted in three sequential phases, which often overlap. In Phase 1, a drug is typically studied in a small number of healthy volunteers or patients to test the drug for safety or adverse effects, dosage tolerance, absorption, metabolism, excretion, and clinical pharmacology. Phase 2 involves clinical trials in the targeted patient population to determine the effectiveness of the drug for specific, targeted indications, to determine dosage tolerance and optimal dosage, and to gather additional safety data. Phase 3 clinical trials are commonly referred to as pivotal, or registrational, studies and are conducted to further evaluate dosage, to provide substantial evidence of clinical efficacy, and to further test for safety in an expanded and diverse patient population. Each phase may take several years to complete.

The conduct of the clinical trials is subject to extensive regulation, including compliance with good clinical practice regulations and guidelines, obtaining informed patient consent, sponsor monitoring, auditing of the clinical, laboratory and product manufacturing sites, and review and approval of each study by an independent institutional review board (IRB) for each site proposing to conduct the clinical trial. The FDA, the IRB, or the sponsor may, at its discretion, suspend or terminate a clinical trial at any time on various grounds, including a finding that the subjects or patients are being exposed to an unacceptable health risk.

Promising data in early-stage clinical trials do not necessarily assure success in later-stage clinical trials. The FDA may request that additional clinical trials be conducted as a condition to product approval. Additionally, new government requirements may be established that could delay or prevent regulatory approval of our products under development.

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After the completion of the required clinical trials, if we believe the data indicate the biologic product is safe and effective, a BLA is prepared and submitted to the FDA. This process takes substantial time and effort. The FDA may refuse to file the BLA and request additional information, in which case, the application must be resubmitted with the supplemental information. Once a BLA is deemed filed by FDA, there is no guarantee the FDA will approve the application. The FDA has substantial discretion in the approval process and may disagree with our interpretation of the preclinical or clinical data and request additional data and information, which could significantly delay, limit, or even prevent regulatory approval.

As part of this review, the FDA may refer the application to an appropriate advisory committee, typically a panel of physicians, for review, evaluation, and an approval recommendation. Although the FDA is not bound by the opinion of the advisory committee, advisory committee discussions may further delay, limit, or prevent approval. The FDA also may conclude that as part of the BLA, the sponsor must develop a risk evaluation and mitigation strategy (REMS) to ensure that the benefits of the drug outweigh the risks. A REMS may have different components, including a package insert directed to patients, a plan for communication with healthcare providers, restrictions on a drug's distribution, or a medication guide to provide better information to consumers about the drug's risks and benefits.

If FDA evaluations of the BLA are favorable and the agency concludes that the standards for approval have been met, it will issue an approval letter. If it believes the BLA is deficient in some way that precludes approval, the agency will issue a Complete Response Letter that generally identifies the deficiencies, which can be minor, for example, requiring labeling changes, or major, for example, requiring additional preclinical or clinical studies. The Complete Response Letter may also include recommended actions that the applicant might take to place the BLA in a condition for approval. If a Complete Response Letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, or withdraw the application. If the deficiencies have been addressed to the FDA's satisfaction, the FDA should be expected to issue an approval letter. Even if the requested information and data are submitted, however, the FDA may ultimately decide that the BLA does not satisfy the criteria for approval.

Prior to granting approval, the FDA generally conducts an inspection of the facilities, including third-party contract facilities that will be involved in the manufacture, production, packaging, testing, and control of the drug substance and finished drug product for cGMP compliance. The FDA will not approve the BLA unless cGMP compliance is satisfactory. In addition, each manufacturing establishment must be registered with the FDA and is subject to periodic FDA inspection. To supply products for use either inside or outside the U.S., including for investigation in clinical trials, domestic, and foreign manufacturing establishments, including third-party facilities, must comply with cGMP regulations and are subject to periodic inspection by the corresponding regulatory agencies in their home country, often under reciprocal agreements with the FDA or by the FDA.

After a biological product is approved, it is subject to significant ongoing regulation and must comply with requirements relating to manufacturing, labeling, packaging, adverse event reporting, storage, advertising, promotion, distribution, and recordkeeping. Additionally, as a condition of BLA approval, the FDA may require post-approval testing (referred to as Phase 4 clinical trials) and surveillance to monitor the product's safety or efficacy. In addition, the holder of an approved BLA is required to keep extensive records, to report certain adverse reactions and production deviations and problems to the FDA, to provide updated safety and efficacy information, and to comply with requirements concerning advertising and promotional labeling for their products. Generally, a company can promote a product only for those claims relating to safety and efficacy that are consistent with the labeling approved by the FDA and supported by substantial evidence. Failure to comply with the regulatory requirements of the FDA and other applicable U.S. and foreign regulatory authorities could result in administrative or judicially imposed sanctions or other setbacks, including warning letters, restrictions on the product, product recalls, suspension or withdrawal of approval, seizures, injunctions, civil fines, and criminal sanctions.

Furthermore, if the FDA becomes aware of new safety information, the agency may require post-approval studies or clinical trials to investigate known serious risks or signals of serious risks or in response to the occurrence of unexpected serious risks. If a post-approval study is required, periodic status reports must be

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submitted to the FDA. Failure to conduct such post-approval studies in a timely manner may result in substantial civil fines. In addition, newly discovered or developed safety or efficacy data may require changes to an approved product's distribution or labeling, including the addition of new warnings or contraindications.

In November 2008, TNFerade was granted Fast Track designation by the FDA for its proposed use in the treatment of locally advanced pancreatic cancer. Fast Track designation is intended to facilitate the development and expedite the review of products intended for the treatment of serious or life-threatening conditions and that demonstrate the potential to address an unmet medical need for such a condition. Although we view Fast Track designation as a significant positive step, it does not guarantee that FDA will approve the product.

In November 2009, the FDA granted orphan drug designation for TNFerade for the treatment of patients with pancreatic cancer. Under the Orphan Drug Act, the FDA may grant orphan drug designation to drugs that target conditions affecting fewer than 200,000 individuals in the U.S. per year. 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 drug with orphan drug designation is approved, it receives a seven-year period of orphan drug exclusivity, during which FDA generally is precluded from approving a drug with the same active ingredient for the same indication. Orphan drug exclusivity does not preclude FDA approving a drug with a different active ingredient for the same indication, or a drug with the same active ingredient for a different indication. Additionally, FDA may approve a drug with the same active ingredient for the same indication, if the subsequent drug is shown to be clinically superior to the product with orphan drug exclusivity. In addition to exclusivity, orphan drug designation also provides potential financial and regulatory incentives including study design assistance, waiver of FDA user fees, and tax credits.

In addition to regulatory approvals that must be obtained in the U.S., a product is also subject to regulatory approval in other countries in which it is intended to be marketed. No such product can be marketed in a country until the regulatory authorities of that country have approved an appropriate license application. FDA approval does not assure approval by other regulatory authorities. In addition, in many countries the government is involved in the pricing of the product. In such cases, the pricing review period often begins after market approval is granted.

Our FMD vaccine will also require approval prior to commercialization. In the U.S., governmental regulation of animal health products is primarily provided by two agencies: the USDA and the FDA. Vaccines for animals are considered veterinary biologics and are regulated by the Center for Veterinary Biologics of the USDA under the auspices of the Virus-Serum-Toxin Act.

Reimbursement of Pharmaceutical Products. If and when our products reach commercialization, insurance companies, health maintenance organizations, other third-party payers, and federal and state governments will be the primary payers of our products. The largest payer in this group will probably be the Centers for Medicare and Medicaid Services (CMS), the federal agency that administers the Medicare program. Under Medicare, there are different reimbursement methodologies for certain drugs and biologic products that depend on the site of service. For physician-administered drugs and biologic products furnished in a physician's office, currently there are two methodologies established by statute. Under the first methodology, if the physician purchases the drug or biologic product, CMS will reimburse the physician based upon that drug or biologic product's Average Sales Price (ASP) plus 6%. The average sales price is determined by CMS based upon information reported by manufacturers. The second methodology is the Competitive Acquisition Program (CAP). As an alternative to buying drugs and biologic products from the manufacturer, physicians can enroll in CAP to receive necessary drugs and biologic products from a third party vendor. CMS reimburses these vendors for the drugs and biologic products at prices established through competitive bidding. As of January 1, 2009, CMS has suspended operation of the CAP due to contractual issues with bidding vendors. CMS has indicated that it intends to restart the CAP, but it is not clear when the program will resume. Medicare also has several reimbursement methodologies for drugs and biological products administered in hospital outpatient departments. New drugs and biologics whose cost is "not insignificant" in relation to payment for related procedures are granted "pass-through status" and are reimbursed at ASP plus 6% for the first two to three years of payment under the Medicare hospital outpatient prospective payment system. For many other drugs and biologic products that do not qualify for pass-through status but have an average cost per day

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greater than \$65, the current Medicare payment to a hospital outpatient department is ASP plus 4%. Drugs and biological products with an average cost per day equal to or less than \$65 are not separately reimbursed; payment for these products is included in payment for the associated procedure. Payment levels for drugs without pass-through status and the \$65 threshold are subject to change through regulation each calendar year. In addition, Congress may change Medicare reimbursement amounts or methods by statute. Pending health reform legislation also would require CMS to test new payment methodologies that would bundle payment for physician and hospital services and supplies, including drugs and biological products, for an episode of care.

Effective January 1, 2006, an expanded prescription drug benefit for all Medicare beneficiaries (known as Medicare Part D) commenced to provide Medicare beneficiaries with drug coverage for self-administered drugs and biologic products and other drugs and biologic products not covered by Medicare, including many vaccines. This voluntary benefit is being implemented through private plans under contractual arrangements with the federal government. Currently, these plans negotiate directly with pharmaceutical manufacturers for rebates on drugs dispensed to Medicare Part D beneficiaries. Like pharmaceutical coverage through private health insurance, Medicare Part D plans establish formularies and use other utilization management tools when determining the drugs and biologic products that are offered by each plan. These formularies can change on an annual basis, subject to federal governmental review. These plans may also require beneficiaries to provide out-of-pocket payments for such products. Effective January 1, 2008, private Medicare Part D plans pay physicians one payment that includes both the administration cost and the cost of the vaccine for those vaccines that are not already covered by law under Medicare. Pending health reform legislation, if passed, may require manufacturers to pay rebates of 50% on all drugs dispensed to beneficiaries in the Medicare Part D coverage gap, often referred to as the "donut hole." It is also possible that health reform legislation would require the government to negotiate Medicare Part D rebates directly, which could result in much higher rebate amounts than those currently negotiated with the plans. In addition, although certain cancer treatments are currently included in CMS's protected classes of drugs for purposes of Medicare Part D formularies, it is possible that future regulatory or legislative changes could change that status.

Currently federal legislation requires pharmaceutical manufacturers to pay prescribed rebates on covered outpatient drugs reimbursed by the Medicaid program as a condition of having federal funds being made available to the states for those drugs under Medicaid and Medicare Part B. Rebate amounts for a product are determined by a statutory formula that is based on prices defined by statute: average manufacturer price (AMP), which must be calculated for all products that are covered outpatient drugs under the Medicaid program, and best price, which must be calculated only for those covered outpatient drugs that are innovator products, such as biologic products. Manufacturers are required to report AMP and best price for each of its covered outpatient drugs to the government on a regular basis. Various states have adopted mechanisms under Medicaid that seek to control drug reimbursement, including by disfavoring certain higher priced drugs and by seeking supplemental rebates from manufacturers. Pending health reform legislation, if passed, may make significant changes to the Medicaid drug rebate program, including potentially increasing the base rebate percentage, changing the rebate calculation for new formulations, and expanding rebates to Medicaid managed care populations and Medicare Part D full-benefit dual eligible individuals and, eventually, to other Medicare Part D individuals receiving low income subsidies.

A manufacturer must also participate in the 340B drug pricing program in order for federal funds to be available to pay for the manufacturer's drugs under Medicaid and Medicare Part B. Under this program, the participating manufacturer agrees to charge statutorily-defined covered entities no more than the 340B discounted price for the manufacturer's covered outpatient drugs. The formula for determining the discounted purchase price is defined by statute and is based on the AMP and rebate amount for a particular product as calculated under the Medicaid drug rebate program, discussed above. To the extent that pending health reform legislation, as discussed above, causes the statutory and regulatory definitions of AMP and the Medicaid rebate amount to change, these changes also could impact the discounted purchase prices that a manufacturer is obligated to provide under this program. This same pending health reform legislation also, independently, would expand the 340B drug pricing program to include new entity types as well as inpatient purchases by covered entity hospitals, and would obligate manufacturers to sell to covered entities if they sell to any other purchaser.

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Private insurers may also seek to control health care costs through the various means by which they pay for drugs and biologic products. Managed care has also become a potent force in the market place that increases downward pressure on the prices of pharmaceutical products. We anticipate that these programs will still be in effect when we commercialize our products.

Other Regulations. Our business is also subject to regulation under various state and federal environmental laws, including the Occupational Safety and Health Act, the Resource Conservation and Recovery Act, and the Toxic Substances Control Act. These and other laws govern our use, handling, and disposal of various biological, chemical, and radioactive substances used in and wastes generated by our operations. We are not aware of any costs or liabilities in connection with any environmental laws that will have a material adverse effect on our business or financial condition.

If and when any of our products become commercialized, we could be subject to healthcare fraud and abuse regulation and enforcement by both the federal government and the states in which we conduct our business. The healthcare fraud and abuse laws and regulations that may affect our ability to operate include:

- The Anti-Kickback Law, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, receiving, offering, or providing any kickback, bribe, or other remuneration, directly or indirectly, in exchange for or to induce the purchase, lease, order or recommending of, any item or services for which payment may be made under a federal healthcare program, such as the Medicare and Medicaid programs;
- Federal false claims laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other federally funded health care programs that are false or fraudulent, or statements that are knowingly false or fraudulent that support such claims or reduce obligations owed to the federal government; and which may apply to entities like us in relation to our submission of pricing data to the federal government under the programs discussed above, and also to the extent that our interactions with customers may affect their billing or coding practices and submission to the federal government;
- The Health Insurance Portability and Accountability Act of 1996 (HIPAA) which established new federal crimes for knowingly and willfully executing a scheme to defraud any healthcare benefit program or making false statements in connection with the delivery of or payment for healthcare benefits, items or services; and
- State and foreign law equivalents and analogues of each of the above federal laws, such as anti-kickback, consumer protection, false claims laws and the Foreign Corrupt Practices Act, which may apply to items or services reimbursed by any third-party payer, including state and local as well as commercial insurers, or when physicians are employees of a foreign government entity.

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EXECUTIVE OFFICERS OF THE REGISTRANT

<u>Name</u>	<u>Age</u>	<u>Present Position with the Registrant</u>
Paul H. Fischer, Ph.D.	60	President and Chief Executive Officer
Douglas J. Swirsky	40	Sr. Vice President, Chief Financial Officer, Treasurer, and Corporate Secretary
Mark O. Thornton, M.D., MPH, Ph.D.	52	Sr. Vice President, Product Development
Bryan T. Butman, Ph.D.	57	Sr. Vice President, Vector Operations

The Board of Directors appoints all executive officers annually. There is no family relationship between or among any of the executive officers or directors, or any arrangement or understandings pursuant to which the officers were appointed.

Paul H. Fischer, Ph.D. serves as President and Chief Executive Officer. Dr. Fischer has served as President and Chief Executive Officer and as a director of the Company since 1996. Prior to joining GenVec, he was Executive Vice President of Research and Development with Oncologix, Inc., (now Antigenics, Inc.) a biotechnology company. Previous experience included Manager, Cancer Research at Pfizer, Inc., a pharmaceutical company. Dr. Fischer received his B.S. in Biology from the University of Denver and his Ph.D. in Pharmacology from the University of California at San Francisco. Dr. Fischer performed post-doctoral research in Pharmacology at Yale University School of Medicine. He was an Assistant Professor of Pharmacology at the University of Missouri, School of Medicine and an Associate Professor of Human Oncology at the University of Wisconsin, prior to joining Pfizer. Dr. Fischer also serves on numerous community, academic, and professional organizations and Boards.

Douglas J. Swirsky joined GenVec in 2006 and serves as Senior Vice President, Chief Financial Officer, Treasurer, and Corporate Secretary. Prior to joining GenVec, Mr. Swirsky was a Managing Director and the Head of Life Sciences Investment Banking at Stifel Nicolaus from 2005 to 2006 and held investment banking positions at Legg Mason from 2002 until Stifel Financial's acquisition of the Legg Mason Capital Markets business in 2005. Mr. Swirsky, a Certified Public Accountant and a CFA charter holder, has also previously held investment banking positions at UBS, PaineWebber, and Morgan Stanley. His experience also includes positions in public accounting and consulting. Mr. Swirsky received his B.S. in Business in Administration from Boston University and his M.B.A. from the Kellogg School of Management at Northwestern University. Mr. Swirsky is a member of the Board of Directors of PolyMedix, Inc.

Mark O. Thornton, M.D., M.P.H., Ph.D. serves as Senior Vice President of Product Development, and previously as Senior Vice President of Clinical Development. Prior to joining GenVec in 2006, Dr. Thornton was Managing Director, Clinical and Regulatory Affairs at Angiotech Pharmaceuticals, Inc., a biotechnology company, from 2005 to 2006, Chief Medical Officer at ZioPharm, Inc., a biotechnology company, from 2004 to 2005 and Medical Officer at the Food and Drug Administration (FDA) from 2001 to 2004. Dr. Thornton has divided his 17-year career at the FDA and in the biotechnology industry between oncology and infectious disease biologics clinical development. At the FDA, he was on the clinical review team for Erbitux® for its initial colon cancer indication and Pegasys® for its Hepatitis C indication. At the FDA he also led the initial efforts to establish the FDA Gene Therapy Patient Tracking System and published on the topic of optimizing regulatory pathways for cancer vaccines. In industry, Dr. Thornton has performed Phase I-III clinical trials in both oncology and infectious disease settings, and successfully submitted PLAs for Certiva™ while at North American Vaccine and WinRho® while at Univax Biologics.

Bryan T. Butman, Ph.D. has served as our Senior Vice President of Vector Operations since January 2006. He joined GenVec in 1999 and previously served as Director of Quality and Analytical Sciences from 1999 to 2002, Vice President of Quality from 2002 to 2005, and Vice President of Vector Operations from 2005 to 2006. Prior to joining GenVec, Dr. Butman was Executive Director of Diagnostic Product Research and Development with INTRACEL Corporation, a biotechnology company that originated from AKZO-Nobel, NV. During his 15-year career with INTRACEL, Dr. Butman developed FDA-regulated products in the areas of oncology, infectious disease, cardiovascular disease, and hematology. He began his product development career in 1983 as a Senior Scientist with Warner-Lambert, Co. Dr. Butman holds a Ph.D. in Biological Sciences from Wayne State University (Detroit, MI).

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EMPLOYEES

As of February 28, 2010, we had 90 full-time employees, 14 of whom hold M.D. or Ph.D. degrees and 29 of whom hold other advanced degrees. Of our total workforce, 62 are engaged primarily in research and development activities and 28 are engaged primarily in business development, finance, marketing, and administration functions. None of our employees is represented by a labor union or covered by a collective bargaining agreement, and we consider our employee relations to be good.

PRINCIPAL EXECUTIVE OFFICES

We were incorporated in Delaware in 1992. Our principal executive offices are located at 65 West Watkins Mill Road, Gaithersburg, Maryland 20878. Our telephone number at that location is (240) 632-0740.

AVAILABLE INFORMATION

We maintain an internet website at www.genvec.com. Our electronic filings with the U.S. Securities and Exchange Commission (including our annual report on Form 10-K, quarterly reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to these reports) are available free of charge through our website as soon as reasonably practicable after we electronically file them with or furnish them to the U.S. Securities and Exchange Commission. Our website also includes copies or links to selected published studies and posters of presentations, within the limits of copyright law and practicability, which contain additional information about clinical trials of our product candidates.

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ITEM 1A. RISK FACTORS

Investing in our securities involves a high degree of risk. In addition to the other information contained in this Annual Report on Form 10-K, you should consider the following important factors that could affect our actual future results, including, but not limited to, our product development programs, contract revenues, expenses, net losses, and earnings per share.

We have a history of losses and anticipate future losses.

We have incurred net losses in each year since our inception in December 1992, including a net loss of \$18.4 million for the year ended December 31, 2009. As of December 31, 2009, we had an accumulated deficit of approximately \$232.0 million. We are unsure if or when we will become profitable. The size of our net losses will depend, in part, on the growth rate of our revenues and the level of our expenses.

We derive all of our revenues from payments from collaborations with corporations and government entities and will continue to do so for the foreseeable future. We expect it will be several years, if ever, before we will recognize revenue from product candidate sales or royalties. A large portion of our expenses are fixed, including expenses related to facilities, equipment, and personnel. In addition, we expect to spend significant amounts to fund research and development and to enhance our core technologies. We also expect to incur substantial costs to manufacture our product candidates. As a result, we expect our operating expenses will increase significantly over the next several years and, consequently, we will need to generate significant additional revenue to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a consistent basis.

We will need to raise additional capital to operate our business, which may not be available to us on acceptable terms or at all.

We are focused on clinical product development. Until, and unless, we receive approval from the FDA and other regulatory authorities for our product candidates, we cannot sell these products and will not have product revenues from these products. We will require substantial additional funds to conduct research and development activities, preclinical studies, clinical trials, and other activities prior to the commercialization of any potential products, and our ability to access capital depends on several factors beyond our control. We anticipate that such funds will be obtained from external sources and intend to seek additional equity, debt, lease financing, or collaborative agreements with corporate, governmental, or academic collaborators to fund future operations. Our actual capital requirements will depend on, and could increase as a result of, many factors, including but not limited to:

- The progress and scope of our internally funded research, development, clinical, manufacturing, and commercialization activities;
 - Our ability to establish new collaborations and the terms of those collaborations;
 - Competing technological and market developments;
 - The time and cost of regulatory approvals;
 - The extent to which we choose to commercialize our products internally;
- The costs we incur in obtaining, defending, and enforcing patent and other proprietary rights or gaining the freedom to operate under the patents of others; and
 - The extent to which we choose to develop our manufacturing capability.

Funding for our additional capital requirements will need to be obtained from external sources. The current domestic and global economic conditions have made it more difficult for companies like us to access the financial and credit markets. Prolonged negative changes in domestic and global economic conditions, such as the current economic conditions, or further disruptions of either or both of the financial and credit markets will further adversely affect our ability to access additional capital. While our estimated future capital requirements are uncertain and will depend on, and could increase or decrease as a result of, many factors, including the extent to which we choose to advance our research, development, clinical, manufacturing, and commercialization activities, it is clear we will need significant additional capital to develop our product

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candidates through clinical development, manufacturing, and commercialization. The continued advancement of TNFerade through the Phase 3 portion of the pivotal trial for locally advanced pancreatic cancer, the FDA regulatory review process, and the establishment of manufacturing capabilities will continue to require capital, and we expect to have to incur significant additional costs to manufacture and commercialize TNFerade if we receive marketing approval. We do not know whether we will be able to access additional capital when needed or on terms favorable to us or our stockholders.

We are seeking additional capital primarily through additional strategic alliances, licensing arrangements, collaborative arrangements, or some combination of these financing activities. If market conditions permit, we may seek additional capital through further public or private equity offerings or debt financing. If we are successful in raising additional funds through the issuance of equity securities, investors will likely experience dilution, or the equity securities may have rights, preferences, or privileges senior to those of the holders of our common stock. If we raise funds through the issuance of debt securities, those securities would have rights, preferences, and privileges senior to those of our common stock. If we seek strategic alliances, licenses, or other alternative arrangements, such as arrangements with collaborative partners or others, we may need to relinquish rights to certain of our existing or future technologies, product candidates, or products we would otherwise seek to develop or commercialize on our own, or to license the rights to our technologies, product candidates or products on terms not favorable to us. These arrangements could harm our business, results of operations, financial condition, cash flow, or future prospects. The overall status of the economic climate could also result in the terms of any equity offering, debt financing or alliance, license, or other arrangement being even less favorable to us and our stockholders than might otherwise be the case if the overall economic climate were stronger.

If we do not succeed in raising additional funds on acceptable terms, we may be required to delay, reduce the scope of, eliminate one or more of our research, development, manufacturing, or clinical activities or be required to sell or merge the Company or otherwise substantially modify or cease some or all of our current operations.

Our ability to develop, obtain regulatory approval of, and commercialize our potential products depends, in part, on collaborations with other companies and government entities. If we are unable to find collaborators, we may not be able to develop, test, and commercialize our products.

To date, we have entered only into collaborative agreements with a limited number of companies and government entities, and some of those are no longer in effect. The success of our business strategy depends, in part, on our ability to enter into and sustain collaborations with other companies for the development and commercialization of our product candidates, including TNFerade. Unless we are able to enter into and sustain collaboration agreements, we will need to raise additional funds for the development, testing, and commercialization of our product candidates. Due to the current domestic and global economic conditions, raising additional funds is more difficult than it has been in the past, and we will likely have to increasingly rely on collaborations, which may not be on favorable terms, if they are available at all. If collaborations or other funding is not available, we may have to delay or curtail the development and commercialization of certain product candidates.

We depend on our collaboration with Novartis for the development of our preclinical hearing loss and balance disorders program.

Under the terms of our collaboration agreement with Novartis, we granted Novartis certain exclusive, worldwide rights in specified intellectual property related to our atonal gene program and atonal adenovectors, as well as non-exclusive, world-wide rights to certain other intellectual property related to our hearing loss and balance disorders program and our adenovector platform related to the atonal gene. Novartis has the right to develop and commercialize any products related to the licensed intellectual property, and our dependence on Novartis for the development and commercialization of those products subjects us to a number of risks, including:

- We may not be able to control the amount and timing of resources that Novartis devotes to the development or commercialization of product candidates or to their marketing and distribution;

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- Novartis may not be successful in its efforts to obtain regulatory approvals in a timely manner, or at all;
- Disputes may arise between us and Novartis that result in the delay or termination of the research, development or commercialization of any product candidates or that result in costly litigation or arbitration that diverts management's attention and resources;
- Novartis may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation;
- Novartis may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- If we do not agree with Novartis on the terms of a development agreement pursuant to which Novartis will provide us with financial support for research, the program may be delayed;
- Changes in Novartis' business strategy may also adversely affect its willingness or ability to complete its obligations under any arrangement; and
- The collaboration may be terminated or allowed to expire, which would delay the development and may increase the cost of developing our product candidates.

We are a clinical stage company deploying unproven technologies, and we may never be able to develop, obtain regulatory approval of, or market any of our product candidates.

Gene-based products are new and rapidly evolving medical approaches, which have not been shown to be effective on a widespread basis. Biotechnology and pharmaceutical companies have successfully developed and commercialized only a limited number of gene-based products to date. In addition, no gene therapy product has received regulatory approval in the U.S. To date, none of our product candidates has been approved for sale in the U.S. or elsewhere. Gene-based products may be susceptible to various risks, including undesirable and unintended side effects from genes or the delivery systems, unintended immune responses, inadequate therapeutic efficacy, or other characteristics that may prevent or limit their approval or commercial use. Successful products require significant development and investment, including a lengthy and uncertain period of testing to show their safety and effectiveness before their regulatory approval or commercialization. We have not proven our ability to develop, obtain regulatory approval of, or commercialize gene-based medicines or vaccines. We may be unable to successfully select those genes or antigens with the most potential for commercial development.

If we fail to adequately show the safety and efficacy of our product candidates, we will not be able to obtain FDA approval of our product candidates.

We face the risk of failure involved in developing therapies based on new technologies. While some of our product candidates are in clinical trials, there are others for which we have not yet initiated clinical trials. For product candidates not yet in clinical trials, we will need to conduct significant additional research and animal testing, referred to as preclinical testing, before any of these product candidates can advance to clinical trials. In addition, we will need to conduct further clinical testing of those product candidates currently in clinical trials. It may take us many years to complete preclinical testing or trials and failure could occur at any stage of testing. Acceptable results in early testing or trials might not be repeated later. Not all products in preclinical testing or early stage clinical trials will become approved products. Before we can file applications with the FDA for product approval, we must show that a particular product candidate is safe and effective. Even with respect to those product candidates currently in clinical trials, we must demonstrate the safety and efficacy of those product candidates before we can secure FDA approval. Our failure to adequately show the safety and effectiveness of our product candidates would prevent FDA approval of our products. Our product development costs will increase if we experience delays in testing or regulatory approvals or if we need to perform more or larger clinical trials than planned. If the delays are significant, they could negatively affect our financial results and the commercial prospects for our product candidates.

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Because we must obtain regulatory approval to market our products in the United States and in non-U.S. jurisdictions, we cannot predict whether or when we will be permitted to commercialize our products; failure to comply with applicable regulations can also harm our business and operations.

The pharmaceutical industry is subject to stringent regulation by a wide range of authorities. We cannot predict whether we will obtain regulatory approval for any product we develop. No one can market a pharmaceutical product in the United States until it has completed rigorous preclinical testing, clinical trials, and an extensive regulatory approval process implemented by the FDA. To date, the FDA has not approved a gene therapy product for sale in the United States. Satisfaction of regulatory requirements typically takes many years, is dependent upon the type, complexity, and novelty of the product, and requires the expenditure of substantial resources. Of particular significance are the requirements covering research and development, testing, manufacturing, quality control, labeling, and promotion of drugs for human use. Before commencing clinical trials, we must submit to the FDA and receive approval from the FDA of an Investigational New Drug application (IND). Clinical trials are subject to continuing oversight by Institutional Review Boards (IRB) and the FDA. Clinical trials are also subject to:

- Informed consent;
- Good clinical practices (GCP); and
- Potential suspension or termination by us, the IRB, or the FDA at any time if, among other reasons, it is believed that the subjects participating in these trials are being exposed to unacceptable health risks or if the FDA finds deficiencies in the IND or the conduct of these trials.

We may encounter delays or rejections in the regulatory approval process because of additional 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. For instance, the FDA Amendments Act of 2007 imposed additional obligations on pharmaceutical companies and delegated more enforcement authority to the FDA in the area of drug safety. Key elements of this legislation give the FDA new authority to: (1) require companies conduct post-marketing safety studies of drugs, (2) impose certain drug labeling changes relating to safety, (3) mandate risk mitigation measures such as the education of healthcare providers and the restricted distribution of medicines, and (4) require companies to publicly disclose data from clinical trials.

Failure to comply with applicable FDA or other applicable regulatory requirements may result in criminal prosecution, civil penalties, recall or seizure of products, total or partial suspension of production, or injunction, as well as other regulatory action against our product candidates or us. If regulatory approval of a product is granted, this approval will be limited to those disease indications for which the product has shown through clinical trials to be safe and effective. The FDA also strictly regulates promotion and labeling after approval. Outside the United States, our ability to market a product is contingent upon receiving clearances from the appropriate regulatory authorities. This non-U.S. regulatory approval process includes risks similar to those associated with FDA clearance described above.

We depend heavily on the success of our lead product candidate, TNFeradeTM biologic, which is still under development. If we do not obtain FDA approval of TNFerade, or if FDA delays approval or limits the indications for which we may market TNFerade, our business will be materially harmed.

We anticipate that in the near term our ability to generate revenues will depend on the successful development and commercialization of TNFerade. The commercial success of our lead product candidate will depend on several factors, including the following: successful completion of our ongoing randomized, controlled, Phase 3 pivotal trial, known as PACT; receipt of marketing approvals from the FDA and similar foreign regulatory authorities; establishing commercial manufacturing capabilities, which is expected to be through third party manufacturers; successfully launching commercial sales; and acceptance of the product in the medical community and by third party payers.

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If the data from our ongoing PACT trial is not satisfactory, we may not proceed with the filing of a biological license application, or BLA, for TNFerade or we may be forced to delay the filing. Even if the results of the other pivotal trials appear satisfactory and we file a BLA, the FDA and similar foreign regulatory agencies may not accept our filing, may request additional information from us, including data from additional clinical trials, and, ultimately, may not grant marketing approval. The FDA and other regulatory agencies may have varying interpretations of our clinical trial data, which could delay, limit, or prevent regulatory approval or clearance.

Further, before a product candidate is approved for marketing, we, or any third party manufacturing our product, are subject to inspection of the manufacturing facilities and the FDA will not approve the product for marketing if we or our third party manufacturers are not in compliance with current good manufacturing practices. Even if the FDA and similar foreign regulatory authorities do grant marketing approval for TNFerade, they may narrow the indications for which we are permitted to market TNFerade, may pose other restrictions on the use or marketing of the product, or may require us to conduct additional post-marketing trials. A narrowed indication or other restrictions may limit the market potential for the affected product and obligation to conduct additional clinical trials would result in increased expenditures and lower revenues. If we are not successful in commercializing TNFerade, or are significantly delayed or limited in doing so, our business will be materially harmed and we may need to curtail or cease operations.

Almost all of our revenue is derived from agreements with government agencies. These agreements are subject to termination and uncertain future funding.

A substantial portion of our revenues is dependent upon continued funding of U.S. government agencies. Any significant reductions in the funding of U.S. government agencies or in the funding areas targeted by our businesses could materially and adversely affect our business, results of operations, and financial condition. We have entered into agreements with government agencies, such as the NIAID, the DHS, the USDA, and the NMRC, and we intend to continue entering into these agreements in the future. Our business is partially dependent on the continued performance by these government agencies of their responsibilities under these agreements, which in turn is dependent upon adequate continued funding of the agencies and their programs. We have no control over the resources and funding government agencies may devote to these agreements, which may be subject to annual renewal and which generally may be terminated by the government agencies at any time. If we fail to satisfy our contractual obligations to deliver in the manner required by the agreement, the applicable Federal Acquisition Regulations allow the government to cancel the agreement in whole or in part, and we may be required to perform corrective actions, including but not limited to delivering to the government any uncompleted or partially completed work. The performance of these corrective actions could have a material adverse impact on our financial results in the period or periods affected. Government agencies may fail to perform their responsibilities under these agreements, which could materially impact our financial results.

In addition, our contract related costs and fees, including allocated indirect costs, are subject to audits and adjustments by negotiation between us and the U.S. government. As part of the audit process, the government audit agency verifies that all charges made by a contractor against a contract are legitimate and appropriate. Audits may result in recalculation of contract revenues and non-reimbursement of some contract costs and fees. Any audits of our contract related costs and fees could result in material adjustments to our revenues. In addition, U.S. government contracts are conditioned upon the continuing availability of Congressional appropriations. Congress usually appropriates funds on a fiscal year basis even though contract performance may take several years. Consequently, at the outset of a major program, the contract is usually incrementally funded and additional funds are normally committed to the contract by the procuring agency as appropriations are made by Congress for future fiscal years. Any failure of such agencies to continue to fund such contracts could have a material adverse effect on our business, results of operations, and financial condition.

We apply for and have received funding from government agencies under Small Business Technology Transfer (STTR) and Small Business Innovation Research (SBIR) grants. Eligibility of public companies to receive such grants is based on size and ownership criteria which are under review by the Small Business Administration (SBA). As a result, our eligibility may change in the future and additional funding from this source may not be available.

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Agreements with government agencies may lead to claims against us under the Federal False Claims Act, and these claims could result in substantial fines and other penalties.

The biopharmaceutical industry is, and in recent years has been, under heightened scrutiny as the subject of government investigations and enforcement actions. Our agreements with the U.S. government are subject to substantial financial penalties under the Federal Civil Monetary Penalties Act and the Federal Civil False Claims Act. Under the False Claims Act's "whistleblower" provisions, private enforcement of fraud claims against businesses on behalf of the U.S. government has increased due in part to amendments to the False Claims Act that encourage private individuals to sue on behalf of the government. These whistleblower suits, known as qui tam actions, may be filed by private individuals, including present and former employees. The False Claims Act statute provides for treble damages and up to \$11,000 per false claim. If our operations are found to be in violation of any of these laws, or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from the Medicare and Medicaid programs, and the curtailment or restructuring of our operations. Any penalties, damages, fines, exclusions, curtailment, or restructuring of our operations could adversely affect our ability to operate our business and our financial results.

We have experienced, and may continue to experience, delays in conducting our clinical trials.

Clinical trials for the product candidates we are developing may be delayed by many factors, including: (i) limited number of, and competition for, suitable patients for the particular clinical trial; (ii) slower than expected rate of patient recruitment and enrollment; and/or (iii) failure of patients to complete the trial. We have experienced delays in enrolling patients into our TNFerade clinical trials and may have additional delays as we seek to expand enrollment. Our ability to enroll appropriate patients for any of our clinical trials also may be adversely affected by trials being conducted by our competitors for similar disease indications. The failure of any clinical trials to meet applicable regulatory standards, or the standards of the relevant reviewing bodies could cause such trials to be delayed, suspended or terminated, which could further delay the development of any of our product candidates. Any such delays increase our product development costs, with the possibility that we could run out of funding. Delays in one clinical trial also can adversely affect our ability to launch clinical trials for similar or different indications. Consequently, if such delays are significant they could negatively affect our financial results and the commercial prospects for our products.

Additionally, our clinical trials may be suspended or terminated at any time by the FDA, an IRB, other regulatory authorities, or by us for a variety of reasons, including safety. Any failure or significant delay in completing clinical trials for our product candidates could harm our financial results and commercial prospects for our product candidates.

Any clinical trial may fail to produce results satisfactory to the FDA. Preclinical and clinical data can be interpreted in different ways, and the FDA may not agree with our interpretations, which could delay, limit, or prevent regulatory approval. Negative or inconclusive results or adverse medical events during a clinical trial could cause a trial to be delayed or repeated or a program to be terminated.

We depend on clinical trial arrangements with public and private medical institutions to advance our technology, and the loss of these arrangements could impair the development of our products.

We have arrangements with a number of public and private medical institutions and individual investigators for the conduct of human clinical trials for our clinical product candidates including TNFerade. In some cases, trials may be conducted by institutions without our direct control or monitoring. The early termination of any of these clinical trial arrangements, the failure of these institutions to comply with the regulations and requirements governing clinical trials, or reliance upon results of trials we have not directly conducted or monitored could hinder the progress of our clinical trial programs or our development decisions. If any of these relationships are terminated, clinical trials might not be completed and the results of these trials might not be evaluable.

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We cannot be sure our collaborators will perform as expected, and collaborations might produce conflicts that could delay or prevent the development or commercialization of our potential product candidates and negatively impact our business and financial condition.

We cannot control the resources collaborators may devote to our products. Our present or future collaborators may not perform their obligations as expected. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. In addition, our collaborators may elect not to develop products arising out of our collaborative arrangements or to devote sufficient resources to the development, regulatory approval, manufacture, marketing, or sale of these products. If any of these events occur, we may not be able to develop our technologies or commercialize our products.

An important part of our strategy involves conducting multiple product development programs. We may pursue opportunities in fields that conflict with those of our collaborators. In addition, disagreements with our collaborators could develop over rights to our intellectual property. The resolution of such conflicts and disagreements may affect ownership of intellectual property that we believe we are entitled to. In addition, any disagreement or conflict with our collaborators could reduce our ability to obtain future collaboration agreements and negatively impact our relationship with existing collaborators. Such a conflict or disagreement could also lead to delays in collaborative research, development, regulatory approval, or commercialization of various products or could require or result in litigation or arbitration, which would be time consuming, expensive, and could have a significant negative impact on our business, financial condition, and results of operations.

Our collaboration agreements may prohibit us from conducting research in areas that may compete with our collaboration products, while our collaborators may not be limited to the same extent. This could negatively affect our ability to develop products and, ultimately, prevent us from achieving a continuing source of revenues.

We anticipate some of our corporate or academic collaborators will be conducting multiple product development efforts within each disease area that is the subject of their collaborations with us. In certain circumstances we have agreed not to conduct independently, or with any third party, certain research and development activities that are competitive with the research and development activities conducted under our collaborations. Therefore, our collaborations may limit the areas of research and development we may pursue alone or with others. Some of our collaborators, however, may develop, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of their collaborations with us. In addition, competing products, either developed by the collaborators or to which the collaborators have rights, may result in their withdrawing support for our product candidates.

If we are unable to manufacture our products in sufficient quantities or are unable to obtain regulatory approvals for a manufacturing facility for our products, we may experience delays, be unable to meet demand, and may lose potential revenues.

Completion of our clinical trials and commercialization of our product candidates require access to, or development of, facilities to manufacture a sufficient supply of our product candidates. We have limited experience manufacturing any of our gene-based products in the volumes that will be necessary to support large-scale clinical trials or commercial sales. We do not yet know the extent to which we will be able to develop our Gaithersburg manufacturing facilities and processes for the manufacture of gene therapy product candidates. Efforts to establish capabilities, if pursued, may not meet initial expectations as to scheduling, reproducibility, yield, purity, cost, potency, or quality.

If we are unable to manufacture our product candidates in clinical quantities or, when necessary, commercial quantities, we will need to rely on third parties to manufacture compounds for clinical and commercial purposes. These third-party manufacturers must receive FDA approval before they can produce clinical material or commercial products. Our products may compete with other products for access to these facilities and may be subject to delays in manufacture if third parties give other products greater priority. In addition, we may not be able to enter into any necessary third-party manufacturing arrangements on acceptable terms or on a timely basis. There are very few contract manufacturers who currently have the capability to produce our

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proposed products, and the inability of any of these contract manufacturers to deliver our required quantities of product candidates on a timely basis and at commercially reasonable prices would negatively affect our operations.

Before we or our collaborators can begin commercial manufacturing of any of our product candidates, we or our collaborators must obtain regulatory approval of the manufacturing facility and process. Manufacturing of our proposed products must comply with the FDA's current Good Manufacturing Practices (cGMP) requirements and non-U.S. regulatory requirements. The cGMP requirements govern quality control and documentation policies and procedures. In complying with cGMP and non-U.S. regulatory requirements, we will be obligated to expend time, money, and effort in production, record keeping, and quality control to assure the product meets applicable specifications and other requirements. We or our collaborators must also pass a preapproval inspection before FDA approval. Significant capital will likely need to be expended on the development of manufacturing capacity for a product candidate even before we know if the FDA will approve the product for commercialization. Furthermore, if we or our collaborators fail to comply with these requirements, our product candidates would not be approved. If we or our collaborators fail to comply with these requirements after approval, we would be subject to possible regulatory action and may be limited in the jurisdictions in which we are permitted to sell our products. The FDA and non-U.S. regulatory authorities also have the authority to perform unannounced periodic inspections of our manufacturing facility to ensure compliance with cGMP and non-U.S. regulatory requirements.

If successful large-scale manufacturing of gene-based medicines is not possible, we may be unable to manufacture enough of our product candidates to achieve regulatory approval or market our products.

Few companies to date have shown successful large-scale manufacturing of gene-based medicines, each of which has had significantly more resources than we and it is anticipated that significant challenges will be faced in the scale-up of our manufacturing process for commercial production. There are a limited number of contract manufacturers qualified to perform large-scale manufacturing of gene-based medicines. We may be unable to manufacture commercial-scale quantities of gene-base medicines or receive appropriate government approvals on a timely basis or at all. Failure to successfully manufacture or obtain appropriate government approvals on a timely basis or at all would prevent us from achieving our business objectives.

We may experience difficulties or delays in product manufacturing that are beyond our control and could harm our business because we rely on third-party manufacturers.

We currently expect to produce our product candidates through third-party manufacturers. Problems with any manufacturing processes could result in product defects, which could require us to delay shipment of products or recall products previously shipped. In addition, any prolonged interruption in the operations of our or a third party's manufacturing facilities could result in the cancellation of shipments. A number of factors could cause interruptions, including equipment malfunctions, process failures, damage to a facility due to natural disasters or otherwise. Because our manufacturing processes are or are expected to be highly complex and subject to a lengthy FDA approval process, alternative qualified production capacity may not be available on a timely basis or at all.

Difficulties or delays in our manufacturing could increase our costs and damage our reputation. The manufacture of pharmaceutical products can be an expensive, time consuming, and complex process. Manufacturers often encounter difficulties in scaling-up production of new products, including problems involving the transfer of manufacturing technology, production yields, quality control and assurance, and shortages of personnel. Delays in formulation and scale-up to commercial quantities could result in additional expense and delays in our clinical trials, regulatory submissions, and commercialization.

We rely on a limited number of suppliers for some of our manufacturing materials. Any problems experienced by any of these suppliers could negatively impact our operations.

We rely on third-party suppliers and vendors for some of the materials used in the manufacture of our product candidates. Some of these materials are available from only one supplier or vendor. For supply of early clinical trial materials, we rely on one supplier, Life Technologies Corporation, for its cell culture medium and another supplier, Lonza, for custom buffers. The cell culture medium is used to grow the cells

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within which our product candidates are produced. For our supply of late-stage clinical trial materials, we currently are planning to use purification resins from the Applied Biosystems Group of Applied Biosystems Corporation and the BioSepra S.A. Process Division of Pall Corporation. We do not currently have supply agreements with any of these suppliers. Any significant problem experienced by one of our suppliers could result in a delay or interruption in the supply of materials to us until such supplier resolves the problem or an alternative source of supply is located. We have limited experience with alternative sources of raw materials. Any delay or interruption would likely lead to a delay or interruption of manufacturing operations, which could negatively affect our operations.

If we are unable to enter into collaborations with marketing partners or develop our own sales and marketing capability, we may not be successful in commercializing our products.

We currently have limited sales, marketing, and distribution capabilities. As a result, we will depend on collaborations with third parties that have established distribution systems and direct sales forces. To the extent that we enter into co-promotion or other licensing arrangements, our revenues will depend upon the efforts of third parties, over which we may have little or no control. If we are unable to reach and maintain agreements with one or more pharmaceutical companies or collaborators, we may be required to market our products directly. In any case we may elect to establish our own specialized sales force and marketing organization to market our products to physicians. In order to do this, we would have to develop a marketing and sales force with technical expertise and with supporting distribution capability. Developing a marketing and sales force is expensive and time consuming and could delay a product launch. We cannot be certain we will be able to attract and retain qualified sales personnel or otherwise develop this capability.

We face substantial competition from other companies and research institutions that are developing products to treat the same diseases that our product candidates target, and we may not be able to compete successfully.

We compete with pharmaceutical and biotechnology companies pursuing other forms of treatment for the diseases our product candidates target. We may also face competition from companies that may develop competing technology internally or acquire it from the government, universities, and other research institutions. As these companies develop their technologies, they may develop proprietary positions, which may prevent or limit our product commercialization efforts.

Some of our competitors are established companies with greater financial and other resources than ours. Our competitors may succeed in:

- Identifying important genes or delivery mechanisms before we do;
- Developing products or product candidates earlier than we do;
- Forming collaborations before we do or precluding us from forming collaborations with others;
- Obtaining approvals from the FDA or other regulatory agencies, for such products more rapidly than we do;
 - Developing and validating manufacturing processes more rapidly than we do;
- Obtaining patent protection to other intellectual property rights that would limit or preclude our ability to use our technologies or develop products; or
 - Developing products that are safer or more effective than those we develop or propose to develop.

While we seek to expand our technological capabilities to remain competitive, research and development by others may render our technology or product candidates obsolete or noncompetitive or result in treatments or cures superior to any therapy developed by us.

In addition, our products may face competition from generic biologics that are approved via an abbreviated process on the basis of a showing that the product is the same as (or perhaps similar to) our approved product, rather than on an independent demonstration of the new product's safety and effectiveness. Although there is currently no process in the U.S. for the submission or approval of generic biologics based upon abbreviated data packages or a showing of sameness to another approved biologic, there is a public dialog at

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the FDA and in Congress regarding the scientific and statutory basis upon which such products, known as "biosimilars" or "follow-on biologics," could be approved and marketed in the U.S. We can not be certain when or if Congress will create a statutory pathway for the approval of biosimilars, and we cannot predict what impact, if any, the approval of biosimilars would have on the sales of our products in the U.S. If competitors are able to obtain marketing approval for biosimilars in the U.S. or Europe, our products may become subject to additional competition with the attendant pricing pressure. We also could face increased litigation with respect to the validity and/or scope of patents relating to our products.

If we are unable to adequately protect our intellectual property rights, our competitors may be able to take advantage of our research and development efforts to compete with us.

Our commercial success will depend, in part, on obtaining patent protection for our products and other technologies and successfully defending these patents against third party challenges. Our patent position, like that of other biotechnology firms, is highly uncertain and involves complex legal and factual questions. The laws, rules, and regulations affecting biotechnology patent protection in the U.S. and other countries are uncertain and are currently undergoing review and revision. Changes in, or different interpretations of, patent laws in the U.S. and other countries might allow others to use our discoveries or to develop and commercialize our products without any compensation to us.

Our ability to develop and protect a proprietary position based on biotechnological innovations and technologies involving genes and gene delivery systems, methods of use, production, formulations, and the like is particularly uncertain. The U.S. Patent and Trademark Office, as well as patent offices in other countries, have often required that patent applications concerning biotechnology-related inventions be limited or narrowed substantially. Our disclosures in our patent applications may not be sufficient to meet the statutory requirements for patentability in all cases. In addition, other companies or institutions possess issued patents and have filed and will file patent applications that cover or attempt to cover genes, vectors, cell lines, and methods of making and using gene therapy products that are the same as or similar to the subject matter of our patent applications. For example, while we have pending patent applications pertaining to particular adenovectors that cannot reproduce themselves and adenovectors modified to alter cell binding characteristics, we are aware of issued patents and pending patent applications of other companies and institutions relating to the same subject matter. Patents and patent applications of third parties may have priority over our issued patents and our pending or yet to be filed patent applications. Proceedings before the U.S. Patent and Trademark Office and other patent offices to determine who properly lays claim to inventions are costly and time consuming, and we may not win in any such proceedings.

The issued patents we already have or may obtain in the future may not provide commercially meaningful protection against competitors. Other companies or institutions may challenge our or our collaborators' patents in the United States and in other countries. In the event a company, institution, or researcher infringes upon our or our collaborators' patent rights, enforcing these rights may be difficult, expensive, and/or time consuming, with no guarantee that our or our collaborators' patent rights will be upheld. Others may be able to design around these patents or develop unique products providing effects similar to our products. In addition, our competitors may legally challenge our patents and they may be considered invalid. In addition, various components used in developing gene therapy products, such as particular genes, vectors, promoters, cell lines, and construction methods, used by others and by us, are available to the public. As a result, we are unable to obtain patent protection with respect to such components, and third parties can freely use such components. Third parties may develop products using such components that compete with our potential products. Also, with respect to some of our patentable inventions, we or our collaborators have decided not to pursue patent protection outside the United States. Accordingly, our competitors could develop, and receive non-U.S. patent protection for, gene therapies or technologies for which we or our collaborators have or are seeking U.S. patent protection. Our competitors may be free to use these gene therapies or technologies outside the U.S. in the absence of patent protection.

We also rely to a limited extent on trade secrets to protect our technology. However, trade secrets are difficult to protect. While we have entered into confidentiality agreements with employees and collaborators, we may not be able to prevent the disclosure or use of our trade secrets. In addition, other companies or institutions may independently develop substantially equivalent information and techniques.

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If our potential products conflict with intellectual property rights of competitors, universities, or others, then we may be prevented from developing those product candidates.

Other companies and institutions have issued patents and have filed or will file patent applications that may issue into patents that cover or attempt to cover genes, vectors, cell lines, and methods of making and using gene and gene-based therapy products used in or similar to our product candidates and technologies. For example, we are aware of issued patents and pending patent applications relating to gene delivery for oncology applications, including through the use of adenovectors. It could be alleged that our development of our TNFerade oncology product candidate conflicts with these patents. We also are aware of other issued patents and pending patent applications that relate to various aspects of our manufacture of our product candidates and systems, including TNFerade, and it could be alleged that our manufacture of these product candidates conflicts with these patents. We have not conducted freedom to use patent searches on all aspects of our product candidates or potential product candidates, and we may be unaware of relevant patents and patent applications of third parties. In addition, the freedom to use patent searches that have been conducted may not have identified all relevant issued patents or pending patent applications that could issue into patents, particularly in view of the characterizations of the subject matter of issued patents and pending patent applications, as well as the fact that pending patent applications can be maintained in secrecy for a period of time and, in some circumstances, until issuance as patents.

An issued patent gives rise to a rebuttable presumption of validity under U.S. law and under the laws of some other countries. The holder of a patent to which we or our collaborators do not hold a license could bring legal actions against our collaborators or us for damages or to stop us or our collaborators from using the affected technology, which could limit or preclude our ability to develop and commercialize our product candidates. If any of our potential products are found to infringe a patent of a competitor or third party, we or our collaborators may be required to pay damages and to either obtain a license in order to continue to develop and commercialize the potential products or, at the discretion of the competitor or third party, to stop development and commercialization of the potential products. Since we have concentrated our resources on developing only a limited number of products, the inability to market one of our products would disproportionately affect us as opposed to a competing company with many products in development.

We believe there will be significant litigation in our industry regarding intellectual property rights. Many of our competitors have expended and are continuing to expend significant amounts of time, money, and management resources on intellectual property litigation. If we become involved in litigation, it could consume a substantial portion of our resources and could adversely affect our business, financial condition, and results of operations, even if we ultimately are successful in such litigation, in view of our limited resources.

If we lose our rights to use intellectual property we license from others, or those rights are not enforceable, then our ability to develop and commercialize our product candidates will be harmed.

We rely, in part, on licenses to use some technologies material to our business. For example, to create our product candidates we combine our adenovectors with genes intended to produce therapeutic proteins. In most instances we do not own the patents or patent applications that cover these genes and certain methods of use thereof which underlie these licenses. For these genes, we do not control the enforcement of the patents. We rely upon our licensors to properly prosecute and file those patent applications and defend and enforce any issued patents.

While many of the licenses under which we have rights provide us with exclusive rights in specified fields, the scope of our rights under these and other licenses may be subject to dispute by our licensors or third parties. In addition, our rights to use these technologies and practice the inventions claimed in the licensed patents and patent applications are subject to our licensors abiding by the terms of those licenses and not terminating them. Any of our licenses may be terminated by the licensor if we are in breach of a term or condition of the license agreement or in certain other circumstances. In addition, some of our licenses require us to achieve specific development milestones.

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The legal proceedings to obtain, enforce, and defend patents, and litigation of third-party claims of intellectual property infringement could require us to spend money and could impair our operations.

Our success will depend, in part, on our ability to obtain patent protection for our products and processes, both in the United States and in other countries. The patent positions of biotechnology and pharmaceutical companies, however, can be highly uncertain and can involve complex legal and factual questions. Therefore, it is difficult to predict the breadth of claims allowed in the biotechnology and pharmaceutical fields.

Protecting intellectual property rights can be expensive and time consuming. Litigation may be necessary to enforce patents issued to us or to determine the scope and validity of third party proprietary rights. Moreover, if a competitor were to file a patent application claiming technology also invented by us, we would have to participate in an interference proceeding before the U.S. Patent and Trademark Office to determine the priority of invention. We may be drawn into interferences with third parties or may have to provoke interferences ourselves to challenge third-party patent rights to allow us or our licensees to commercialize products based on our technologies. Litigation could result in substantial costs and diversion of management efforts regardless of the results of the litigation. An unfavorable result in litigation could subject us to significant liabilities to third parties, require disputed rights to be licensed, or require us to cease using some technologies.

Our products and processes may infringe, or be found to infringe, patents not owned or controlled by us. Patents held by others may require us to alter our products or processes, obtain licenses, or stop activities. If relevant claims of third-party patents are upheld as valid and enforceable, we could be prevented from practicing the subject matter claimed in the patent. In addition, we may be required to obtain licenses, redesign our products or processes to avoid infringement, or pay money damages. As a result, our business may suffer if we are not able to obtain licenses at all or on commercially reasonable terms to us or we are required to redesign our products or processes to avoid infringement.

Adverse events in the field of gene therapy may negatively affect regulatory approval or public perception of our products or product candidates.

TNFrade therapy and most of our other product candidates under development could be broadly described as recombinant DNA therapies. A number of clinical trials are being conducted by other biotechnology and pharmaceutical companies involving related therapies, including compounds similar to, or competitive with, our product candidates. The announcement of adverse results from these clinical trials, such as serious adverse events and unexpected side effects attributable to the treatment, or any response by the FDA or other similar regulatory authority to such clinical trials, may impede the timing of our clinical trials, delay or prevent us from obtaining regulatory approval, impede our ability to secure additional funding, or negatively influence public perception of our product candidates. As a result, these conditions could harm our business and results of operations and depress the value of our stock.

The commercial success of our product candidates will depend, in part, on public acceptance of the use of gene therapies for the prevention or treatment of human disease. Public attitudes may be influenced by claims that gene therapy is unsafe, and gene therapy may not gain the acceptance of the public or the medical community. Negative public reaction to gene therapy could result in greater government regulation and stricter clinical trial oversight and commercial product labeling requirements of gene therapy products and could cause a decrease in the demand for any products we may develop.

Our product candidates involve new technologies and therapeutic approaches in the field of gene therapy, which is a new and evolving field. As discussed above, no gene therapy product has received regulatory approval in the U.S., and adverse events in this field may negatively affect public perception of our product candidates. Even if our product candidates attain regulatory approval, our success will depend upon the medical community, patients, and third-party payers accepting gene therapy products in general, and our product candidates in particular, as medically useful, cost-effective, and safe. In particular, our success will depend upon physicians specializing in the treatment of those diseases that our product candidates target prescribing treatments that involve the use of our product candidates in lieu of, or in addition to, existing treatments they are already familiar with and for which greater clinical data may be available. Even if the clinical safety and efficacy of our product candidates is established, physicians may elect not to recommend our products for a

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variety of reasons, including the reimbursement policies of government and third-party payers. Furthermore, third-party payers, such as health insurance plans, may be reluctant to authorize and pay for new forms of treatment they may deem expensive and less proven than existing treatments. Even if gene therapy products, and our product candidates in particular, are accepted by the medical community and third-party payers, the public in general, or patients in particular, may be uncomfortable with new therapies, including our product candidates and it could take substantial time for them to accept gene therapy products as a viable treatment alternative, if ever. If gene therapy and our product candidates do not gain widespread acceptance, we may be unable to generate significant revenues, if any, which would adversely affect our results of operations. In addition, even if our product candidates achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our product candidates or that render them obsolete.

We may face liability claims related to the use or misuse of our drug candidates in clinical trials. If our insurance coverage is not sufficient, a product liability claim against us could adversely affect our business.

We may be held liable if any product we develop, or any product that is made with the use or incorporation of any of our technologies, causes injury or is found otherwise unsuitable during product testing, manufacturing, marketing, or sale. Regardless of the merit or eventual outcome, product liability claims may result in:

- Withdrawal of product candidates from our clinical trials;
- Withdrawal of our products from the market, if they have been approved;
 - Damage to our reputation;
 - Costs of litigation;
- Substantial monetary awards to plaintiffs; and
- Decreased demand for our products or product candidates.

Such liability claims may be expensive to defend and may result in large judgments or settlements against us. We have obtained liability coverage for clinical trials. However, we cannot be certain our insurance policies will be sufficient to cover all claims that may be made against us. We may need to increase our coverage as we progress into late stage clinical trials and/or eventual commercial sale. Liability insurance is expensive, difficult to obtain, and may not be available in the future on acceptable terms.

Generally our clinical trials will be conducted in patients with serious life-threatening diseases for whom conventional treatments have been unsuccessful or for whom no conventional treatment exists, and during the course of treatment, these patients could suffer adverse medical effects or die for reasons that may or may not be related to our drug candidates. Any of these events could result in a claim of liability. Any such claim against us, regardless of its merit, could result in a significant award against us that could materially harm our business, financial condition, and results of operations.

We use hazardous chemicals and radioactive and biological materials in our business; any liability or disputes relating to improper handling, storage, or disposal of these materials could be time consuming and costly.

Our research and development processes involve the use of hazardous materials, including chemicals and radioactive and biological materials, and also produce hazardous waste products. Hazardous chemicals used in our processes include, but are not limited to, flammable solvents such as methanol and ethanol, toxic chemicals such as ethidium bromide and formaldehyde, and corrosive chemicals such as acetic acid and sodium hydroxide. We also use several radioactive compounds, including phosphorous-32, carbon-14, sulfur-35, phosphorous-33, iodine-125, hydrogen-3, and chromium-51.

Hazardous biological materials used in our research and development activities include human and animal cell lines and viruses, such as adenoviruses and animals infected with human viruses. Some of the biological material may be novel, including viruses with novel properties. We cannot eliminate the risk of accidental contamination or discharge or injury from these materials. Federal, state, and local laws and regulations govern the use, manufacture, storage, handling, and disposal of these materials. We could be subject to civil

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damages in the event of an improper or unauthorized release of, or exposure of individuals to, these hazardous materials. In addition, claimants may sue us for injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets.

Although we have general liability insurance, these policies contain exclusions from insurance against claims arising from pollution from chemical or radioactive materials. Our collaborators are working with these types of hazardous materials in connection with our collaborations. In the event of a lawsuit or investigation, we could be held responsible for any injury we or our collaborators cause to persons or property by exposure to, or release of, any hazardous materials. Although we believe we are currently in compliance with all applicable environmental and occupational health and safety regulations, compliance with environmental laws and regulations may be expensive and current or future environmental regulations may impair our research, development, or production efforts.

If reforms in the health care industry make reimbursement for our potential products less likely, the market for our potential products will be reduced, and we will lose potential sources of revenue.

Our success may depend, in part, on the extent to which reimbursement for the costs of therapeutic products and related treatments will be available from third party payers such as government health administration authorities, private health insurers, managed care programs, and other organizations. Over the past decade, the cost of health care has risen significantly, and there have been numerous proposals by legislators, regulators, and third-party health care payers to curb these costs. Some of these proposals have involved limitations on the amount of reimbursement for certain products. Similar federal or state health care legislation may be adopted in the future and any products that we seek to commercialize may not be considered cost-effective. Adequate third party insurance coverage may not be available for us to establish and maintain price levels that are sufficient for realization of an appropriate return on our investment in product development. Moreover, the existence or threat of cost control measures, including a reduction in reimbursement rates could cause potential corporate collaborators to be less willing or able to pursue research and development programs related to our product candidates. We cannot be certain that, if and when our products become commercialized, the pertinent reimbursement amounts or formulary status for our products will be sufficient to enable us to market and sell our products.

Our business involves animal testing and changes in laws, regulations, accepted clinical procedures, or social pressures could restrict our use of animals in testing and adversely affect our research and development efforts.

Many of the research and development efforts we sponsor involve the use of laboratory animals. Changes in laws, regulations, or accepted clinical procedures may adversely affect these research and development efforts. Social pressures that would restrict the use of animals in testing or actions against us or our partners by groups or individuals opposed to testing using animals could also adversely affect these research and development efforts.

In addition, preclinical animal studies conducted by us or third parties on our behalf may be subject to the United States Department of Agriculture regulations for certain animal species. Failure to comply with applicable regulations could extend or delay clinical trials conducted for our drug candidates.

Current healthcare laws may negatively affect our ability to obtain patient information for research purposes.

U.S. federal and state laws protect the confidentiality of certain health information, in particular individually identifiable information, and restrict the use and disclosure of that information. At the federal level, the Department of Health and Human Services promulgated health information privacy and security rules under the Health Insurance Portability and Accountability Act of 1996, or HIPAA. These rules protect health information by regulating its use and disclosure, including for research purposes. Failure of a HIPAA covered entity (such as a hospital) to comply with HIPAA could constitute a violation of federal law, subject to civil and criminal penalties. We are not directly subject to HIPAA as a covered entity, however. Nevertheless, because conduct by a person that may not be prosecuted directly under HIPAA's criminal provisions could potentially be prosecuted under aiding and abetting or conspiracy laws, we are unable to determine whether

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our actions could be subject to prosecution in the event of an impermissible disclosure of data to us. In addition, many state laws apply to the use and disclosure of health information, which could affect the manner in which we conduct our research and development, as well as other aspects of our operations. Moreover, such laws are not necessarily preempted by HIPAA, in particular those state laws that afford greater privacy protection to the individual than HIPAA. Such state laws may have their own penalty provisions, which could be applied in the event of an unlawful action affecting health information.

Our stock price could continue to be highly volatile and investors may not be able to resell their shares at or above the price they paid for them.

The market price of our common stock, like that of many other life sciences companies, has been and is likely to continue to be highly volatile. During 2009, our stock price ranged from \$0.35 to \$1.20. The following factors, among others, could have a significant impact on the market price of our common stock:

- Results of our preclinical studies and clinical trials or announcements regarding our plans for future studies or trials, or those of our competitors;
 - Evidence or lack of evidence of the safety or efficacy of our potential products or those of our competitors;
 - Announcement by us or our competitors of technological innovations or new products;
- Developments concerning our patent or other proprietary rights or those of our competitors, including litigation and challenges to our proprietary rights;
 - Geopolitical developments, natural or man-made disease threats, or other events beyond our control;
 - U.S. and foreign governmental regulatory actions;
 - Changes or announcements in reimbursement policies;
 - Period-to-period fluctuations in our operating results;
 - Market conditions for life science stocks in general;
 - Changes in the collective short interest in our stock;
 - Changes in estimates of our performance by securities analysts; and
 - Our cash balances, need for additional capital, and access to capital.

We are at risk of securities class action litigation due to our expected stock price volatility.

In the past, stockholders have brought securities class action litigation against a company following a decline in the market price of its securities. This risk is especially acute for us because life science companies have experienced greater than average stock price volatility in recent years and, as a result, have been subject to, on average, a greater number of securities class action claims than companies in other industries. To date, we have not been subject to class action litigation. However, in the future we may be the target of this litigation. Securities litigation could result in substantial costs, divert our management's attention and resources, and could seriously harm our business.

We depend on our key technical and management personnel to advance our technology, and the loss of these personnel could impair the development of our products.

We rely, and will continue to rely, on our key management and scientific staff, all of whom are employed at will. The loss of key personnel or the failure to recruit necessary additional qualified personnel could have a material adverse effect on our business and results of operations. There is intense competition from other companies, research and academic institutions, and other organizations for qualified personnel. We may not be able to continue to attract and retain the qualified personnel necessary for the development of our business. If we do not succeed in retaining and recruiting necessary personnel or developing this expertise, our business could suffer significantly.

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We have implemented anti-takeover provisions which could discourage or prevent a takeover, even if an acquisition would be beneficial to our stockholders and may prevent attempts by our stockholders to replace or remove our current management.

Provisions of our amended and restated certificate of incorporation and bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, even if doing so would be beneficial to our stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board of Directors. Because our Board of Directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. These provisions include:

- Establishing a classified board of directors requiring that members of the board be elected in different years, which lengthens the time needed to elect a new majority of the board;
- Authorizing the issuance of "blank check" preferred stock that could be issued by our Board of Directors to increase the number of outstanding shares or change the balance of voting control and thwart a takeover attempt;
- Prohibiting cumulative voting in the election of directors, which would otherwise allow for less than a majority of stockholders to elect director candidates;
 - Limiting the ability of stockholders to call special meetings of the stockholders;
- Prohibiting stockholder action by written consent and requiring all stockholder actions to be taken at a meeting of our stockholders; and
- Establishing 90 to 120 day advance notice requirements for nominations for election to the Board of Directors and for proposing matters that can be acted upon by stockholders at stockholder meetings.

We have adopted a stockholder rights plan that may discourage, delay, or prevent a merger or acquisition that is beneficial to our stockholders.

In November 2001, our Board of Directors adopted a stockholder rights plan that may have the effect of discouraging, delaying, or preventing a merger or acquisition beneficial to our stockholders by diluting the ability of a potential acquirer to acquire us. Pursuant to the terms of our plan, when a person or group (except under certain circumstances) acquires 20% or more of our outstanding common stock or ten business days after commencement or announcement of a tender or exchange offer for 20% or more of our outstanding common stock, the rights (except those rights held by the person or group who has acquired or announced an offer to acquire 20% or more of our outstanding common stock) would generally become exercisable for shares of our common stock at a discount. Because the potential acquirer's rights would not become exercisable for our shares of common stock at a discount, the potential acquirer would suffer substantial dilution and may lose its ability to acquire us. In addition, the existence of the plan itself may deter a potential acquirer from acquiring us. As a result, either by operation of the plan or by its potential deterrent effect, mergers and acquisitions of us that our stockholders may consider in their best interests may not occur.

The issuance of debt or equity securities could adversely affect our common stockholders.

We have historically raised capital through the issuance of equity securities, and in the future we expect to issue either debt or equity securities to raise additional capital. We have on file an effective shelf registration statement that allows us to raise up to an additional \$37.9 million from the sale of common or preferred stock, debt securities or warrants for the purchase of common or preferred stock, and we have filed a replacement effective shelf registration statement that has not yet been declared effective that will allow us to raise up to \$150.0 million from the sale of common or preferred stock or warrants for the purchase of common or preferred stock. We may also choose to issue either debt or equity securities in offerings not made pursuant to our shelf registration statement. The issuance of debt or equity securities could adversely affect the voting power of holders of our common stock, and reduce the likelihood that our common stockholders will receive dividend payments and payments upon liquidation. The issuance of debt or equity securities could also decrease the market price of our common stock or have terms and conditions that could discourage a takeover or other transaction that might involve a premium price for our shares or that our stockholders might believe to be in their best interests.

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ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We currently lease 42,900 square feet for our corporate offices and research and development laboratories located at 65 West Watkins Mill Road in Gaithersburg, Maryland. The lease was due to expire on November 1, 2009. In March 2009, we signed an amendment to this lease that extended the term through October 31, 2014. We have additional space within our Gaithersburg, Maryland facilities that can be utilized to accommodate future growth. We currently believe the Gaithersburg facility is sufficient to meet our present needs.

ITEM 3. LEGAL PROCEEDINGS

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

ITEM 4. RESERVED

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Since our initial public offering of common stock on December 12, 2000, our common stock has been traded in the over-the-counter market and is included for quotation on the NASDAQ Global Market under the symbol GNVC. Set forth below is the range of high and low closing sale prices for our common stock as reported on the NASDAQ Global Market for the two most recent years:

	<u>HIGH</u>	<u>LOW</u>
First Quarter 2009	\$ 0.77	\$ 0.35
Second Quarter 2009	\$ 1.09	\$ 0.42
Third Quarter 2009	\$ 0.90	\$ 0.64
Fourth Quarter 2009	\$ 1.20	\$ 0.74
First Quarter 2008	\$ 1.93	\$ 1.02
Second Quarter 2008	\$ 2.36	\$ 1.39
Third Quarter 2008	\$ 1.73	\$ 1.16
Fourth Quarter 2008	\$ 1.20	\$ 0.33

As of February 28, 2010, there were approximately 175 stockholders of record of our common stock, one of which is Cede & Co., a nominee for Depository Trust Company (DTC), which is the single record holder for shares of common stock held by brokerage firms, banks, and other financial institutions as nominees for beneficial owners.

We have not paid any cash dividends since our inception and we do not anticipate paying any cash dividends in the foreseeable future. We did not repurchase any of our equity securities during the last fiscal year.

Unregistered Sales of Equity Securities and Use of Proceeds.

None.

STOCK PERFORMANCE GRAPH

The following graph shows the cumulative total return to our stockholders for our Common Stock from December 31, 2004 through December 31, 2009 as compared to an overall stock market index, the NASDAQ Composite Index, and a peer group index, the NASDAQ Pharmaceutical Index. The returns were calculated assuming \$100 was invested on December 31, 2004 in our Common Stock and in each index and all dividends were reinvested. No cash dividends have been declared on our Common Stock. The information contained in the Stock Performance Graph shall not be deemed to be "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any past or future filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent we specifically incorporate it by reference into any such filing.

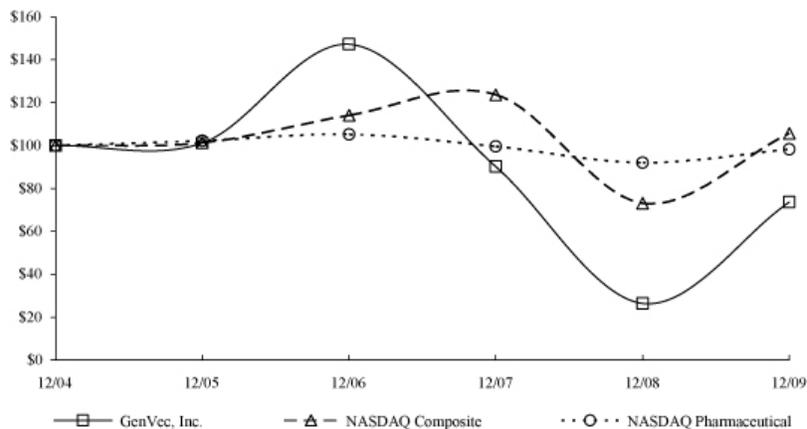
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The following graph is presented in accordance with Securities and Exchange Commission requirements. Stockholders are cautioned against drawing any conclusions from the data contained therein, as past results are not necessarily indicative of future performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among GenVec, Inc., The NASDAQ Composite Index

And The NASDAQ Pharmaceutical Index



*\$100 invested on 12/31/04 in stock or index, including reinvestment of dividends.

Fiscal year ending December 31.

	GenVec, Inc.	NASDAQ Composite	NASDAQ Pharmaceutical
12/31/04	\$ 100.00	\$ 100.00	\$ 100.00
12/31/05	\$ 101.23	\$ 101.33	\$ 102.23
12/31/06	\$ 147.23	\$ 114.01	\$ 105.16
12/31/07	\$ 90.18	\$ 123.71	\$ 99.56
12/31/08	\$ 26.38	\$ 73.11	\$ 91.99
12/31/09	\$ 73.62	\$ 105.61	\$ 98.21

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ITEM 6. SELECTED FINANCIAL DATA

The following tables set forth our selected financial data for each of the years in the five-year period ended December 31, 2009. The information below should be read in conjunction with our financial statements and notes thereto included elsewhere in this report and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Annual Report on Form 10-K. The historical results are not necessarily indicative of results to be expected for future periods.

	DECEMBER 31,				
	2009	2008	2007	2006	2005
SUMMARY STATEMENT OF OPERATIONS:					
<i>(in thousands, except per share data)</i>					
Revenue	\$ 13,857	\$ 15,121	\$ 14,047	\$ 18,923	\$ 26,554
Operating expenses:					
Research and development	24,689	33,830	26,030	29,569	30,802
General and administrative	7,179	7,968	9,349	9,604	8,333
(Gain)/loss on disposal of assets	(7)	(3)	5	-	1,895
Total operating expenses	<u>31,861</u>	<u>41,795</u>	<u>35,384</u>	<u>39,173</u>	<u>41,030</u>
Operating loss	(18,004)	(26,674)	(21,337)	(20,250)	(14,476)
Other income, net	(358)	611	2,629	978	484
Net loss	<u>\$ (18,362)</u>	<u>\$ (26,063)</u>	<u>\$ (18,708)</u>	<u>\$ (19,272)</u>	<u>\$ (13,992)</u>
Basic and diluted net loss per share	<u>\$ (0.19)</u>	<u>\$ (0.31)</u>	<u>\$ (0.25)</u>	<u>\$ (0.30)</u>	<u>\$ (0.24)</u>
Shares used in computing of basic and diluted net loss per share	<u>97,074</u>	<u>82,779</u>	<u>74,132</u>	<u>64,038</u>	<u>57,823</u>

	DECEMBER 31,				
	2009	2008	2007	2006	2005
SUMMARY BALANCE SHEET DATA:					
<i>(in thousands)</i>					
Cash, cash equivalents, and short-term investments	\$ 10,961	\$ 17,357	\$ 23,660	\$ 34,373	\$ 31,999
Working capital	7,002	11,728	17,478	29,880	30,477
Long-term investments	—	—	—	—	—
Total assets	13,443	22,767	28,348	40,168	41,901
Current portion of debt	—	807	789	754	913
Long-term debt, less current portion	—	—	807	1,601	2,351
Accumulated deficit	(231,991)	(213,629)	(187,566)	(168,858)	(149,586)
Total stockholders' equity	7,636	13,091	18,110	30,791	31,422

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the Financial Statements and Notes thereto appearing elsewhere in this report. See "Item 1A: Risk Factors" regarding certain factors known to GenVec that could cause reported financial information not to be necessarily indicative of future results, including discussions of the risks related to the development, regulatory approval, manufacture, proprietary protection of our product candidates, and their market success relative to alternative products.

OVERVIEW

GenVec, Inc. (GenVec, we, our, or the Company) is a clinical stage biopharmaceutical company developing novel, gene-based therapeutic drugs and vaccines. Our lead therapeutic product candidate, TNFerade™ biologic (TNFerade), is being developed for use in the treatment of cancer. TNFerade is currently the subject of a randomized, controlled, Phase 3 pivotal trial, known as PACT, for first-line treatment of inoperable, locally advanced pancreatic cancer. Interim data supporting a potential survival advantage in the TNFerade group were disclosed in November 2008. Interim data, based on an analysis after one-third of deaths necessary to complete the trial, demonstrated an approximately 25% lower risk of death in the TNFerade plus standard of care (SOC) arm relative to the SOC arm alone (Hazard Ratio = 0.753; 95% Confidence Interval [0.494 – 1.15]). At this time an independent Data Safety Monitoring Board reviewed the interim analysis data and recommended the trial continue as planned.

In November 2008, TNFerade was granted Fast Track designation by the U.S. Food and Drug Administration (FDA) for its proposed use in the treatment of locally advanced pancreatic cancer. In November 2009, the FDA granted orphan drug designation for TNFerade for the treatment of patients with pancreatic cancer. In January 2010, GenVec announced that 184 events (deaths) had occurred in the PACT trial. This event, which represents two-thirds of the total events expected in the trial, triggered the next interim analysis of overall survival in the trial. GenVec expects data from this interim analysis to be available in March or April of 2010.

TNFerade is also being evaluated for possible use in the treatment of other types of cancer. Using our core adenovector technology, TNFerade stimulates the production of tumor necrosis factor alpha (TNF), a known anti-tumor protein, in cells of the tumor. Clinical trials have been conducted and encouraging results have previously been reported in studies for esophageal cancer, head and neck cancer, rectal cancer, and soft tissue sarcomas. We expect to initiate a Phase 1 clinical trial in prostate cancer in 2010.

Our core technology has the important advantage of localizing protein delivery in the body. This is accomplished by using our adenovector platform to locally deliver genes to cells, which then direct production of the desired protein. In the case of TNFerade, for example, this approach reduces side effects typically associated with systemic delivery of the TNF protein. For vaccines, the goal is to induce a broad immune response against a target protein or antigen. This is accomplished by using the adenovector to deliver a gene that causes production of an antigen, which then stimulates the desired immune reaction by the body.

Our research and development activities have also yielded additional therapeutic product candidates that utilize our technology platform, and we believe they represent potential commercial opportunities. For example, preclinical research in hearing loss and balance disorders suggests delivery of the atonal gene using GenVec's adenovector technology may have the potential to restore hearing and balance function. We have recently entered into a research collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. (Novartis), which focuses on the discovery and development of novel treatments for hearing loss and balance disorders. There are currently no effective treatments available for patients who have lost all balance function, and hearing loss remains a major unmet medical problem.

In partnership with our collaborators, we also have multiple vaccines in development. All of these programs are funded by third-parties and utilize our core adenovector technology. One vaccine candidate targets the prevention of a major animal health problem, foot-and-mouth disease (FMD). Development efforts for this program are supported by the U.S. Department of Homeland Security and in collaboration with the U.S. Department of Agriculture. We anticipate a conditional license application for a FMD vaccine will be filed in late 2010. In addition, we have a collaboration with the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH) to develop a human immunodeficiency virus (HIV) vaccine and an influenza virus vaccine. We also have a program with the U.S. Naval Medical Research

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Center and the PATH Malaria Vaccine Initiative to develop vaccines for malaria. GenVec also has grant-supported preclinical programs to develop vaccine candidates for the prevention of respiratory syncytial virus (RSV) and herpes simplex virus type 2 (HSV-2).

An element of our business strategy is to pursue, as resources permit, the research and development of a range of product candidates for a variety of indications. This is intended to allow us to diversify the risks associated with our research and development expenditures. To the extent we are unable to maintain a broad range of product candidates, our dependence on the success of one or a few product candidates would increase.

Furthermore, our business strategy includes the option of entering into collaborative arrangements with third parties to complete the development and commercialization of our product candidates. In the event that third parties take over the clinical trial process for one or more of our product candidates, the estimated completion date would largely be under the control of that third party rather than us. We cannot forecast with any degree of certainty which proprietary products or indications, if any, will be subject to future collaborative arrangements, in whole or in part, and how such arrangements would affect our development plan or capital requirements. Our programs may also benefit from subsidies, grants, or government or agency-sponsored studies that could reduce our development costs.

As a result of the uncertainties discussed above, among others, we are unable to estimate the duration and completion costs of our research and development projects or when, if ever, and to what extent we will receive cash inflows from the commercialization and sale of a product. Our inability to complete our research and development projects in a timely manner or our failure to enter into collaborative agreements, when appropriate, could significantly increase our capital requirements and could adversely impact our liquidity. These uncertainties could force us to seek additional, external sources of financing from time to time in order to continue with our business strategy. Our inability to raise additional capital, or to do so on terms reasonably acceptable to us, would jeopardize the future success of our business.

Furthermore, the current domestic and global economic conditions have made it more difficult for companies like us to access the financial and credit markets. Prolonged negative changes in domestic and global economic conditions, such as the current economic conditions, or further disruptions of either or both of the financial and credit markets will further adversely affect our ability to access additional capital. While our estimated future capital requirements are uncertain and will depend on, and could increase or decrease as a result of many factors, including the extent to which we choose to advance our research, development, clinical, manufacturing, and commercialization activities, it is clear we will need significant additional capital to develop our product candidates through clinical development, manufacturing, and commercialization. The continued advancement of TNFerade through the Phase 3 portion of the pivotal trial for locally advanced pancreatic cancer, the FDA regulatory review process, and the establishment of manufacturing capabilities will continue to require capital, and we expect to have to incur significant additional costs to manufacture and commercialize TNFerade if we receive marketing approval. We do not know whether we will be able to access additional capital when needed or on terms favorable to us or our stockholders.

Our research and development expenses were \$24.7 million, \$33.8 million, and \$26.0 million for the years ended December 31, 2009, 2008, and 2007, respectively. These expenses were divided between our research and development platforms in the following manner:

(in millions)	Year ended December 31,		
	2009	2008	2007
TNFerade	\$ 13.5	\$ 21.3	\$ 15.0
Vaccines	10.4	11.6	11.0
Other Clinical Programs	0.8	0.9	—
Total	\$ 24.7	\$ 33.8	\$ 26.0

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TNFerade. Our lead cancer product candidate is currently being studied in a pivotal clinical trial for the treatment of locally advanced pancreatic cancer. GenVec has incurred \$104 million of expenses on the development of this product candidate since the commencement of this program in 1999. Costs since the commencement of this program include research, development, clinical trials, clinical supply costs, and an allocation of corporate general and administrative expenses. GenVec expects to continue to expend substantial additional amounts for the clinical development and commercialization of TNFerade.

Vaccines. Under our corporate and government funded vaccine programs, GenVec continues to develop vaccine candidates against malaria, HIV, RSV, HSV-2, and other infectious diseases, as well as an animal health vaccine for foot-and-mouth disease (FMD). Since commencement of these vaccine development programs in 2002, GenVec has incurred approximately \$95 million in research and development costs, including an allocation of corporate general and administrative expenses, most of which have been funded by various sponsors under cost-reimbursement agreements.

To date, none of our proprietary or collaborative programs has resulted in a commercial product; therefore, we have not received any revenues or royalties from the sale of products. We have funded our operations primarily through public and private placements of equity securities, payments received under collaborative programs with public and private entities, and debt financings.

We have incurred operating losses each year since inception and, as of December 31, 2009, had an accumulated deficit of approximately \$232.0 million. Our losses have resulted principally from costs incurred in research and development and from general and administrative activities. Research and development expenses consist primarily of salaries and related personnel costs, sponsored research costs, patent costs, technology access fees, clinical trial costs, and other expenses related to our product development and research programs. General and administrative expenses consist primarily of compensation and benefit expenses for executive, finance and other administrative personnel, facility costs, professional fees, business development costs, insurance premiums, and other general corporate expenditures.

In 2009 we took steps to lower our operating costs in order to increase our efficiency. These steps included eliminating positions during 2009. Further, where practical, during 2009 we minimized our unfunded expenditures on activities that were not critical to the clinical development of TNFerade. To this end, on June 30, 2009, we terminated our agreement with Cobra Biomanufacturing Plc. We expect that lowering costs, in addition to what we expect will be increased revenues in 2010 from funded collaborations, can provide us with at least 24 months of operating capital from the balance sheet date, based on current progress of our research, development, clinical, manufacturing, and commercialization activities.

CRITICAL ACCOUNTING POLICIES AND THE USE OF ESTIMATES

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires our management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. On an ongoing basis, we evaluate our estimates using authoritative pronouncements, historical experience, and other assumptions as the basis for making estimates. Actual results could differ from those estimates. Significant accounting policies are more fully described in Note 2 of the "Notes to Financial Statements" included in this Annual Report on Form 10-K.

We have discussed the development, selection, and disclosure of critical accounting policies and estimates with the Audit Committee of our Board of Directors. While we base estimates and assumptions on our knowledge of current events and actions we may undertake in the future, actual results may ultimately differ from these estimates and assumptions. For a discussion of our significant accounting policies, refer to Note 2 of the "Notes to Financial Statements."

We believe the following accounting policies to be critical because they require significant estimates or judgment on the part of management:

Revenue Recognition. We recognize revenues when a contract is executed, the contract price is fixed and determinable, delivery of the service or products has occurred, and collectability of the contract amounts is considered probable.

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Our collaborative research and development agreements can provide for upfront license fees, research payments, and/or milestone payments. Upfront nonrefundable fees associated with license and development agreements where we have continuing involvement in the agreement are recorded as deferred revenue and recognized over the estimated service period. If the estimated service period is subsequently modified, the period over which the upfront fee is recognized is modified accordingly on a prospective basis. Non-refundable research and development fees for which no future performance obligations exist are recognized when collection is assured.

Research and development revenue from cost-reimbursement and cost-plus fixed fee agreements is recognized as earned based on the performance requirements of the contract. Revisions in revenues, cost, and billing factors (e.g. indirect rate estimates) are accounted for in the period of change. Reimbursable costs under such contracts are subject to audit and retroactive adjustment. Contract revenues and accounts receivable reported in the financial statements are recorded at the amount expected to be received. Contract revenues are adjusted to actual upon final audit and retroactive adjustment. Estimated contractual allowances are provided based on our evaluation of current contract terms and past experience with disallowed costs and reimbursement levels. Payments received in advance of work performed are recorded as deferred revenue.

Clinical Trial Expenses and Research and Development Activities. We accrue estimated costs for clinical and preclinical studies based on estimates of work performed. We believe this method best aligns our expenses with the efforts we expend. We monitor the progress of the trials and their related activities to the extent possible and adjust the accruals accordingly. Adjustments to accruals are charged to expense in the period in which the facts that give rise to the adjustment become known; all adjustments to date have been inconsequential.

The expenditures necessary to execute our business plan are subject to numerous uncertainties, which may adversely affect our liquidity and capital resources. Completion of clinical trials may take several years or more, but the length of time generally varies substantially according to the type, complexity, novelty, and intended use of a product candidate.

We estimate that clinical trials of the type we generally conduct are typically completed over the following timelines:

Clinical Phase	Estimated Completion Date
Phase 1	1 – 3 years
Phase 2	1 – 4 years
Phase 3	2 – 5 years

The duration and the cost of clinical trials may vary significantly over the life of a project as a result of differences arising during the clinical trial protocol, including, among others, the following:

- The number of patients that ultimately participate in the trial;
- The duration of patient follow-up that seems appropriate in view of the results;
- The number of clinical sites included in the trials; and
- The length of time required to enroll suitable patient subjects.

We test potential product candidates in preclinical studies to identify indications for which they may be product candidates. We may conduct multiple clinical trials to cover a variety of indications for each product candidate. As we obtain results from trials, we may elect to discontinue clinical trials for certain product candidates or for certain indications in order to focus our resources on more promising product candidates or indications.

Stock Based Compensation

We account for stock-based compensation based on the estimated grant date fair value of the stock using the Black-Scholes option-pricing model. The estimated grant date fair value is recognized in earnings over the requisite service period.

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RECENT ACCOUNTING PRONOUNCEMENTS

In February 2010, the FASB issued Accounting Standards Update (ASU 2010 – 09) to address potential practice issues associated with FASB ASC 855 (formerly SFAS 165), "*Subsequent Events*." The ASU eliminated the requirement for entities that file or furnish financial statements with the SEC to disclose the date through which subsequent events have been evaluated in originally issued and reissued financial statements. Other entities would continue to be required to disclose the date through which subsequent events have been evaluated; however, disclosures about the date would be required only in financial statements revised because of an error correction or retrospective application of U.S. GAAP. Our adoption of this standard changed our presentation of subsequent events when preparing our financial statements.

In September 2009, the FASB ratified ASU 2009-13 (formerly EITF 08-1), "*Revenue Recognition*" (ASC 605): Multiple-Deliverable Revenue Arrangements, the final consensus reached by the Emerging Issues Task Force that revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance will be effective for our fiscal year beginning January 1, 2011 with early adoption permitted. The guidance may be applied retrospectively or prospectively for new or materially modified arrangements. We currently do not have any multiple-deliverable revenue arrangements, accordingly, the adoption of the guidance will not have an impact on our financial statements.

In August 2009, the FASB issued ASU No. 2009-05, "*Fair Value Measurements and Disclosures (ASC 820) — Measuring Liabilities at Fair Value*" (ASU 2009-05). ASU 2009-05 provides clarification that in circumstances in which a quoted price in an active market for the identical liability is not available, a reporting entity is required to measure fair value using a valuation technique that uses the quoted price of the identical liability when traded as an asset or the quoted prices for similar liabilities or similar liabilities when traded as assets. The guidance provided is effective for the first reporting period (including interim periods) beginning after issuance. Our adoption of ASU 2009-05 did not impact our financial position or results of operations.

In June 2009, the FASB issued ASC 105 (formerly SFAS 168), "*The FASB Accounting Standards Codification and the Hierarchy of Generally Accepted Accounting Principles*" (ASC 105). ASC 105 is now the source of authoritative U.S. GAAP recognized by the FASB to be applied by nongovernment entities. It also modifies the GAAP hierarchy to include only two levels of GAAP: authoritative and non-authoritative. ASC 105 is effective for financial statements issued for interim and annual periods ending after September 15, 2009. The adoption of this standard in 2009 changed how we reference various elements of U.S. GAAP when preparing our financial statement disclosures, but did not have an impact on our financial position or results of operations.

Other new pronouncements issued but not effective until after December 31, 2009 are not expected to have a significant effect on our financial position or results of operations.

See Note 2 in our "Notes to Financial Statements" for information regarding other recent accounting pronouncements.

RESULTS OF OPERATIONS

YEARS ENDED DECEMBER 31, 2009 AND 2008

REVENUE

Revenue. Revenue decreased 8% to \$13.9 million in 2009 from \$15.1 million in 2008. The decrease in 2009 is primarily due to decreased revenue associated with our agreement with the Department of Homeland Security (DHS) of \$3.2 million. The lower revenue under the DHS agreement is a result of the decreased work scope and effort in 2009 as compared to the 2008 period. The decreased revenue associated with our DHS agreement has been partially offset by increased revenue of \$2.1 million under our HIV program as compared to the comparable prior year period. The higher revenue under our HIV agreements is a result of increased work scope and effort in 2009 as compared to the 2008 period.

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OPERATING EXPENSES

Research and development. Research and development expenses decreased 27% to \$24.7 million in 2009 from \$33.8 million in 2008. The decrease is primarily due to lower costs related to the development of TNFerade including manufacturing and materials costs, patient and data management costs, professional service costs related to our TNFerade pancreatic clinical trial, and decreased personnel costs. Stock-based compensation expense included in research and development personnel costs decreased approximately \$331,000 in 2009 as compared to the prior year. This decrease was partially offset by an increase in severance expenses of approximately \$193,000 for former employees in 2009 as compared to the prior year. Also contributing to the decreased costs, but to a lesser extent, are decreased pass-through costs associated with our funded programs, most notably pass-through costs associated with our FMD program.

General and administrative. General and administrative expenses decreased 10% to \$7.2 million in 2009 from \$8.0 million in 2008. General and administrative expenses were lower in 2009 primarily due to lower professional service cost and employee costs, partially offset by higher depreciation costs. Administrative personnel costs includes severance expenses of approximately \$103,000 for former employees, an increase of approximately \$21,000 as compared to 2008, and a decrease of approximately \$90,000 of stock-based compensation expense in 2009 as compared to the prior year.

Gain/Loss on disposal of assets. There was a gain on the disposal of assets of \$7,000 in 2009 and a gain of \$3,000 in 2008.

OTHER INCOME (LOSS)

Total other income decreased from \$611,000 in 2008 to a net loss of \$358,000 in 2009.

Interest income was \$38,000 in 2009 as compared to \$695,000 in the comparable prior year period. The decrease in interest income is due to lower investment balances and lower yields earned on our portfolio.

Interest expense for the period ending December 31, 2009 increased \$250,000 as compared to the comparable prior year period due to adjustments in the fair value of the warrant liability associated with our Committed Equity Financing Facility (CEFF) with Kingsbridge Capital Ltd. (Kingsbridge) in 2009 as compared to the comparable period in 2008. In 2009 there was a net expense of \$98,000 resulting from the changes in fair value of the warrant liability as compared to a net income of \$221,000 in 2008. Partially offsetting this increase in interest expense associated with the warrant liability was lower interest expense associated with our debt obligations due to declining balances on those obligations.

Other income (loss) was a loss of (\$268,000) in 2009 as compared to a loss of (\$206,000) in 2008. The loss in 2009 resulted primarily from the expensing of the remaining \$273,000 of deferred financing charges when our CEFF expired on March 15, 2009, partially offset by miscellaneous discounts and interest payments received from the government associated with late payments. The loss in 2008 is due mainly to the recording of a loss associated with an other-than-temporary decline in the fair value of a marketable equity security acquired in 2007 as consideration for the release of certain security interests in a third party of \$218,000, partially offset by miscellaneous discounts and interest payments received from the government associated with late payments.

YEARS ENDED DECEMBER 31, 2008 AND 2007

REVENUE

Revenue. Revenue increased 8% to \$15.1 million in 2008 from \$14.0 million in 2007. The increase in 2008 is primarily due to increased revenue associated with our agreement with the Department of Homeland Security (DHS) of \$3.4 million. The higher revenue under the DHS agreement is a result of increased work scope and effort in 2008 as a result of the exercise of the first and second renewal options under the agreement as compared to the 2007 period. The increased revenue associated with our DHS agreement has been partially offset by decreased revenue of \$2.0 million under our HIV program as compared to the comparable prior year period. This decrease is mostly due to the successful completion of the defined process development, technology transfer, and analytical method transfer activities under our HIV agreements.

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OPERATING EXPENSES

Research and development. Research and development expenses increased 30% to \$33.8 million in 2008 from \$26.0 million in 2007. The increase is primarily due to higher costs related to the development of TNFerade including manufacturing and materials costs, patient and data management costs, professional service costs related to our TNFerade pancreatic clinical trial, and increased personnel costs, which includes an increase of approximately \$307,000 of stock-based compensation expense in 2008 as compared to the prior year. Also contributing to the increased costs, but to a lesser extent, are increased pass-through costs associated with our funded programs, most notably pass-through costs associated with our FMD program.

General and administrative. General and administrative expenses decreased 15% to \$8.0 million in 2008 from \$9.3 million in 2007. General and administrative expenses were lower in 2008 primarily due to lower personnel costs, recruiting costs, and depreciation expense, partially offset by higher professional service costs. Administrative personnel costs includes severance expenses of approximately \$76,000 for former employees, a decrease of approximately \$273,000 as compared to 2007, and an increase of approximately \$21,000 of stock-based compensation expense in 2008 as compared to the prior year.

Gain/Loss on disposal of assets. There was a gain on the disposal of assets of \$3,000 in 2008 and a loss of \$5,000 in 2007.

OTHER INCOME (LOSS)

Total other income decreased from \$2.6 million in 2007 to \$611,000 in 2008.

Interest income was \$700,000 in 2008 as compared to \$1.5 million in the comparable prior year period. The decrease in interest income is due to lower investment balances and lower yields earned on our portfolio.

Interest expense for the period ending December 31, 2008 decreased \$140,000 as compared to the comparable prior year period due to the declining balances of our debt obligations and a decrease due to adjustments in the fair value of the warrant liability associated with our Committed Equity Financing Facility (CEFF) with Kingsbridge Capital Ltd. (Kingsbridge) in 2008 as compared to the comparable period in 2007.

Other income (loss) was a loss of (\$206,000) in 2008 as compared to income of \$847,000 in 2007. The loss in 2008 is due mainly to the recording of a \$218,000 loss associated with an other-than-temporary decline in the fair value of a marketable equity security, partially offset by miscellaneous discounts and interest payments received from the government associated with late payments. The income in 2007 is due primarily to the receipt of an insurance settlement of \$500,000 due to a casualty loss, the receipt of equity, valued at \$337,000, from a third party in exchange for the release of security interests and miscellaneous discounts and interest payments from the government associated with late payments.

LIQUIDITY AND CAPITAL RESOURCES

We have experienced significant losses since our inception. As of December 31, 2009 we have an accumulated deficit of \$232.0 million. The process of developing and commercializing our product candidates requires significant research and development work and clinical trial work, as well as significant manufacturing and process development efforts. These activities, together with our general and administrative expenses, are expected to continue to result in significant operating losses for the foreseeable future.

As of December 31, 2009, cash and investments totaled \$11.0 million as compared to \$17.4 million at December 31, 2008.

For the 12 months ended December 31, 2009, we used net cash of \$17.0 million for operating activities. This consisted of a net loss for the period of \$18.4 million, which included approximately \$1.1 million of non-cash depreciation and amortization and \$1.7 million of non-cash stock-based compensation expenses. Net cash was used primarily for the advancement of our TNFerade pancreatic clinical trial, including our manufacturing activities, and to a lesser extent general and administrative activities.

Net cash provided from investing activities during the 12 months ended December 31, 2009 was \$2.8 million, which included approximately \$200,000 of property and equipment purchases.

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Net cash provided from financing activities during the 12 months ended December 31, 2009 was \$10.7 million, which included \$11.2 million from the issuance of common stock and warrants, net of issuance costs. Partially offsetting the cash provided by our financing activities is the repayment of our debt obligations of approximately \$500,000.

Historically we have entered into agreements with academic medical institutions and contract research organizations to perform research and development activities and with clinical sites for the treatment of patients under clinical protocols. Such contracts expire at various dates and have differing renewal and expiration clauses. We also utilize different financing instruments, such as debt and capital and/or operating leases, to finance various equipment and facility needs.

In January 2008, we entered into a manufacturing development agreement with Cobra Biomanufacturing Plc to produce commercial quantities of TNFerade, our lead product candidate. The manufacturing development agreement covered technology transfer, scale-up, and validation of the manufacturing process for TNFerade through cGMP consistency lots. This advance payment was capitalized as a nonrefundable advance payment until the related services were performed. As of December 31, 2008, \$669,000 of the \$1.0 million advance payment remained in prepaid and other assets.

In March 2009, we entered into a letter agreement amending the original agreement and the associated services. During the first quarter of 2009, we paid and expensed \$1.1 million for access to the Cobra facility under the original Cobra agreement and the letter agreement amending the original agreement. As of the date of the amendment, we also waived our rights to amounts remaining unused relating to the advanced payment. As a result, in March 2009 we expensed the remaining \$669,000 of the advance payment.

During the second quarter of 2009, we paid and expensed an additional \$1.1 million for access to the Cobra facility in accordance with the letter agreement amending the original Cobra agreement. Effective June 30, 2009, pursuant to the terms of the letter agreement, we terminated the agreement and its associated services schedule with Cobra and paid Cobra a termination fee of \$350,000.

All amounts paid to Cobra were charged to expense during the six months ending June 30, 2009. We incurred no further expense associated with this agreement after June 30, 2009 and have no additional commitments under this agreement.

Our external research, clinical study, and financing and other contractual commitments and obligations are summarized in the following table:

Contractual Obligations	Total	Payments Due by Period			
		Less than	1 – 3 Years	4 – 5 Years	After
		1 Year			5 Years
			(In Thousands)		
Operating Leases	\$ 3,873	\$ 841	\$ 1,758	\$ 1,274	\$ —
Total contractual obligations	\$ 3,873	\$ 841	\$ 1,758	\$ 1,274	\$ —

On March 15, 2006, we entered into a Committed Equity Financing Facility (CEFF) with Kingsbridge, under which Kingsbridge committed to purchase up to \$30.0 million of our common stock within a three-year period, subject to certain conditions and limitations. During the three-year term of the CEFF, which expired on March 15, 2009, we sold 3,284,830 shares of common stock to Kingsbridge for total gross proceeds of \$6.5 million. No shares were sold during 2009 under the CEFF.

On February 1, 2007, we filed with the Securities and Exchange Commission a \$100 million shelf registration statement on Form S-3. The shelf registration statement was declared effective February 12, 2007 and allows us to issue any combination of common stock, preferred stock, warrants, or debt securities. We have previously issued common stock, warrants and shares of common stock issuable upon exercise of warrants for aggregate proceeds of \$62.1 million, which leaves approximately \$37.9 million available for issuance pursuant to the shelf registration statement. However, we have warrants outstanding under which an additional \$22.6 million of common stock may be issued pursuant to the registration statement. Accordingly, we would likely only use for new offerings approximately \$15.3 million of the \$37.9 million that is currently available for issuance. This shelf registration was scheduled to expire on February 12, 2010; however, because we filed

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a \$150 million replacement shelf registration statement, which is not yet effective, before that date, we may continue to offer and sell securities covered by the 2007 shelf registration statement until the earlier of the effective date of the replacement registration statement or 180 days after the third anniversary of the initial effective date of the expired registration statement. The replacement registration statement, once it is declared effective, will allow us to issue any combination of common stock, preferred stock, or warrants to purchase our common stock or preferred stock.

On June 11, 2008, pursuant to our shelf registration statement, we completed a registered direct offering to various investors of 11,258,279 shares of common stock and warrants to purchase 2,251,653 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and a warrant to purchase 0.20 shares of common stock at a per unit price of \$1.51. The warrants, which have a term of five years and an exercise price of \$2.016 per share, have been valued using the Black-Scholes pricing model as of the closing date and have been accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$1.9 million. Proceeds of this offering, net of offering costs, totaled \$15.7 million.

On May 29, 2009, we entered into a purchase agreement with a single institutional investor for the sale of 9,615,385 shares of common stock and warrants to purchase 9,615,385 shares of common stock as part of a registered direct offering pursuant to our shelf registration statement. The shares of common stock and warrants were offered in units consisting of one share of common stock and a warrant to purchase one share of common stock at a price of \$0.624 per unit. The warrants, which have a term of five years and an exercise price of \$0.858 per share, have been valued using the Black-Scholes pricing model as of the closing date and have been accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$4.2 million. Proceeds of this offering, net of offering costs, totaled \$5.5 million. On January 25, 2010, the institutional investor exercised warrants to purchase 2,000,000 shares of common stock for gross proceeds to the Company of \$1.7 million.

On August 31, 2009, pursuant to our shelf registration statement, we completed a registered direct offering to an institutional investor of 8,000,000 shares of common stock and warrants to purchase 4,000,000 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and 0.5 warrants to purchase one share of common stock at a per unit price of \$0.75. The warrants, which have a term of five years and an exercise price of \$0.828 per share, were valued using the Black-Scholes pricing model as of the closing date and accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$2.1 million. Proceeds of this offering, net of offering costs, totaled \$5.5 million. In March 2010, the institutional investor exercised warrants to purchase 4,000,000 shares of common stock for gross proceeds to the Company of \$3.3 million.

On September 15, 2009 we received a notice from The NASDAQ Stock Market stating that the minimum bid price of the Company's common stock was below \$1.00 per share for 30 consecutive business days and that the Company was therefore not in compliance with Marketplace Rule 5450. On January 7, 2010 we received a letter from The NASDAQ advising we had regained compliance with the NASDAQ's minimum bid price listing requirements and the matter was closed.

On January 13, 2010 we entered into a research collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. (Novartis) to discover and develop novel treatments for hearing loss and balance disorders. Under the terms of the agreement, we licensed the world-wide rights to our preclinical hearing loss and balance disorders program to Novartis. Concurrent with entry into the agreement with Novartis, we sold 1,869,158 shares of our common stock to Novartis Pharma AG in a private placement for \$1.07 per share of common stock, which represents an aggregate purchase price of approximately \$2.0 million and was calculated based on the average of the closing price for the common stock on the NASDAQ Global Market for the 30 consecutive trading days ending on the fifth trading day prior to the sale of the shares. The purchase of the shares of common stock by Novartis Pharma AG was undertaken in partial consideration for the rights granted under the research collaboration and license agreement.

On February 1, 2010, pursuant to our shelf registration statement, we completed a registered direct offering to various investors of 14,000,000 shares of common stock and warrants to purchase 4,200,000 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of

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common stock and 0.3 warrants to purchase one share of common stock at a per unit price of \$2.00. The warrants, which have a term of five years and an exercise price of \$2.75 per share, were valued using the Black-Scholes pricing model as of the closing date and accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$5.0 million. Proceeds of this offering, net of offering costs, totaled \$26.2 million.

Our estimated future capital requirements are uncertain and could change materially as a result of many factors, including the progress of our research, development, clinical, manufacturing, and commercialization activities. We have also taken and are continuing to take steps to lower our operating costs in order to increase our efficiency. These steps included our announcement on January 29, 2009 that we eliminated 22 positions. We currently estimate we will use approximately \$22.0 to \$24.0 million of cash in the 12 months ending December 31, 2010. Our estimate includes approximately \$0.8 million in contractual obligations reflected in the table above, as well as \$0.3 million for capital expenditures. Based on this estimate we have sufficient resources to fund our operations for at least 24 months from the balance sheet date.

However, significant additional capital will be required to develop our product candidates through clinical development, manufacturing, and commercialization, including the continued advancement of TNFerade through the Phase 3 portion of the pivotal trial for locally advanced pancreatic cancer, the FDA regulatory review process for TNFerade and the establishment of manufacturing capabilities for TNFerade. We may seek additional capital through further public or private equity offerings, debt financing, additional strategic alliance and licensing arrangements, collaborative arrangements, or some combination of these financing alternatives. The current domestic and global economic conditions have made it more difficult for companies like us to access the financial and credit markets, and have made it more likely we will have to pursue additional strategic alliances, licensing arrangements or collaborations for our product candidates, including for TNFerade. If we are successful in raising additional funds through the issuance of equity securities, investors will likely experience dilution, or the equity securities may have rights, preferences, or privileges senior to those of the holders of our common stock. If we raise funds through the issuance of debt securities, those securities would have rights, preferences, and privileges senior to those of our common stock. If we seek strategic alliances, licenses, or other alternative arrangements, such as arrangements with collaborative partners or others, we may need to relinquish rights to certain of our existing or future technologies, product candidates, or products we would otherwise seek to develop or commercialize on our own, or to license the rights to our technologies, product candidates, or products on terms that are not favorable to us. The overall status of the economic climate could also result in the terms of any equity offering, debt financing, or alliance, license or other arrangement being less favorable to us and our stockholders than if the overall economic climate were stronger. We also will continue to look for government sponsored research collaborations and grants to help offset future anticipated losses from operations, as we expect to continue to rely on government funding for a significant portion of our revenues for the next few years and, to a lesser extent, interest income.

If adequate funds are not available through either the capital markets, strategic alliances, or collaborators, we may be required to delay, reduce the scope of or eliminate our research, development, clinical programs, manufacturing, or commercialization efforts, effect additional changes to our facilities or personnel, or obtain funds through other arrangements that may require us to relinquish rights to certain of our existing or future technologies, product candidates, or products on terms not favorable to us.

OFF-BALANCE SHEET OBLIGATIONS

We had no off-balance sheet obligations other than in connection with our operating leases, which are disclosed in the contractual commitments table above during 2009.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

The primary objective of our investment activities is to preserve our capital until it is required to fund operations while at the same time maximizing the income we receive from our investments without significantly increasing risk.

As of December 31, 2009, we had cash and cash equivalents and short-term investments of \$11.0 million as follows:

Cash and cash equivalents	\$	10.9 million
Short-term investments	\$	0.1 million

Our exposure to market risk is confined to cash and cash equivalents, which consist of instruments having original maturities of three months or less, and our short-term investment portfolio. The primary objective of our investment activities is to preserve our capital until it is required to fund operations while at the same time maximizing the income we receive from our investments without significantly increasing risk. Our cash flow and earnings are subject to fluctuations due to changes in interest rates in our investment portfolio.

We maintain a short-term investment portfolio of investment grade government agency notes, corporate stock, and corporate bonds. The securities in our short-term investment portfolio are not leveraged, are classified as available-for-sale, and are subject to minimal interest rate risk, due to their predominantly short-term nature. These securities, classified as available-for-sale, are recorded on the balance sheet at fair value with unrealized gains or losses reported as a component of accumulated other comprehensive income (loss) included in stockholders' equity. We currently do not hedge interest rate exposure on our investment portfolio. While we do not believe an increase in market rates of interest would have any significant negative impact on the realizable value of our investment portfolio, changes in interest rates affect the investment income we earn on our investments and, therefore, impact our cash flow and results of operations.

We are headquartered in the U.S. where we conduct our preclinical research activities. Clinical trials are currently conducted in the United States. Clinical sites in other locations outside of the U.S. are evaluated as needed. All revenues to date have been received in U.S. dollars. Accordingly, we have not had any material exposure to foreign currency rate fluctuations.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The response to this item is submitted in a separate section of this report. See "Index to Financial Statements" on Page F-1 for a list of the financial statements being filed herein.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

We have carried out an evaluation, under the supervision and the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Securities Exchange Act), as of December 31, 2009. Based upon that evaluation, our principal executive officer and principal financial officer concluded that, as of the end of that period, our disclosure controls and procedures are effective in providing reasonable assurance that: (a) the information required to be disclosed by us in the reports that we file or submit under the Securities Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and (b) such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

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Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2009 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act as a process designed by, or under the supervision of, a company's principal executive and principal financial officers and effected by a 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. Our internal control over financial reporting 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 our assets;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our 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 the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2009. In making this assessment, 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, 2009, our internal control over financial reporting is effective based on those criteria.

KPMG LLP, an independent registered public accounting firm that audited and reported on our financial statements included in this annual report, has also audited the effectiveness of our internal control over financial reporting as of December 31, 2009 as stated in its report which is included herein immediately preceding our audited financial statements.

ITEM 9B. OTHER INFORMATION

None.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

Information required by this item, with the exception of information on our executive officers, which appears under "Executive Officers of the Registrant," in Part I of the Form 10-K, is incorporated by reference to our Proxy Statement relating to the 2010 Annual Meeting of Stockholders to be filed pursuant to General Instruction G(3) to Form 10-K.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference to our Proxy Statement relating to the 2010 Annual Meeting of Stockholders to be filed pursuant to General Instruction G(3) to Form 10-K.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item, with the exception of information relating to compensation plans under which equity securities of the Registrant are authorized for issue, which appears below, is incorporated by reference to our Proxy Statement relating to the 2010 Annual Meeting of Stockholders to be filed pursuant to General Instruction G(3) to Form 10-K.

Equity Compensation Plan Information

The following table discloses certain information about the options issued and available for issuance under all outstanding Company option plans as of December 31, 2009:

Plan category	(a)	(b)	(c)
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	24,240,750	\$ 1.28	3,252,912
Equity compensation plans not approved by security holders	—	—	—
Total	<u>24,240,750</u>	<u>\$ 1.28</u>	<u>3,252,912</u>

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference to our Proxy Statement relating to the 2010 Annual Meeting of Stockholders to be filed pursuant to General Instruction G(3) to Form 10-K.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated by reference to our Proxy Statement relating to the 2010 Annual Meeting of Stockholders to be filed pursuant to General Instruction G(3) to Form 10-K.

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PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(1)(a)

Financial Statements — See "Index to Financial Statements" on page F-1 below for a list of the financial statements being filed herein.

(2) Financial Statement Schedules — All financial statement schedules are omitted because they are not applicable, not required under the instructions, or all the information required is set forth in the financial statements or notes thereto.

(3) Exhibits — The Exhibits listed in the accompanying "Index to Exhibits" are filed or incorporated by reference as part of this report.

EXHIBIT NUMBER	DESCRIPTION
3.1	Amended & Restated Certificate of Incorporation of the Company. ⁽⁶⁾
3.1(a)	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Company. ⁽¹²⁾
3.1(b)	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Company. ⁽¹⁷⁾
3.1(c)	Certificate of Designations of the Series A Junior Participating Preferred Stock. ⁽⁶⁾
3.1(d)	Certificate of Amendment to the Certificate of Designations of the Series A Junior Participating Preferred Stock. ⁽¹²⁾
3.2	Amended & Restated Bylaws of the Company. ⁽¹²⁾
4.1	Specimen Common Stock Certificate. ⁽¹⁾
4.2	Rights Agreement dated as of September 7, 2001 between the Company and American Stock Transfer & Trust Company, the form of Certificate of Designations of Series A Junior Participating Preferred Stock attached as Exhibit A thereto, the form of Rights Certificate attached as Exhibit B thereto, and the form of Summary of Rights attached as Exhibit C thereto. ⁽³⁾
4.3	Amendment No. 1, dated August 21, 2003, to the Rights Agreement dated September 7, 2001. ⁽⁴⁾
4.4	Registration Rights Agreement, dated as of March 15, 2006 by and between Kingsbridge Capital Limited and the Company. ⁽⁸⁾
4.5	Warrant, dated as of March 15, 2006 by and between Kingsbridge Capital Limited and the Company. ⁽⁸⁾
4.6	Form of Warrant ⁽¹⁸⁾ .
4.7	Form of Warrant ⁽¹⁹⁾ .
4.8	Form of Warrant ⁽²⁰⁾ .
4.9	Form of Warrant ⁽²²⁾ .
10.1	Form of Indemnification Agreement for Directors and Officers.* ⁽¹⁾
10.2	2002 Stock Incentive Plan as amended and forms of agreements thereunder.* ⁽⁹⁾
10.3	Amended and Restated 1993 Stock Incentive Plan and forms of agreements thereunder.* ⁽²⁾
10.4	2000 Employee Stock Purchase Plan, and form of agreement thereunder.* ⁽²⁾
10.5	Amended and Restated 2000 Director Option Plan.* ⁽⁵⁾
10.6	License Agreement dated May 31, 1996 between Scios, Inc. and the Company. ⁽¹⁾
10.7	Amendment to Common Stock Warrant Agreement dated March 18, 2002 between the Company and Cornell Research Foundation, Inc. ⁽⁶⁾
10.8	Lease Agreement dated May 4, 1999 between MOR BENNINGTON LLP and the Company. ⁽¹⁾

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EXHIBIT	DESCRIPTION
NUMBER	
10.9	Amendment to Lease Agreement between MOR BENNINGTON LLP and the Company dated March 11, 2009. ⁽¹⁰⁾
10.10	Salary Continuation Agreement between the Company and Paul H. Fischer dated October 15, 2002.* ⁽⁶⁾
10.11	Amendment to Salary Continuation Agreement between the Company and Paul H. Fischer dated December 9, 2008.* ⁽¹⁰⁾
10.12	Change in Control Agreement between the Company and Paul H. Fischer dated October 15, 2002.* ⁽⁶⁾
10.13	Amendment to Change in Control Agreement between the Company and Paul H. Fischer dated December 9, 2008.* ⁽¹⁰⁾
10.14	Salary Continuation Agreement between the Company and Douglas J. Swirsky dated September 18, 2006.* ⁽¹¹⁾
10.15	Amendment to Salary Continuation Agreement between the Company and Douglas J. Swirsky dated December 9, 2008.* ⁽¹⁰⁾
10.16	Change in Control Agreement between the Company and Douglas J. Swirsky dated September 18, 2006.* ⁽¹¹⁾
10.17	Amendment to Change in Control Agreement between the Company and Douglas J. Swirsky dated December 9, 2008.* ⁽¹⁰⁾
10.18	Form of Salary Continuation Agreement between the Company and other executive officers and senior staff dated October 15, 2002.* ⁽⁶⁾
10.19	Form of Amendment to the Salary Continuation Agreement between the Company and other executive officers and senior staff dated December 9, 2008.* ⁽¹⁰⁾
10.20	Form of Indemnification and Advancement of Expenses Agreement dated December 10, 2003. ⁽⁷⁾
10.21	Agreement with the Vaccine Research Center at the National Institute of Allergy and Infectious Diseases of the National Institutes of Health for the production of adenoviral vector-based HIV vaccine candidates dated December 31, 2001, and amendment 1 thereto dated January 25, 2002.* ⁽⁵⁾
10.22	Agreement with the Vaccine Research Center at the National Institute of Allergy and Infectious Diseases of the National Institutes of Health for the supporting the transfer of the Company's manufacturing processes dated September 30, 2006.* ⁽¹³⁾
10.23	Research Collaboration Agreement between Cordis Corporation and the Company dated as of December 22, 2003.* ⁽⁷⁾
10.24	Agreement with the United States Department of Homeland Security for the development of adenovector-based foot and mouth vaccine candidates dated January 30, 2007.* ⁽¹⁴⁾
10.25	Amendment to Agreement with the United States Department of Homeland Security for the development of adenovector-based foot and mouth vaccine candidates dated August 30, 2007.* ⁽¹⁵⁾
10.26	Amendment to Agreement with the United States Department of Homeland Security for the development of adenovector-based foot and mouth vaccine candidates dated November 9, 2007.* ⁽¹⁶⁾
10.27	Agreement with the United States Department of Homeland Security for development of adenovector-based foot and mouth vaccine, dated February 12, 2010. (filed herewith)
10.28	Research Collaboration and License Agreement, dated January 13, 2010, by and between GenVec, Inc. and Novartis Institutes for BioMedical Research, Inc.* ⁽²¹⁾
10.29	License Agreement, dated May 26, 1993, between the Company and ARCH Development Corporation+ (filed herewith).

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<u>EXHIBIT</u>	<u>DESCRIPTION</u>
<u>NUMBER</u>	
10.30	License Agreement, as amended, dated May 26, 1993, between Dana Farber Cancer Institute, Inc., ARCH Development Corporation and the Company (filed herewith) +.
10.31	Letter Amendment, dated September 21, 1999, to the License Agreement, dated May 26, 1993, between Dana Farber Cancer Institute, Inc., ARCH Development Corporation and the Company (filed herewith)+.
10.32	First Amendment, dated December 31, 2001, as amended, to the License Agreement, dated May 26, 1993, between Dana Farber Cancer Institute, Inc., ARCH Development Corporation and the Company (filed herewith)+.
10.33	Second Amendment, dated January 20, 2005, as amended, to the License Agreement, dated May 26, 1993, between Dana Farber Cancer Institute, Inc., ARCH Development Corporation and the Company (filed herewith)+.
10.34	Amended and Restated License Agreement, dated May 23, 1998, between the Company and the Cornell Research Foundation.+ ⁽¹⁾
10.35	Amendment to Amended and Restated License Agreement, dated March 18, 2002, between the Company and the Cornell Research Foundation.+ ⁽⁶⁾
10.36	Form of Investor Purchase Agreement ⁽¹⁸⁾ .
10.37	Form of Investor Purchase Agreement ⁽¹⁹⁾ .
10.38	Form of Investor Purchase Agreement ⁽²⁰⁾ .
10.39	Form of Investor Purchase Agreement ⁽²²⁾ .
23.1	Consent of Independent Registered Public Accounting Firm (filed herewith).
24.1	Power of Attorney (filed herewith)
31.1	Rule 13a-14(a) Certification by Chief Executive Officer (filed herewith).
31.2	Rule 13a-14(a) Certification by Chief Financial Officer (filed herewith).
32.1	Rule 13a-14(b) Certification by Chief Executive Officer pursuant to 18 United States Code Section 1350 (filed herewith).
32.2	Rule 13a-14(b) Certification by Chief Financial Officer pursuant to 18 United States Code Section 1350 (filed herewith).

* Compensatory plan, contract or arrangement.

+ Certain portions of this exhibit have been omitted based upon a request for confidential treatment. The omitted portions have been filed with the Commission pursuant to our application for confidential treatment.

- (1) Incorporated by reference to our Registration Statement on Form S-1 (File No. 333-47408) declared effective by the Securities and Exchange Commission on December 12, 2000.
- (2) Incorporated by reference from our Registration Statement on Form S-8 (File No. 333-55590) filed with the Securities and Exchange Commission on February 14, 2001.
- (3) Incorporated by reference from our Registration Statement on Form 8-A (File No: 0-24469) filed with the Securities and Exchange Commission on September 26, 2001.
- (4) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on August 22, 2003.
- (5) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 29, 2002.
- (6) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 31, 2003.
- (7) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 15, 2004.

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- (8) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 15, 2006.
- (9) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 17, 2008.
- (10) Incorporated by reference from our Annual Report on Form 10-K (File No. 0-24469) filed with the Securities and Exchange Commission on March 16, 2009.
- (11) Incorporated by reference from our Current Report on Form 8-K (File No: 0-24469) filed with the Securities and Exchange Commission on September 19, 2006.
- (12) Incorporated by reference from our Quarterly Report on Form 10-Q (File No. 0-24469) filed with the Securities and Exchange Commission on November 10, 2003.
- (13) Incorporated by reference from our Quarterly Report on Form 10-Q (File No. 0-24469) filed with the Securities and Exchange Commission on November 9, 2006.
- (14) Incorporated by reference from our Quarterly Report on Form 10-Q (File No. 0-24469) filed with the Securities and Exchange Commission on May 10, 2007.
- (15) Incorporated by reference from our Quarterly Report on Form 10-Q (File No. 0-24469) filed with the Securities and Exchange Commission on November 9, 2007.
- (16) Incorporated by reference from our Quarterly Report on Form 10-Q (File No. 0-24469) filed with the Securities and Exchange Commission on August 8, 2008.
- (17) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on June 14, 2007.
- (18) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on June 6, 2008.
- (19) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on May 28, 2009.
- (20) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on August 27, 2009.
- (21) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on January 19, 2010.
- (22) Incorporated by reference from our Current Report on Form 8-K (File No. 0-24469) filed with the Securities and Exchange Commission on January 27, 2010.

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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.

Date: March 12, 2010
GENVEC, INC.
/s/ PAUL H. FISCHER

Paul H. Fischer, Ph.D.
President, Chief Executive Officer and Director

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

	<u>TITLE</u>	<u>DATE</u>
/s/ PAUL H. FISCHER, PH.D. Paul H. Fischer, Ph.D.	President, Chief Executive Officer and Director	March 12, 2010
/s/ DOUGLAS J. SWIRSKY Douglas J. Swirsky	(Principal Executive Officer) Sr. Vice President, Chief Financial Officer, Treasurer & Secretary	March 12, 2010
/s/ WAYNE T. HOCKMEYER, PH.D.* Wayne T. Hockmeyer, Ph.D.	(Principal Financial and Accounting Officer) Director	March 12, 2010
/s/ ZOLA HOROVITZ, PH.D.* Zola Horovitz, Ph.D.	Director	March 12, 2010
/s/ WILLIAM N. KELLEY, M.D.* William N. Kelley, M.D.	Director	March 12, 2010
/s/ KEVIN M. ROONEY* Kevin M. Rooney	Director	March 12, 2010
/s/ JOSHUA RUCH* Joshua Ruch	Director	March 12, 2010
/s/ MARC R. SCHNEEBAUM* Marc R. Schneebaum	Director	March 12, 2010

*By: /s/ DOUGLAS J. SWIRSKY
Douglas J. Swirsky,
attorney-in-fact

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GENVEC, INC.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders

GenVec, Inc.:

We have audited GenVec, Inc.'s ("the Company's") internal control over financial reporting as of December 31, 2009, based on criteria established in *Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)*. GenVec's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit 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 effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed 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 its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, 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.

In our opinion, GenVec, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2009, based on criteria established in *Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)*.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the balance sheets of GenVec, Inc. as of December 31, 2009 and 2008, and the related statements of operations, stockholders' equity and comprehensive loss, and cash flows for each of the years in the three-year period ended December 31, 2009, and our report dated March 12, 2010 expressed an unqualified opinion on those financial statements.

/s/ KPMG LLP

McLean, Virginia

March 12, 2010

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders

GenVec, Inc.:

We have audited the accompanying balance sheets of GenVec, Inc. ("the Company") as of December 31, 2009 and 2008, and the related statements of operations, stockholders' equity and comprehensive loss, and cash flows for each of the years in the three-year period ended December 31, 2009. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of GenVec, Inc. as of December 31, 2009 and 2008, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2009, in conformity with U.S. generally accepted accounting principles.

As discussed in Note 2 to the financial statements, effective January 1, 2008, the Company adopted the provisions of FASB Accounting Standards Codification Section 730-20 (formerly Emerging Issues Task Force Issue No. 07-3), "Research and Development Costs."

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), GenVec, Inc.'s internal control over financial reporting as of December 31, 2009, based on criteria established in *Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)*, and our report dated March 12, 2010 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

McLean, Virginia

March 12, 2010

GENVEC, INC.

BALANCE SHEETS

<i>(in thousands)</i> <i>As of December 31,</i>	2009	2008
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 10,887	\$ 14,315
Short-term investments (Note 3)	74	3,042
Accounts receivable	1,442	2,091
Prepaid expenses and other	331	1,407
Bond sinking fund	—	355
Total current assets	<u>12,734</u>	<u>21,210</u>
Property and equipment, net (Note 4)	687	1,550
Other assets	22	7
Total assets	<u>\$ 13,443</u>	<u>\$ 22,767</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term debt	\$ —	\$ 807
Accounts payable	1,096	1,953
Accrued clinical trial expenses	1,195	1,437
Accrued other expenses (Note 5)	2,838	2,792
Unearned revenue	603	2,493
Total current liabilities	<u>5,732</u>	<u>9,482</u>
Other liabilities	75	194
Total liabilities	<u>5,807</u>	<u>9,676</u>
Commitments (Notes 7)		
Stockholders' equity (Note 8)		
Preferred stock, \$0.001 par value, 5,000 shares authorized in 2009 and 2008; none issued and outstanding in 2009 and 2008	—	—
Common stock, \$0.001 par value; 200,000 shares authorized in 2009 and 2008; 106,336 and 88,423 shares issued and outstanding in 2009 and 2008	106	88
Additional paid-in capital	239,519	226,672
Accumulated other comprehensive income (loss) (Notes 3 and 10)	2	(40)
Accumulated deficit	(231,991)	(213,629)
Total stockholders' equity	<u>7,636</u>	<u>13,091</u>
Total liabilities and stockholders' equity	<u>\$ 13,443</u>	<u>\$ 22,767</u>

See accompanying notes to financial statements.

GENVEC, INC.

STATEMENTS OF OPERATIONS

<i>(in thousands, except per share data)</i>	2009	2008	2007
<i>Years ended December 31,</i>			
Revenue from strategic alliances and research contracts (Note 6)	\$ 13,857	\$ 15,121	\$ 14,047
Operating expenses:			
Research and development	24,689	33,830	26,030
General and administrative	7,179	7,968	9,349
(Gain)/loss on disposal of assets	(7)	(3)	5
Total operating expenses	31,861	41,795	35,384
Operating loss	(18,004)	(26,674)	(21,337)
Other income (loss):			
Interest income	38	695	1,520
Interest expense, net of change in fair value of Kingsbridge warrant liability	(128)	122	262
Other	(268)	(206)	847
Total other income (loss), net	(358)	611	2,629
Net loss	\$ (18,362)	\$ (26,063)	\$ (18,708)
Basic and diluted net loss per share	\$ (0.19)	\$ (0.31)	\$ (0.25)
Shares used in computation of basic and diluted net loss per share	97,074	82,779	74,132

See accompanying notes to financial statements.

GENVEC, INC.

STATEMENTS OF STOCKHOLDERS' EQUITY AND COMPREHENSIVE LOSS

(in thousands)	Common Stock		Additional	Accumulated	Accumulated	Total
	Shares	Amount	Paid-in Capital	Other Comprehensive	Deficit	
				Income (Loss)		
Balance, December 31, 2006	<u>73,449</u>	<u>\$ 73</u>	<u>\$199,563</u>	<u>\$ 13</u>	<u>\$(168,858)</u>	<u>\$ 30,791</u>
Comprehensive loss:						
Net loss	—	—	—	—	(18,708)	(18,708)
Unrealized change in investments, net	—	—	—	(158)	—	(158)
Total comprehensive loss						<u>(18,866)</u>
Common stock issued under stock benefit plans	334	—	789	—	—	789
Common stock issued under CEFF	1,570	2	3,529	—	—	3,531
Deferred financing charge resulting from stock issued under CEFF	—	—	(23)	—	—	(23)
Deferred financing charge resulting from warrant issued under CEFF	—	—	90	—	—	90
Stock-based compensation	—	—	1,798	—	—	1,798
Balance, December 31, 2007	<u>75,353</u>	<u>\$ 75</u>	<u>\$205,746</u>	<u>\$ (145)</u>	<u>\$(187,566)</u>	<u>\$ 18,110</u>
Comprehensive loss:						
Net loss	—	—	—	—	(26,063)	(26,063)
Unrealized change in investments, net	—	—	—	105	—	105
Total comprehensive loss						<u>(25,958)</u>
Common stock and warrants issued under shelf registration, net	11,258	11	15,653	—	—	15,664
Common stock issued under CEFF	1,715	2	3,000	—	—	3,002
Deferred financing charge resulting from stock issued under CEFF	—	—	(24)	—	—	(24)
Deferred financing charge resulting from warrant issued under CEFF	—	—	51	—	—	51
Common stock issued under stock benefit plans	97	—	120	—	—	120
Stock-based compensation	—	—	2,126	—	—	2,126
Balance, December 31, 2008	<u>88,423</u>	<u>\$ 88</u>	<u>\$226,672</u>	<u>\$ (40)</u>	<u>\$(213,629)</u>	<u>\$ 13,091</u>
Comprehensive loss:						
Net loss	—	—	—	—	(18,362)	(18,362)
Unrealized change in investments, net	—	—	—	42	—	42
Total comprehensive loss						<u>(18,320)</u>
Common stock and warrants issued under shelf registration, net	17,615	18	11,033	—	—	11,051
Common stock issued under stock benefit plans	298	—	108	—	—	108
Stock-based compensation	—	—	1,706	—	—	1,706
Balance, December 31, 2009	<u>106,336</u>	<u>\$ 106</u>	<u>\$239,519</u>	<u>\$ 2</u>	<u>\$(231,991)</u>	<u>\$ 7,636</u>

See accompanying notes to financial statements.

GENVEC, INC.

STATEMENTS OF CASH FLOWS

<i>(in thousands)</i>	2009	2008	2007
<i>Years ended December 31,</i>			
Cash flows from operating activities:			
Net loss	\$ (18,362)	\$ (26,063)	\$ (18,708)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	1,057	941	1,213
Non-cash adjustments for premiums and discounts on investments	12	(7)	(843)
Non-cash charges for stock-based compensation	1,706	2,126	1,798
Non-cash consideration received for release of security interest	—	—	(337)
Non-cash realized loss on marketable security	—	218	—
Change in fair value of warrants	98	(221)	(445)
Change in accounts receivable	649	(335)	13
Change in accounts payable and accrued expenses	(1,150)	296	932
Change in unearned revenue	(1,990)	482	1,371
Change in other assets and liabilities, net	1,023	(1,110)	26
Net cash used in operating activities	<u>(16,957)</u>	<u>(23,673)</u>	<u>(14,980)</u>
Cash flows from investing activities:			
Purchases of equipment	(177)	(409)	(289)
Purchases of investment securities	(1,001)	(6,007)	(35,487)
Proceeds from sale and maturity of investment securities	4,000	19,230	42,660
Net cash provided by investing activities	<u>2,822</u>	<u>12,814</u>	<u>6,884</u>
Cash flows from financing activities:			
Proceeds from issuance of common stock subject to redemption, net of issuance costs	—	2,906	3,576
Proceeds from issuance of common stock and warrants, net of issuance costs	11,159	15,785	789
Principal payments of long-term debt obligations	(452)	(806)	(783)
Net cash provided by financing activities	<u>10,707</u>	<u>17,885</u>	<u>3,582</u>
Increase (decrease) in cash and cash equivalents	(3,428)	7,026	(4,514)
Beginning balance of cash and cash equivalents	14,315	7,289	11,803
Ending balance of cash and cash equivalents	<u>\$ 10,887</u>	<u>\$ 14,315</u>	<u>\$ 7,289</u>
Supplemental disclosures of cash flow information:			
Cash paid for interest	\$ 37	\$ 94	\$ 149
Supplemental disclosures of non-cash activities:			
Fair value of warrants granted under Kingsbridge CEFF	\$ 133	\$ 35	\$ 307
Change in the fair value of interest rate swap	\$ (19)	\$ (19)	\$ (9)

See accompanying notes to financial statements.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(1) ORGANIZATION AND BUSINESS DESCRIPTION

GenVec, Inc. (GenVec, we, our, or the Company) is a clinical stage biopharmaceutical company developing novel, gene-based therapeutic drugs and vaccines. Our lead therapeutic product candidate, TNFeradeTM biologic (TNFerade), is being developed for use in the treatment of cancer. TNFerade is currently the subject of a randomized, controlled, Phase 3 pivotal trial, known as PACT, for first-line treatment of inoperable, locally advanced pancreatic cancer. Interim data supporting a potential survival advantage in the TNFerade group were disclosed in November 2008. Interim data, based on an analysis after one-third of deaths necessary to complete the trial, demonstrated an approximately 25% lower risk of death in the TNFerade plus standard of care (SOC) arm relative to the SOC arm alone (Hazard Ratio = 0.753; 95% Confidence Interval [0.494 – 1.15]). At that time an independent Data Safety Monitoring Board reviewed the interim analysis data and recommended the trial continue as planned.

In November 2008, TNFerade was granted Fast Track designation by the U.S. Food and Drug Administration (FDA) for its proposed use in the treatment of locally advanced pancreatic cancer. In November 2009, the FDA granted orphan drug designation for TNFerade for the treatment of patients with pancreatic cancer. In January 2010, GenVec announced that 184 events (deaths) had occurred in the PACT trial. This event, which represents two-thirds of the total events expected in the trial, triggered the next interim analysis of overall survival in the trial. GenVec expects data from this interim analysis to be available in March or April of 2010.

TNFerade is also being evaluated for possible use in the treatment of other types of cancer. Using our core adenovector technology, TNFerade stimulates the production of tumor necrosis factor alpha (TNF), a known anti-tumor protein, in cells of the tumor. Clinical trials have been conducted and encouraging results have previously been reported in studies for esophageal cancer, head and neck cancer, rectal cancer, and soft tissue sarcomas. We expect to initiate a Phase 1 clinical trial in prostate cancer in 2010.

Our core technology has the important advantage of localizing protein delivery in the body. This is accomplished by using our adenovector platform to locally deliver genes to cells, which then direct production of the desired protein. In the case of TNFerade, for example, this approach reduces side effects typically associated with systemic delivery of the TNF protein. For vaccines, the goal is to induce a broad immune response against a target protein or antigen. This is accomplished by using the adenovector to deliver a gene that causes production of an antigen, which then stimulates the desired immune reaction by the body.

Our research and development activities have also yielded additional therapeutic product candidates that utilize our technology platform and we believe they represent potential commercial opportunities. For example, preclinical research in hearing loss and balance disorders suggests delivery of the atonal gene using GenVec's adenovector technology may have the potential to restore hearing and balance function. We have recently entered into a research collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. (Novartis), which focuses on the discovery and development of novel treatments for hearing loss and balance disorders. There are currently no effective treatments available for patients who have lost all balance function, and hearing loss remains a major unmet medical problem.

In partnership with our collaborators, we also have multiple vaccines in development. All of these programs are funded by third-parties and utilize our core adenovector technology. One vaccine candidate targets the prevention of a major animal health problem, foot-and-mouth disease (FMD). Development efforts for this program are supported by the U.S. Department of Homeland Security and in collaboration with the U.S. Department of Agriculture. We anticipate conditional license application for a FMD vaccine will be filed in late 2010. In addition, we have a collaboration with the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH) to develop a human immunodeficiency virus (HIV) vaccine and an influenza virus vaccine. We also have a program with the U.S. Naval Medical Research Center and the PATH Malaria Vaccine Initiative to develop vaccines for malaria. GenVec also has grant-supported preclinical programs to develop vaccine candidates for the prevention of respiratory syncytial virus (RSV) and herpes simplex virus type 2 (HSV-2).

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(1) ORGANIZATION AND BUSINESS DESCRIPTION – (continued)

We are subject to various risks common to companies within the biotechnology industry. These include, but are not limited to volatility inherent in the current domestic and global economic conditions which has made it more difficult for companies like us to access the financial and credit markets or to otherwise obtain liquidity, development by competitors of new technological innovations, risks inherent in the research, and development and/or manufacture of biotechnology products, as well as other risks.

We will need to raise additional funds or enter into a strategic collaboration or other partnership in order to complete clinical development of our product candidates and commercialize TNFerade following regulatory approval. Our current cash and investments and committed and expected revenues from our collaborators and strategic alliances are expected to be sufficient to finance our activities for approximately 24 months from the balance sheet date. If we do not raise additional funds or enter into a strategic collaboration or other partnership, then we may not be able to further develop our product candidates, including TNFerade. This would negatively impact our business, financial condition and results of operations. We cannot be certain that additional funding will be available on favorable terms, if at all or that we will be successful in our efforts to enter into arrangements with strategic partners for our product candidates.

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) CASH AND CASH EQUIVALENTS

Cash equivalents consist of highly liquid debt instruments, time deposits, and money market funds with original maturities of three months or less.

(b) INVESTMENTS

Our investments consist primarily of bonds, government agency notes, and commercial paper. These investments are classified as available-for-sale securities, which are carried at fair value, with the unrealized holding gains and losses reported as a separate component of accumulated other comprehensive income (loss) until realized. Realized gains and losses from the sale of available-for-sale securities are determined on a specific-identification basis.

A decline in the market value of any available-for-sale security below cost that is deemed to be other-than-temporary results in a reduction in carrying amount to fair value. The impairment is charged to earnings and a new cost basis for the security is established. To determine whether impairment is other-than-temporary, we consider whether we have the ability and intent to hold the investment until a market price recovery and consider whether evidence indicating the cost of the investment is recoverable outweighs evidence to the contrary. Evidence considered in this assessment includes the reasons for the impairment, the severity and duration of the impairment, changes in value subsequent to year-end, forecasted performance of the investee, and the general market condition in the geographic area or industry the investee operates in. Premiums and discounts are amortized or accreted over the life of the related security as an adjustment to yield using the effective interest method. Dividend and interest income are recognized when earned.

In addition to the available-for-sale investments noted above, we acquired 806,452 common shares of a third party in 2007, as a result of our relinquishment of certain rights. See additional discussion regarding this transaction in Note 3.

(c) FAIR VALUE OF FINANCIAL INSTRUMENTS

The carrying amounts of our financial instruments, as reflected in the accompanying balance sheets, approximate fair value. Financial instruments consist of cash and cash equivalents, short-term investments, bond sinking fund, accounts receivable, accounts payable, long-term debt, and a warrant issued in connection with our Committed Equity Financing Facility.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES – (continued)

(d) PROPERTY AND EQUIPMENT

Property and equipment are stated at cost and depreciated on a straight-line basis over the estimated useful lives of assets, which are generally three to five years for equipment and seven years for furniture and fixtures. Leased property meeting certain criteria is capitalized at the lower of the present value of the future minimum lease payments or fair value at the inception of the lease. Amortization of capitalized leased assets is computed on a straight-line basis over the shorter of the lease term or estimated useful life of the asset. We incur maintenance costs with respect to some of our major equipment. Repair and maintenance costs are expensed as incurred.

(e) REVENUE RECOGNITION

Revenue is recognized when all four of the following criteria are met: (1) a contract is executed, (2) the contract price is fixed and determinable, (3) delivery of the service or products have occurred, and (4) collectability of the contract amounts is considered probable.

Our collaborative research and development agreements can provide for upfront license fees, research payments, and/or milestone payments. Upfront nonrefundable fees associated with license and development agreements where we have continuing involvement in the agreement are recorded as deferred revenue and recognized over the estimated service period. If the estimated service period is subsequently modified, the period over which the upfront fee is recognized is modified accordingly on a prospective basis. Non-refundable research and development fees for which no future performance obligations exist are recognized when collection is assured.

Research and development revenue from cost-reimbursement and cost-plus fixed fee agreements is recognized as earned based on the performance requirements of the contract. Revisions in revenues, cost, and billing factors (e.g. indirect rate estimates) are accounted for in the period of change. Reimbursable costs under such contracts are subject to audit and retroactive adjustment. Contract revenues and accounts receivable reported in the financial statements are recorded at the amount expected to be received. Contract revenues are adjusted to actual upon final audit and retroactive adjustment. Estimated contractual allowances are provided based on management's evaluation of current contract terms and past experience with disallowed costs and reimbursement levels. Payments received in advance of work performed are recorded as deferred revenue.

(f) RESEARCH AND DEVELOPMENT

Research and development costs are charged to operations as incurred. On January 1, 2008, pursuant to ASC 730-20 (formerly EITF Issue No. 07-3, *Accounting for Advance Payments for Goods or Services to Be Used in Future Research and Development Activities*), "Research and Development Costs," we changed our accounting for non-refundable advance payments to acquire goods or pay for services that will be consumed or performed in a future period in conducting research and development activities on behalf of the entity. Advance payments are recorded as an asset when the advance payments are made. Capitalized amounts are recognized as expense when the research and development activities are performed; that is, when the goods without alternative future use are acquired or the service is rendered. The Company followed this accounting with respect to the Cobra agreement signed in January 2008.

Research and development costs include internal research and development expenditures (such as salaries and benefits, raw materials, supplies, and allocated facility expenses), contracted services (such as sponsored research, consulting, manufacture of drug supply, and testing services) of proprietary research and development activities and similar expenses associated with collaborative research agreements. These costs are expensed as incurred.

(g) CLINICAL TRIAL EXPENSES

We accrue estimated costs for clinical and preclinical studies based on estimates of work performed. We estimate expenses incurred for clinical trials that are in process based on patient enrollment and based on

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES – (continued)

clinical data collection and management. Costs based on clinical data collection and management are recognized based on estimates of unbilled goods and services received in the reporting period. We monitor the progress of the trials and their related activities and adjust the accruals accordingly. Adjustments to accruals are charged to expense in the period in which the facts that give rise to the adjustment become known. We believe this method best aligns the expenses recorded with the efforts expended. In the event of early termination of a clinical trial, we would accrue an amount based on estimates of the remaining non-cancelable obligations associated with winding down the clinical trial.

(h) INCOME TAXES

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. We recognize the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies in making that assessment. We recorded a full valuation allowance against all estimated net deferred tax assets at December 31, 2009 and 2008. We have significant net operating loss carryforwards to potentially reduce future federal and state taxable income, and research and experimentation tax credit carryforwards available to potentially offset future federal and state income taxes. Use of our net operating loss and research and experimentation credit carryforwards may be limited due to changes in our ownership as defined within Section 382 of the Internal Revenue Code.

(i) NET LOSS PER SHARE

Basic earnings per share is computed based upon the net loss available to common stock stockholders divided by the weighted average number of common stock shares outstanding during the period. The dilutive effect of common stock equivalents is included in the calculation of diluted earnings per share only when the effect of the inclusion would be dilutive. For the 12 months ended December 31, 2009, 2008 and 2007 approximately 5.4 million, 4.3 million, and 3.4 million common stock equivalent shares associated with our stock option plans and unvested restricted shares and approximately 16.4 million, 2.8 million, and 0.5 million common stock equivalent shares associated with our warrants, respectively, were excluded from the denominator in the diluted loss per share calculation as their inclusion would have been antidilutive.

(j) COMPREHENSIVE LOSS

Comprehensive loss consists of net loss and unrealized holding gains and losses from available-for-sale securities. We report comprehensive income (loss) on the "Statements of Stockholders' Equity and Comprehensive Loss", and accumulated other comprehensive income (loss) on the "Balance Sheets." Other information regarding comprehensive income (loss) is contained in Note 10.

(k) INTEREST RATE SWAP

We had an interest rate swap agreement to manage interest rate exposure. Amounts paid or received under this agreement are included in interest expense. In addition, because the interest rate swap had been deemed by our management to be ineffective, changes in the fair value of the swap agreement are also included in interest expense.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES – (continued)

(l) STOCK-BASED COMPENSATION

We measure stock-based compensation expense based on the grant date fair value of the awards which is then recognized over the period during which service is required to be provided. The Company estimates grant date fair value using the Black-Scholes option-pricing model. Stock-based compensation cost that has been included in expense from continuing operations amounted to \$1.7 million, \$2.1 million, and \$1.8 million for the years ended December 31, 2009, 2008 and 2007, respectively.

(m) USE OF ESTIMATES

The preparation of financial statements, in conformity with U.S. generally accepted accounting principles, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements, and revenues and expenses during the period. Critical accounting policies involved in applying our accounting policies are those that require management to make assumptions about matters that are highly uncertain at the time the accounting estimate was made and those for which different estimates reasonably could have been used for the current period. Critical accounting estimates are also those which are reasonably likely to change from period to period, and would have a material impact on the presentation of our financial condition, changes in financial condition or results of operations. Our most critical accounting estimates relate to accounting policies for clinical trial accruals, strategic alliances and research contract revenues, share-based arrangements, and our uncertain tax positions. Management bases its estimates on historical experience and on various other assumptions that it believes are reasonable under the circumstances. Actual results could differ from these estimates.

(n) LONG-LIVED ASSETS

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset be tested for possible impairment, we first compare undiscounted cash flows expected to be generated by an asset to the carrying value of the asset. If the carrying value of the long-lived asset is not recoverable on an undiscounted cash flow basis, impairment is recognized to the extent that the carrying value exceeds its fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values, and third party independent appraisals, as necessary.

(o) COMMITMENTS AND CONTINGENCIES

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties, and other sources are recorded when it is probable that a liability has been incurred and the amount of the assessment and/or remediation can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

(p) RECENT ACCOUNTING PRONOUNCEMENTS

In February 2010, the FASB issued Accounting Standards Update (ASU 2010 — 09) to address potential practice issues associated with FASB ASC 855 (formerly SFAS 165), "*Subsequent Events*." The ASU was effective upon issuance and eliminated the requirement for entities that file or furnish financial statements with the SEC to disclose the date through which subsequent events have been evaluated in originally issued and reissued financial statements. Other entities would continue to be required to disclose the date through which subsequent events have been evaluated; however, disclosures about the date would be required only in financial statements revised because of an error correction or retrospective application of U.S. GAAP. Our adoption of this standard changed our presentation of subsequent events when preparing our financial statements.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES – (continued)

In September 2009, the FASB ratified ASU 2009-13 (formerly EITF 08-1), "*Revenue Recognition*" (ASC 605): Multiple-Deliverable Revenue Arrangements, the final consensus reached by the Emerging Issues Task Force that revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance will be effective for our fiscal year beginning January 1, 2011 with early adoption permitted. The guidance may be applied retrospectively or prospectively for new or materially modified arrangements. We currently do not have any multiple-deliverable revenue arrangements, accordingly, the adoption of the guidance will not have an impact on our financial statements.

In August 2009, the FASB issued ASU No. 2009-05, "*Fair Value Measurements and Disclosures (ASC 820) — Measuring Liabilities at Fair Value*" (ASU 2009-05). ASU 2009-05 provides clarification that in circumstances in which a quoted price in an active market for the identical liability is not available, a reporting entity is required to measure fair value using a valuation technique that uses the quoted price of the identical liability when traded as an asset or the quoted prices for similar liabilities or similar liabilities when traded as assets. The guidance provided is effective for the first reporting period (including interim periods) beginning after issuance. Our adoption of ASU 2009-05 did not impact our financial position or results of operations.

In June 2009, the FASB issued ASC 105 (formerly SFAS 168), "*The FASB Accounting Standards Codification and the Hierarchy of Generally Accepted Accounting Principles*" (ASC 105). ASC 105 is now the source of authoritative U.S. GAAP recognized by the FASB to be applied by nongovernment entities. It also modifies the GAAP hierarchy to include only two levels of GAAP: authoritative and non-authoritative. ASC 105 is effective for financial statements issued for interim and annual periods ending after September 15, 2009. The adoption of this standard in 2009 changed how we reference various elements of U.S. GAAP when preparing our financial statement disclosures, but did not have an impact on our financial position or results of operations.

Other new pronouncements issued but not effective until after December 31, 2009 are not expected to have a significant effect on our financial position or results of operations.

(3) FAIR VALUE MEASUREMENTS

We adopted a new accounting standard that defines fair value and establishes a framework for fair value measurements effective January 1, 2008 for financial assets and liabilities and effective January 1, 2009 for non-financial assets and liabilities. This standard establishes a three-level hierarchy for fair value measurements. The hierarchy is based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date. The three levels of inputs used to measure fair value are as follows:

- *Level 1* — Quoted prices in active markets for identical assets or liabilities;
- *Level 2* — Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data; and
- *Level 3* — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes certain pricing models, discounted cash flow methodologies, and similar techniques that use significant unobservable inputs.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(3) FAIR VALUE MEASUREMENTS – (continued)

The following table presents information about assets and liabilities recorded at fair value on a recurring basis on the Balance Sheet at December 31, 2009:

(In thousands)	Total Carrying Value on the Balance Sheet	Quoted Prices in Active Markets for Identical Assets/ Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash & cash equivalents	\$ 10,887	\$ 10,887	\$ —	\$ —
Marketable securities	74	74	—	—
Total assets at fair value	<u>\$ 10,961</u>	<u>\$ 10,961</u>	<u>\$ —</u>	<u>\$ —</u>
Liabilities:				
Warrant liability	\$ 133	\$ —	\$ 133	\$ —
Total liabilities at fair value	<u>\$ 133</u>	<u>\$ —</u>	<u>\$ 133</u>	<u>\$ —</u>

The following table presents information about assets and liabilities recorded at fair value on a recurring basis on the Balance Sheet at December 31, 2008:

(In thousands)	Total Carrying Value on the Balance Sheet	Quoted Prices in Active Markets for Identical Assets/ Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash & cash equivalents	\$ 14,315	\$ 14,315	\$ —	\$ —
Marketable securities	3,042	3,042	—	—
Total assets at fair value	<u>\$ 17,357</u>	<u>\$ 17,357</u>	<u>\$ —</u>	<u>\$ —</u>
Liabilities:				
Interest rate swap agreement	\$ 19	\$ —	\$ 19	\$ —
Warrant liability	35	—	35	—
Total liabilities at fair value	<u>\$ 54</u>	<u>\$ —</u>	<u>\$ 54</u>	<u>\$ —</u>

We determine fair value for marketable securities with Level 1 inputs through quoted market prices and have classified them as available-for-sale. Our marketable securities consist primarily of corporate bonds and government agency bonds.

Our interest rate swap agreement is valued at fair market value at the balance sheet date using observable market inputs including forward interest rates derived from yield curves, and therefore is classified within Level 2. The warrant liability related to the Kingsbridge warrants has been valued using the Black-Scholes pricing model, the inputs of which are described more fully in Note 8 in this Form 10-K. The warrant liability has also been classified within Level 2.

We review all investments for other-than-temporary impairment at least quarterly or as indicators of impairment exist. Indicators of impairment include the duration and severity of the decline in fair value as well as the intent and ability to hold the investment to allow for a recovery in the market value of the investment. In addition, we consider qualitative factors that include, but are not limited to: (i) the financial condition and business plans of the investee including its future earnings potential; (ii) the investee's credit rating; and (iii) the current and expected market and industry conditions in which

the investee operates. If a decline in the fair value of an investment is deemed by management to be other-than-temporary, we write down the cost basis of the investment to fair value, and the amount of the write down is included in net earnings. Such a

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(3) FAIR VALUE MEASUREMENTS – (continued)

determination is dependent on the facts and circumstances relating to each investment. During the fourth quarter of 2008, we determined common shares acquired in 2007 as consideration for the release of certain security interests in a third party had incurred an other than temporary impairment. As a result of this impairment we realized a loss of \$218,000.

All unrealized holding gains or losses related to our investments in marketable securities are reflected in accumulated other comprehensive income in shareholders' equity. Net unrealized gain included in accumulated other comprehensive income was \$2,000 at December 31, 2009.

A summary of cash, cash equivalents, and marketable securities is shown below:

	Amortized Cost	Gross Unrealized Gains Losses		Fair Value
		(in thousands)		
December 31, 2009				
Cash and cash equivalents				
Cash and money market funds	\$ 10,887	\$ —	\$ —	\$ 10,887
Marketable securities				
Corporate bonds	—	—	—	—
Government agency bonds	—	—	—	—
Corporate stock	72	2	—	74
Total marketable securities	72	2	—	74
Total cash, cash equivalents and marketable securities	<u>\$ 10,959</u>	<u>\$ 2</u>	<u>\$ —</u>	<u>\$ 10,961</u>
December 31, 2008				
Cash and cash equivalents				
Cash and money market funds	\$ 14,315	\$ —	\$ —	\$ 14,315
Marketable securities				
Corporate bonds	2,001	—	(4)	1,997
Government agency bonds	1,009	10	—	1,019
Corporate stock	72	—	(46)	26
Total marketable securities	3,082	10	(50)	3,042
Total cash, cash equivalents and marketable securities	<u>\$ 17,397</u>	<u>\$ 10</u>	<u>\$ (50)</u>	<u>\$ 17,357</u>

(4) PROPERTY AND EQUIPMENT

Property and equipment consists of the following at December 31 (in thousands):

	2009	2008
Equipment	\$ 9,232	\$ 9,217
Leasehold improvements	6,522	6,521
Furniture and fixtures	413	413
	16,167	16,151
Less accumulated depreciation and amortization	(15,480)	(14,601)
	<u>\$ 687</u>	<u>\$ 1,550</u>

Depreciation and amortization expense related to property and equipment was \$1,040,000, \$903,000, and \$1,163,000 for the years ended December 31, 2009, 2008 and 2007, respectively.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(5) ACCRUED OTHER EXPENSES

Accrued other expenses consist of the following at December 31 (in thousands):

	2009	2008
Payroll, compensation, and benefits	\$ 1,836	\$ 548
Accrued warrant liability	133	35
Clinical costs	280	484
Professional fees	414	412
Manufacturing expenses	23	436
Other	152	877
Total other accrued expenses	<u>\$ 2,838</u>	<u>\$ 2,792</u>

(6) STRATEGIC ALLIANCES AND RESEARCH CONTRACTS

We have established collaborations and research contracts with pharmaceutical and biotechnology companies and governmental agencies to enhance our ability to discover, evaluate, develop, and commercialize multiple product opportunities. Revenue earned under these contracts is summarized as follows (in thousands):

	2009	2008	2007
Department of Homeland Security	\$ 4,665	\$ 7,816	\$ 4,438
PATH's Malaria Vaccine Initiative	565	675	1,115
U.S. Naval Medical Research Center	—	239	9
Vaccine Research Center	7,193	5,136	7,179
Other strategic alliances and research grants	1,434	1,255	1,306
	<u>\$ 13,857</u>	<u>\$ 15,121</u>	<u>\$ 14,047</u>

Our results of operations included \$2,100,000, \$1,656,000, and \$619,000 during the years ended December 31, 2009, 2008, and 2007, respectively, of amortization of upfront contract and license fees which were received in prior years.

(a) U.S. DEPARTMENT OF HOMELAND SECURITY (DHS)

In January 2007, we signed a three-year agreement with the DHS, for the development of a vaccine candidate against FMD for livestock, under which we received \$6 million in program funding for the first year and had the potential to receive up to \$15.1 million in total if annual renewal options under the contract were exercised. Modifications to this agreement have brought the total value of the program up to approximately \$18.2 million. As of December 31, 2009, \$16.9 million in revenue has been recognized under this contract.

In February 2010, we signed a new contract with the DHS to continue the development of adenovector-based vaccines against FMD. Under this new agreement, GenVec will receive \$3.8 million in program funding the first year and an additional \$0.7 million if DHS exercises its renewal option under the contract. Under this contract, we will use our adenovector technology to develop additional FMD-serotype candidate vaccines and also explore methods to increase the potency and simplify the production process of adenovector-based FMD vaccines.

(b) PATH'S MALARIA VACCINE INITIATIVE (MVI)

In March 2004, we signed a two-year, \$2,581,000 contract for the development, production, and evaluation of vaccines against malaria. Under the contract, we are responsible for constructing adenovector-based vaccine candidates using our proprietary cell line and second-generation adenovector technology. The contract includes \$547,000 for work to be performed under a separate Collaborative Research and Development Agreement (CRADA) with the Navy Medical Research Center (NMRC). Under the CRADA, the NMRC will

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(6) STRATEGIC ALLIANCES AND RESEARCH CONTRACTS – (continued)

provide us with optimized malaria genes to be used in the development of the adenovector vaccines as well as provide preclinical evaluation of the vaccine candidates. In August 2006 and May 2007, we amended and extended our contract with the MVI and contract funding was increased to \$3,980,000 and the term extended through December 2008. This agreement was completed in December 2008.

In March 2009, we signed a one-year contract with MVI to support the development of vaccines to fight malaria. This contract was valued at approximately \$770,000 and will continue work funded by MVI that began in 2004. The scope of work under this contract includes the development and testing of novel adenovirus-based vaccines. In July 2009, this contract was amended and is now valued at approximately \$2.0 million. As of December 31, 2009, we have recognized revenues of approximately \$565,000 under this contract.

(c) U.S. NAVAL MEDICAL RESEARCH CENTER (NMRC)

In January 2003, we signed a two-year, \$1,900,000 fixed price contract with the U.S. Naval Medical Research Center (NMRC) to aid in the development of vaccines against malaria and dengue fever. Under the CRADA, NMRC has provided us with optimized malaria genes to be used in the development of the adenovector-based vaccines as well as providing preclinical evaluation of the vaccine candidates.

In January 2005, we signed a one-year, \$1,582,000 fixed price contract for the production of vaccines against malaria. Under the contract, we were responsible for producing, testing, and releasing malaria vaccines under current Good Manufacturing Practices standards for preclinical evaluation by the NMRC. We successfully completed production of the required malaria vaccine supplies in 2006 and will provide, as needed, regulatory support to NMRC with regard to their Investigational New Drug (IND) application with the FDA.

In September 2007, we entered into a CRADA with the U.S. Military Malaria Vaccine Program at the Walter Reed Army Institute of Research and the NMRC for the development and pre-clinical testing of a malaria vaccine candidate against *Plasmodium vivax* (*P. vivax*). In addition to the CRADA, we signed a one-year, \$247,000 contract with the Department of Defense to construct and test the adenovector-based vaccine, which carries a novel proprietary antigen against *P. vivax*. This agreement was completed in June 2008.

(d) VACCINE RESEARCH CENTER

In December 2001, the Vaccine Research Center (VRC) at the National Institute of Allergy and Infectious Diseases of the National Institutes of Health (NIAID) selected us to collaborate in the development of a worldwide preventative HIV vaccine candidate. In April 2003 this collaboration was expanded to include the development of a SARS vaccine candidate and in February 2006 it was expanded to include an influenza vaccine candidate. We have a cost-plus fixed fee sub-contract, managed for the VRC through SAIC-Frederick, Inc., which became effective January 25, 2002. Under the subcontract, we are responsible for constructing and producing adenovector-based vaccine candidates utilizing our proprietary cell line and second-generation adenovector technology.

During the fourth quarter of 2008, we executed the seventh option period, year eight, under this agreement. This contract which ended in October 2009 had a total value of approximately \$56.7 million.

In November 2009, we announced a new contract with SAIC for the development of influenza and HIV vaccines. Work under this contract will include generation of HIV vaccine candidates, generation of a universal flu vaccine, process and assay development for manufacture of vaccine candidates for clinical testing, and continued support of the HIV vaccine candidates currently in clinical testing. This four-year contract has a total value of over \$22 million if all options are exercised. Over the next year, we will receive approximately \$2.6 million.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(6) STRATEGIC ALLIANCES AND RESEARCH CONTRACTS – (continued)

The SAIC contracts, first initiated in 2001, now have a total value of approximately \$78.7 million if all options under the new contract are exercised. As of December 31, 2009, \$57.1 million in revenue has been recognized under these contracts.

In September 2006, we announced a new five-year HIV vaccine technology transfer and development contract with the NIAID of the NIH. The agreement provided up to an additional \$52.0 million of funding if the NIH exercises all annual renewal options. Under the agreement, we will support the transfer of our manufacturing and purification processes to the VRC to further clinical development of an HIV vaccine, including development of a larger-scale manufacturing and product-release process necessary for further clinical grade HIV vaccine production. We will also receive funding for the continued development of next-generation HIV vaccine candidates. In connection with the agreement, we granted the NIAID a non-exclusive research license for our proprietary adenovector, production cell line, manufacturing process, and formulation technologies for HIV vaccines.

The initial commitment, in September 2006, under this agreement was \$7.5 million. In September 2007, the NIAID exercised option year one under this agreement for \$5.1 million. In September 2008, the NIAID exercised option year two under this agreement for \$3.9 million. In September 2009, the NIAID exercised option year three under this agreement for \$2.3 million. Revenue recognized under this agreement totaled \$13.7 million through December 31, 2009.

In July 2009, we received a grant from the NIAID, valued at approximately \$600,000 over two years that will be used to identify new antigens for malaria vaccine development.

(e) OTHER STRATEGIC ALLIANCES AND RESEARCH GRANTS

In March 2007, we entered into a CRADA with the NIAID, to develop vaccines for the prevention and treatment of RSV, which can cause severe lower respiratory tract infections. RSV infections can occur at any age, but occur among the elderly or those with compromised cardiac, pulmonary, or immune systems. In addition, RSV is the single most important viral cause of lower respiratory infections in infants and young children. Initial vaccine candidates are in preclinical testing. In May 2008, we received a two-year, \$600,000 SBIR grant from the NIH to support work under this program. We recognized \$184,000 in revenue through December 31, 2009.

In January 2008, we received a two-year, \$600,000 Phase I Small Business Innovation and Research grant from the NIH. This is intended to support work being conducted in a collaborative effort by us, the Vaccine and Infectious Disease Institute at Fred Hutchinson Cancer Research Center, and the University of Washington to develop vaccines for the prevention and treatment of HSV-2, the virus responsible for most cases of genital herpes. We recognized \$409,000 in revenue through December 31, 2009.

In January 2010, we announced a collaboration with Novartis to discover and develop novel treatments for hearing loss and balance disorders. Under terms of the agreement, we licensed the world-wide rights to our preclinical hearing loss and balance disorders program to Novartis. We received a \$5 million upfront payment and Novartis purchased \$2 million of our common stock. In addition, we will receive funding from Novartis for a research program focused on developing additional adenovectors for hearing loss. If certain clinical, regulatory, and sales milestones are met, we are eligible to receive up to an additional \$206.6 million in milestone payments in addition to royalties on future sales..

We have entered into other research grants with the government, primarily the NIH, and recognized revenue under other collaborations during 2009. Revenue recognized under these research grants totaled \$841,000 through December 31, 2009.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(7) COMMITMENTS

(a) LEASE AGREEMENTS

We have a non-cancelable operating lease for our Gaithersburg, MD facilities. The initial lease agreement, which expired on November 1, 2009, included a provision for a three percent annual increase in base rent and contained renewal options for up to 14 years and required the Company to pay all executory costs such as maintenance and insurance. As part of the lease, the landlord's initial contribution of \$1,300,000 in incentives was considered a reduction of rental expense that was recognized on a straight-line basis over the term of the lease. In March 2009, we signed an amendment to our lease agreement for our Gaithersburg facilities extending the lease expiration date from November 1, 2009 to October 31, 2014. Under the terms of the agreement we have additional contractual obligations of \$841,000 in 2010, 866,000 in 2011, 892,000 in 2012, \$847,000 in 2013, and \$427,000 in 2014. Rent expense under all operating leases was approximately \$638,000, \$584,000, and \$584,000 for the years ended December 31, 2009, 2008, and 2007, respectively.

Future minimum lease payments under our non-cancelable operating lease are as follows (in thousands):

2010	\$	841
2011	\$	866
2012	\$	892
2013	\$	847
2014	\$	427

At December 31, 2009 and 2008, the Company had a deferred lease liability of \$0 and \$190,000, respectively.

(b) LICENSE AGREEMENTS

In November 2001, we entered into an exclusive, worldwide license agreement with Baylor College of Medicine for the rights related to the MATH1 and HATH genes. Under the terms of the license agreement, we agreed to pay a non-refundable initial license fee of \$50,000 at the time of execution of the license agreement and we also agreed to pay a minimum annual license maintenance fee, a percentage of product royalties, and milestone payments based on our achievement of certain clinical and regulatory related milestones for these rights. Our ability to meet the milestones is dependent on a number of factors including final approvals by regulatory agencies and the continued enforceability of patent claims.

(c) RESEARCH AND DEVELOPMENT AND CLINICAL AGREEMENTS

We have agreed to provide grants for certain research projects under agreements with several universities and research organizations. Under the terms of these agreements, the Company has received rights to the resulting technology. Total grant amounts paid by us were approximately \$137,000, \$154,000, and \$202,000 for the years ended December 31, 2009, 2008, and 2007, respectively.

As discussed in Note 2, we have agreements with clinical sites for the treatment of patients under clinical protocols. Total costs under these agreements were \$1,409,000, \$2,487,000, and \$2,235,000 for the years ended December 31, 2009, 2008, and 2007, respectively.

Additionally, certain agreements disclosed above require us to pay royalties upon commercial sales of specified products. We generally base the royalties on a percentage of net sales or other product fees earned. Royalties will be due when sales are generated.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY

(a) CAPITAL STOCK

In April 2005, we filed with the Securities and Exchange Commission a \$35.0 million shelf registration statement on Form S-3, replacing our prior \$25.0 million shelf registration statement.

- On September 26, 2005, we sold 7,600,000 shares of common stock to various investors at \$2.00 per share under the shelf registration. Proceeds, net of offering costs, from this sale totaled \$14.0 million. SG Cowen & Co., LLC (SG Cowen) was engaged as the sole placement agent for this transaction. At the time of this offering, Stelios Papadopoulos, Ph.D., was a Vice Chairman in the investment banking division of SG Cowen and was a member of our Board of Directors.
- On December 21, 2006, we sold 9,610,000 shares of common stock to various investors at \$2.05 per share under the shelf registration. Proceeds, net of offering costs, from this sale totaled \$18.3 million.

In February 2007, we filed a \$100.0 million shelf registration statement on Form S-3 with the Securities and Exchange Commission. The shelf registration was declared effective February 12, 2007 and allows us to obtain financing through the issuance of any combination of common stock, preferred stock, warrants, or debt securities. This shelf registration was scheduled to expire on February 12, 2010; however, because we filed a \$150.0 million replacement shelf registration statement, which is not yet effective, before that date, we may continue to offer and sell securities covered by the 2007 shelf registration statement until the earlier of the effective date of the replacement registration statement or 180 days after the third anniversary of the initial effective date of the expired registration statement. The replacement registration statement, once it is declared effective, will allow us to issue any combination of common stock, preferred stock, or warrants to purchase our common stock or preferred stock, for further discussion on this replacement shelf registration see Note 12, "Subsequent Events."

- On June 11, 2008, pursuant to this shelf registration statement, we completed a registered direct offering to various investors of 11,258,279 shares of common stock and warrants to purchase 2,251,653 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and a warrant to purchase 0.20 shares of common stock at a per unit price of \$1.51. The warrants, which have a term of five years and an exercise price of \$2.016 per share, have been valued using the Black-Scholes pricing model as of the closing date and have been accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$1.9 million. Proceeds of this offering, net of offering costs, totaled \$15.7 million.
- On May 29, 2009, we entered into a purchase agreement with a single institutional investor for the sale of 9,615,385 shares of common stock and warrants to purchase 9,615,385 shares of common stock as part of a registered direct offering pursuant to our shelf registration statement. The shares of common stock and warrants were offered in units consisting of one share of common stock and a warrant to purchase one share of common stock at a price of \$0.624 per unit. The warrants, which have a term of five years and an exercise price of \$0.858 per share, have been valued using the Black-Scholes pricing model as of the closing date and have been accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$4.2 million. Proceeds of this offering, net of offering costs, totaled \$5.5 million. On January 25, 2010, the institutional investor exercised warrants to purchase 2,000,000 shares of common stock for gross proceeds of \$1.7 million.
- On August 31, 2009, pursuant to our shelf registration statement, we completed a registered direct offering to an institutional investor of 8,000,000 shares of common stock and warrants to purchase 4,000,000 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and 0.5 warrants to purchase one share of common stock

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

at a per unit price of \$0.75. The warrants, which have a term of five years and an exercise price of \$0.828 per share, were valued using the Black-Scholes pricing model as of the closing date and accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$2.1 million. Proceeds of this offering, net of offering costs, totaled \$5.5 million.

- On February 1, 2010, pursuant to our shelf registration statement, we completed a registered direct offering to various investors of 14,000,000 shares of common stock and warrants to purchase 4,200,000 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and 0.3 warrants to purchase one share of common stock at a per unit price of \$2.00. The warrants, which have a term of five years and an exercise price of \$2.75 per share, were valued using the Black-Scholes pricing model as of the closing date and will be accounted for in permanent equity. The estimated fair market value of the warrants at the date of issuance was \$5.0 million. Proceeds of this offering, net of offering costs, totaled \$26.2 million.

On February 11, 2010, we filed with the Securities and Exchange Commission a \$150.0 million shelf registration statement on Form S-3 that allows us to issue any combination of common stock, preferred stock, or warrants to purchase common stock or preferred stock. This shelf registration has not yet been declared effective. Under applicable rules, we may continue to offer and sell securities covered by the 2007 shelf registration statement until the earlier of the effective date of the replacement registration statement or 180 days after the third anniversary of the initial effective date of the expired registration statement. As a result of the offerings pursuant to our 2007 shelf registration statement described above, as well as the issuance of shares of common stock upon the exercise of some of the warrants issued in those offerings, we had used \$62.1 million of the securities registered under the 2007 shelf registration statement prior to March 12, 2010, leaving \$37.9 million available for issuance. However, we have warrants outstanding under which an additional \$22.6 million of common stock may be issued pursuant to the registration statement. Accordingly, we would likely only use for new offerings approximately \$15.3 million of the \$37.9 million that is currently available for issuance.

On March 15, 2006, we entered into a Committed Equity Financing Facility (CEFF) with Kingsbridge Capital Ltd., under which Kingsbridge committed to purchase up to \$30.0 million of our common stock within a three-year period, subject to certain conditions and limitations. The CEFF expired on March 15, 2009. Due to the pricing formula under the CEFF the actual amount of financing available to us under the CEFF was substantially less than the committed amount. In particular, Kingsbridge was not obligated to purchase shares of common stock at a price lower than \$1.25.

Under the CEFF, Kingsbridge was required, subject to certain conditions and limitations, to purchase shares of common stock at prices between 88% and 92% of the volume weighted average price (VWAP) on each trading day during an eight-day pricing period. Settlement for sales under the CEFF took place in two tranches after the fourth and eighth day of the pricing period. The value of the maximum number of shares the Company could issue in any pricing period was equal to the lesser of 1.75% of the Company's market capitalization immediately prior to the commencement of the pricing period, or \$5.0 million. The minimum VWAP for determining the purchase price at which our stock could have been sold in any pricing period was the greater of \$1.25, or 75% of the closing price of our common stock on the day prior to the commencement of the pricing period. As required under the CEFF, we filed a resale registration statement with respect to the resale of shares issued pursuant to the CEFF and underlying the warrant, which was declared effective May 5, 2006. We were required to use commercially reasonable efforts to maintain its effectiveness.

As part of the arrangement, we issued a warrant to Kingsbridge to purchase 520,000 shares of our common stock at an exercise price equal to \$2.67. The warrant became exercisable on September 15, 2006 and will remain exercisable until September 15, 2011. We have classified the warrant as a current liability for deferred financing costs, which is recorded at its fair value as determined under a Black-Scholes pricing model. Assuming a 1.75 year remaining life for the warrant, a 2.69% risk-free interest rate, and an 94.59%

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

expected volatility and no dividend yield, the fair value of warrant liability as of December 31, 2009 was \$133,000, an increase of \$98,000 compared to the prior year. Changes in fair value are recorded against operations in the reporting period in which they occur; increases and decreases in fair value are recorded to interest expense.

The fair value of the warrant issued to Kingsbridge on the date of grant of \$800,000 or \$1.54 per share, was initially recorded as a deferred financing cost to additional paid-in capital, with the opposing entry being accrued to other expenses in the balance sheet. Such deferred financing costs are allocated to Kingsbridge shares on an as drawn basis. Through December 31, 2009, the current liability, recorded in other accrued expenses, has been marked-to-market using the Black-Scholes option-pricing model. Changes in fair value are recorded against operations in the reporting period in which they occur; increases or decreases in fair value are recorded as interest expense. During 2009, the increase in the fair value of the warrant, \$98,000, resulted in a increase in interest expense and in 2008 the decrease in the fair value of the warrant of \$221,000 resulted in a decrease in interest expense. Stock drawn under the CEFF was initially recorded outside of permanent equity, until such time as Kingsbridge sold the shares to outside third parties, due to the existence of a cash payment feature in the agreement that compensates Kingsbridge based on any reduction in the fair value of shares held by Kingsbridge during a period in which GenVec fails to maintain the effectiveness of the abovementioned registration statement, or electively imposes a trading blackout (i.e., a registration payment arrangement). The amount of compensation was payable in cash in both circumstances, or, at the sole discretion of GenVec, in shares of the Company's common stock in the event of a trading blackout.

On June 26, 2007, subsequent to the first four days of the pricing period, we sold 769,773 shares of common stock for gross proceeds of \$1.8 million. On July 2, 2007, subsequent to the last four days of the pricing period, we sold 832,441 shares of common stock for gross proceeds of \$1.8 million. In April 2008, we initiated our second draw against the CEFF. On April 18, 2008, subsequent to the first four days of the pricing period, we sold 777,057 shares of common stock for gross proceeds of \$1.47 million. On April 25, 2008, subsequent to the last four days of the pricing period, we sold an additional 905,559 shares of common stock under the CEFF for gross proceeds of \$1.47 million. When the CEFF expired we expensed the remaining \$273,000 of deferred financing charges associated with the CEFF as an other non-operating loss. Prior to the expiration of the CEFF on March 15, 2009, we had sold 3,284,830 shares of common stock to Kingsbridge in the aggregate.

In September 2001, our Board of Directors declared a dividend which was issued on September 28, 2001 of one preferred stock purchase right (a Right) for each share of common stock outstanding. The Rights initially trade with, and are inseparable from the common stock. The Rights will become exercisable only if a person or group acquires beneficial ownership of 20% or more of the outstanding common stock of GenVec (an Acquiring Person), or announces the intention to commence a tender or exchange offer the consummation of which would result in that person or group becoming an Acquiring Person. Each Right allows its holder, other than the Acquiring Person, to purchase from the Company one one-hundredth of a share of Series A junior participating preferred stock (the Preferred Share), at a purchase price of \$50.00, subject to adjustment. This portion of a Preferred Share gives the stockholder approximately the same dividend, voting, and liquidation rights as would one share of common stock. The Rights expire on September 7, 2011, unless redeemed earlier by the Company at a price of \$0.01 per Right at any time before the Rights become exercisable.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

In addition to the common stock reflected on our balance sheets, the following items are reflected in the capital accounts as of December 31, 2009 and 2008:

- 4,400,000 shares of \$0.001 par value preferred stock have been authorized; none are issued or outstanding.
- 600,000 shares of \$0.001 par value Series A junior participating preferred stock have been authorized in connection with the preferred stock purchase rights referred to above; none are issued or outstanding.

(b) STOCK OPTION GRANTS

Stock Option Plans

In 2002, GenVec stockholders approved the 2002 Incentive Stock Plan (2002 Plan) as the replacement for the 1993 Stock Incentive Plan (1993 Plan) and 2000 Director Plan (2000 Plan). As originally approved by stockholders, under the 2002 Plan, we may grant statutory and non-statutory stock options and restricted stock awards for the purchase of newly issued common stock up to an aggregate of 1,000,000 shares, plus any shares remaining or that are subject to awards that expire or terminate under the 1993 Plan and 2000 Plan. Grants awarded under the 2002 Plan may be subject to adjustment in the event of stock splits and other similar events.

Our stockholders have subsequently approved amendments to the 2002 Plan to increase the number of common shares available to be issued under the 2002 Plan. In 2007, the stockholders of the Company approved an amendment to the 2002 Plan in which the total shares available under the 2002 Plan were increased from 8,680,000 to 11,580,000.

Generally under the 2002 Plan, 12.5% of the option shares of each award are exercisable six months after the date of grant; thereafter, the remaining option shares are exercisable in equal monthly installments over the next 3.5 years. Stock options granted under this plan generally have a contractual term of ten years. The Compensation Committee administers this plan, approves the individuals to whom options will be granted, and determines the number of shares and exercise price of each option. Outstanding options under the 2002 Plan at December 31, 2009 expire through 2019.

In June 2006, at our Annual Meeting, the stockholders approved an amendment to the 2002 Plan in which the maximum number of shares with respect to which stock options and/or restricted shares may be granted to any one participant may not exceed 1,000,000 shares per calendar year and no more than 500,000 shares may be issued as shares of restricted stock per calendar year.

Options granted under the 1993 Plan include statutory and non-statutory awards, and options granted under the 2000 Plan, which were made to non-employee directors, generally permit 25% of the option shares of each award to be exercised on the anniversary of the grant date and typically have a contractual term of ten years. The Compensation Committee administered options granted under the 1993 Plan and 2000 Plan, approved the individuals to whom options were granted, and determined the number of shares and exercise price of each option. As of December 31, 2009, outstanding options under the 1993 Plan expire through 2012 and the 2000 Plan expire through 2011.

In August 2003, GenVec and Diacrin consummated a business combination under which we acquired Diacrin through an exchange of stock. Under the terms of the agreement, we agreed to assume each option, vested or unvested, granted by Diacrin under its 1997 Stock Option Plan (1997 Plan). As of December 31, 2009, awards outstanding under the 1997 Plan were 67,284 shares. Option holders will receive newly issued shares of our common stock upon exercise of their options. The plan is administered by the Compensation Committee and includes statutory and non-statutory stock options that are exercisable as to 25% of the underlying shares per year with a contractual term of ten years. Outstanding options under the 1997 Plan at December 31, 2009 expire through 2012.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

Stock-Based Compensation Expense

We measure the cost of all share-based payment awards made to our employees and directors including awards of employee stock options, restricted stock units and employee stock purchases based on the fair value method of measurement and recognize compensation expense on a straight-line basis over the service period of each award. The following table summarizes stock-based compensation expense related to employee stock options and restricted stock unit grants for the years ended December 31, 2009, 2008, and 2007, which was allocated as follows:

	December 31, <u>2009</u> (in thousands)	December 31, <u>2008</u> (in thousands)	December 31, <u>2007</u> (in thousands)
Research and development	\$ 1,250	\$ 1,581	\$ 1,274
General and administrative	456	545	524
	<u>\$ 1,706</u>	<u>\$ 2,126</u>	<u>\$ 1,798</u>

We use the Black-Scholes pricing model to value stock options. The Black-Scholes model requires the use of a number of complex assumptions including expected volatility of the Company's stock price and the expected life of option grants. The weighted-average estimated fair value of employee stock options granted during the 12 months ended December 31, 2009, 2008, and 2007 was calculated using the Black-Scholes model with the following weighted-average assumptions:

	December 31, <u>2009</u>	December 31, <u>2008</u>	December 31, <u>2007</u>
Risk-free interest rate	1.77%	3.01%	4.64%
Expected dividend yield	0.00%	0.00%	0.00%
Expected volatility	94.59%	84.00%	80.36%
Expected life (years)	5.87	5.67	5.59
Weighted-average fair value of options granted	\$ 0.42	\$ 1.23	\$ 1.87

The volatility assumption for 2009, 2008, and 2007 is based on the weighted average volatility for the most recent one-year period as well as the volatility over the expected life of 5.87, 5.67, and 5.59 years, respectively.

The risk-free interest rate assumption is based upon various U.S. Treasury rates as of the date of the grants, ranging from 1.61% to 2.69%, 1.34% to 3.68%, and 3.28% to 5.13%, respectively, for the years ended December 31, 2009, 2008, and 2007.

The dividend yield is based on the assumption that we are not expected to declare a dividend over the life of the options.

The expected life of employee stock options represents the weighted average combining the actual life of the options that have already been exercised or cancelled with the expected life of all outstanding options. The expected life of outstanding options is calculated assuming the options will be exercised at the midpoint of the vesting date and the full contractual term.

The Company estimates forfeiture rates at the time of grant and revises these estimates, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Forfeitures are estimated based on the demographics of current option holders and standard probabilities of employee turnover. Stock-based compensation expense recognized in the statement of operations for the year ended December 31, 2009 has been revised for actual forfeitures. We do not record tax-related effects on stock-based compensation given our

As of December 31, 2009 options covering 4,899,004 shares were exercisable at \$0.405 to \$9.63 per share (average \$2.09 per share) and options covering 3,252,912 shares remain available to be granted.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

In October 2009, the Company issued 500,000 restricted stock units (RSUs) under the 2002 Plan. The following table summarizes the status of the Company's RSUs as of December 31, 2009:

(in thousands, except per share data)	Number of Units	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
Non-vested RSU's at December 31, 2008	—	\$ —	
Granted	500	0.79	
Exercised	—	—	
Cancelled	—	—	
Non-vested restricted stock units at December 31, 2009	500	\$ 0.79	\$ 395
Expected to vest at December 31, 2009	364	\$ 0.79	\$ 288

Restricted stock units granted are scheduled to vest 50% two years after the date of grant and 50% three years after the date of grant. The cost of the grant is charged to operations over the vesting period. At December 31, 2009, the weighted average remaining term of non-vested restricted stock units was 2.8 years.

(c) EMPLOYEE STOCK PURCHASE PLAN

In December 2000, we adopted the 2000 Employee Stock Purchase Plan (Purchase Plan). Under the Purchase Plan, employees may purchase our common stock through payroll deductions at a purchase price equal to 85% of the fair market value of our common stock on either the first business day or last business day of the applicable six-month offering period, whichever is lower. Substantially all employees are eligible to participate. Participants may purchase common stock through payroll deductions of up to 15% of the participant's compensation. The maximum number of shares a participant may purchase during a six-month offering period is 6,250 shares. In June 2006, the Board of Directors approved a resolution effectively fixing the number of shares available for issuance under the Purchase Plan. The Purchase Plan will terminate on October 18, 2010, unless terminated earlier by the Board of Directors.

Employees purchased 297,375 shares, 97,423 shares, and 37,027 shares during the 12 months ended December 31, 2009, 2008, and 2007, respectively, at a weighted average purchase price of \$0.36, \$1.24, and \$2.00. We realized proceeds of \$109,000, \$120,000, and \$74,000 from shares acquired under the Purchase Plan during the years ended December 31, 2009, 2008, and 2007, respectively. As of December 31, 2009, 1,583,420 shares were available for issuance under the Purchase Plan.

In January 2010, we issued 67,826 shares related to the purchase period for the six months ending December 31, 2009. This purchase reduced the shares available for issuance to 1,515,594 under the plan. The purchase price of these shares was \$0.595 and we realized proceeds of \$40,000.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(8) STOCKHOLDERS' EQUITY – (continued)

(d) WARRANTS

Warrants to purchase common stock were granted to organizations and institutions in conjunction with equity financing activities. The warrants typically vest six-months after issuance. Outstanding and vested warrants are summarized below (in thousands, except per share amounts):

Exercise Price	2009		2008		2007	
	Outstanding	Vested	Outstanding	Vested	Outstanding	Vested
\$0.858	9,615	9,615	—	—	—	—
\$0.828	4,000	—	—	—	—	—
\$2.016	2,252	2,252	2,252	2,252	—	—
\$2.67	520	520	520	520	520	520
	<u>16,387</u>	<u>12,387</u>	<u>2,772</u>	<u>2,772</u>	<u>520</u>	<u>520</u>

(9) INCOME TAXES

For the years ended December 31, 2009, 2008, and 2007 there is no provision for income taxes included in the statement of operations. We have incurred operating losses, but have not recorded an income tax benefit for 2009, 2008, and 2007, as we have recorded a valuation allowance against our net operating losses and other net deferred tax assets due to uncertainties related to the ability to realize these tax assets. A reconciliation of tax credits computed at the statutory federal tax rate (34%) on operating loss before income taxes to the actual income tax expense is as follows (in thousands):

	2009	2008	2007
Tax provision computed at the statutory rate	\$ (6,243)	\$ (8,861)	\$ (6,361)
State income taxes, net of federal income tax provision	(1,000)	(1,419)	(864)
Book expenses not deductible for tax purposes	150	449	7
Research and experimentation tax credit	(861)	(1,432)	(1,021)
Non deductible compensation expense	470	638	486
Expired net operating losses and other	1,226	—	—
Change in state statutory rate and other	—	(2,129)	—
Change in valuation allowance for deferred tax assets	6,258	12,754	7,753
Income tax expense	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

The Company provides for the recognition of deferred tax assets if realization of such assets is more likely than not. Based upon the weight of available evidence, which includes our historical operating performance and the reported accumulated net losses to date, we have provided a full valuation allowance against our deferred tax assets.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(9) INCOME TAXES – (continued)

Deferred income taxes reflect the net effects of net operating loss carryforwards and the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of our deferred tax assets are as follows (in thousands):

	2009	2008	2007
Net operating loss carryforwards	\$ 106,263	\$ 101,061	\$ 89,838
Capital loss carryforwards	—	—	328
Research and experimentation tax credit	14,782	13,997	12,565
Property and equipment, principally due to differences in depreciation	(74)	(213)	(275)
Deferred compensation expense	1,414	1,217	979
Other	122	202	115
Total deferred tax assets	122,507	116,264	103,550
Valuation allowance	(122,507)	(116,264)	(103,550)
Net deferred tax assets	\$ —	\$ —	\$ —

The difference reflected in the change in the valuation allowance as it appears in the analysis of deferred tax assets in comparison to the reconciliation of income tax expense is the result of the tax impact of other comprehensive income.

At December 31, 2009, we have net operating loss carryforwards of approximately \$269.4 million for federal income tax purposes of which \$56.6 million expire at various dates through 2013, and \$212.8 million expire at various dates through 2029. During 2009, \$2.8 million of net operating loss carryforwards expired. We have research and experimentation tax credit carryforwards of \$14.8 million at December 31, 2009, of which \$1.6 million expire through 2013 and \$13.2 million expire through 2029. During 2009, \$0.1 million of research and experimentation tax credit carryforwards expired.

Our NOL and tax credit carryforwards may be significantly limited under Section 382 of the Internal Revenue Code (IRC). NOL and tax credit carryforwards are limited under Section 382 when there is a significant "ownership change" as defined in the IRC. During 2009 and in prior years, we may have experienced such ownership changes. Diacrin might have also experienced ownership changes in prior years and/or as a result of its merger with us.

The limitation imposed by Section 382 would place an annual limitation on the amount of NOL and tax credit carryforwards that can be utilized. When we complete the necessary studies, the amount of NOL carryforwards available may be reduced significantly. However, since the valuation allowance fully reserves for all available carryforwards, the effect of the reduction would be offset by a reduction in the valuation allowance. Thus, the resolution of this matter would have no effect on the reported assets, liabilities, revenues, and expenses for the periods presented.

As discussed in Note 2, we recognize the effect of income tax positions only if those positions more likely than not of being sustained effective January 1, 2007. At January 1, 2007, December 31, 2007, December 31, 2008, and December 31, 2009 we had no gross unrecognized tax benefits. We do not expect any significant changes in unrecognized tax benefits over the next 12 months. In addition, we did not recognize any interest or penalties related to uncertain tax positions at December 31, 2009, 2008 and 2007.

We file U.S. and state income tax returns in jurisdictions with varying statutes of limitations. The 2006 through 2009 tax years generally remain subject to examination by federal and most state tax authorities. In addition, we would remain open to examination for earlier years if we were to utilize net operating losses or tax credit carryforwards that originated prior to 2006.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(10) OTHER COMPREHENSIVE INCOME (LOSS)

Total comprehensive income (loss) is included in the Statements of Stockholders' Equity. Our change in accumulated other comprehensive loss is due exclusively to changes in our unrealized gain or loss on securities for the three years ended December 31, 2009, as follows:

	Accumulated Other Comprehensive Income (Loss)
Balance, December 31, 2006	\$ 13
Net current period change	(1,678)
Reclassification adjustments for gains (losses) reclassified into income	1,520
Balance, December 31, 2007	(145)
Net current period change	(590)
Reclassification adjustments for gains (losses) reclassified into income	695
Balance, December 31, 2008	(40)
Net current period change	4
Reclassification adjustments for gains (losses) reclassified into income	38
Balance, December 31, 2009	\$ 2

Other comprehensive income (loss) does not reflect the effect of income taxes because we did not have income tax expense during the 3 years ended December 31, 2009.

(11) QUARTERLY RESULTS (UNAUDITED)

Our unaudited quarterly information is as follows (in thousands, except per share data):

2009	Q1	Q2	Q3	Q4
Revenue	\$ 3,795	\$ 3,781	\$ 2,926	\$ 3,355
Operating Loss	\$ (5,424)	\$ (4,768)	\$ (3,567)	\$ (4,245)
Net Loss	\$ (5,681)	\$ (4,809)	\$ (3,562)	\$ (4,310)
Basic and Diluted Loss Per Share	\$ (0.06)	\$ (0.05)	\$ (0.04)	\$ (0.04)
2008	Q1	Q2	Q3	Q4
Revenue	\$ 3,729	\$ 3,863	\$ 4,205	\$ 3,324
Operating Loss	\$ (6,404)	\$ (6,782)	\$ (7,041)	\$ (6,447)
Net Loss	\$ (6,260)	\$ (6,550)	\$ (6,839)	\$ (6,414)
Basic and Diluted Loss Per Share	\$ (0.08)	\$ (0.08)	\$ (0.08)	\$ (0.07)

The loss per share was calculated for each 3-month period on a stand-alone basis. As a result, the sum of the loss per share for the four quarters may not equal the loss per share for the respective 12-month period.

(12) SUBSEQUENT EVENTS

On September 15, 2009 we received a notice from The NASDAQ Stock Market stating that the minimum bid price of the Company's common stock was below \$1.00 per share for 30 consecutive business days and that the Company was therefore not in compliance with Marketplace Rule 5450. On January 7, 2010, we received a letter from The NASDAQ advising we had regained compliance with the NASDAQ's minimum bid price listing requirements. Now that we have regained compliance, the matter is considered closed.

GENVEC, INC.

NOTES TO FINANCIAL STATEMENTS

(12) SUBSEQUENT EVENTS – (continued)

On January 13, 2010 we entered into a research collaboration and license agreement with Novartis to discover and develop novel treatments for hearing loss and balance disorders. Under the terms of the agreement, we licensed the world-wide rights to our preclinical hearing loss and balance disorders program to Novartis. We received a \$5 million upfront payment and concurrent with the entry into the agreement with Novartis, we sold 1,869,158 shares of our common stock to Novartis Pharma AG in a private placement for \$1.07 per share of common stock, which represents an aggregate purchase price of approximately \$2.0 million and was calculated based on the average of the closing price for the common stock on the NASDAQ Global Market for the 30 consecutive trading days ending on the fifth trading day prior to the sale of the shares. The purchase of the shares of common stock by Novartis Pharma AG was undertaken in partial consideration for the rights granted under the Agreement.

On January 25, 2010, an institutional investor exercised warrants to purchase 2,000,000 shares of common stock for gross proceeds of \$1,716,000. These warrants were acquired as part of our May 29, 2009 purchase agreement with a single institutional investor for the sale of 9,615,385 shares of common stock and warrants to purchase 9,615,385 shares of common stock as part of a registered direct offering pursuant to our shelf registration statement. The warrants have a term of five years and an exercise price of \$0.858 per share.

On February 1, 2010, pursuant to our shelf registration statement, we completed a registered direct offering to various investors of 14,000,000 shares of common stock and warrants to purchase 4,200,000 shares of common stock. The shares of common stock and warrants were offered in units consisting of one share of common stock and 0.3 warrants to purchase one share of common stock at a per unit price of \$2.00. The warrants, which have a term of five years and an exercise price of \$2.75 per share, were valued using the Black-Scholes pricing model as of the closing date and will be accounted for in equity. The estimated fair value of the warrants at the date of issuance was \$5.0 million. Proceeds of this offering, net of offering costs, totaled \$26.2 million.

On February 11, 2010, we filed with the Securities and Exchange Commission a \$150.0 million shelf registration statement on Form S-3 that allows us to issue any combination of common stock, preferred stock, or warrants to purchase our common stock or preferred stock. The shelf registration statement has not yet been declared effective.

On February 12, 2010, we signed a new contract with the DHS to continue the development of adenovector-based vaccines against FMD. Under this new agreement, GenVec will receive \$3.8 million in program funding the first year and an additional \$0.7 million if DHS exercises its renewal option under the contract. Under this contract, we will use our adenovector technology to develop additional FMD-serotype candidate vaccines and also explore methods to increase the potency and simplify the production process of adenovector-based FMD vaccines.

In March 2010, an institutional investor exercised warrants to purchase 4,000,000 shares of common stock for gross proceeds of \$3,312,000. These warrants were acquired as part of our August 31, 2009 purchase agreement with a single institutional investor for the sale of 8,000,000 shares of common stock and warrants to purchase 4,000,000 shares of common stock as part of a registered direct offering pursuant to our shelf registration statement. The warrants had a term of five years and an exercise price of \$0.828 per share.

AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)	RATING	PAGE 1	OF PAGES 3
2. CONTRACT (Proc. Inst. Ident.) NO. HSHQDC-10-C-00034	3. EFFECTIVE DATE 01/22/2010	4. REQUISITION/PURCHASE REQUEST/PROJECT NO. RSCB-09-00141		
5. ISSUED BY U.S. Dept. of Homeland Security Office of Procurement Operations S& T Acquisition Division 245 Murray Lane, SW Building 410 Washington DC 200528	6. ADMINISTERED BY (If other than Block 5) U.S. Dept. of Homeland Security Office of Procurement Operations S&T Acquisition Division 245 Murray Lane, SW Building 410 Washington DC 20528	CODE DHS/OPO/S&T/CHEMBIO		
7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and Zip Code) GENVEC INC 65 WEST WATKINS MILL ROAD ATTN HORACIO CORREA JR GAITHERSBURG MD 208784021		8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See Below)		
9. DISCOUNT FOR PROMPT PAYMENT Net 30		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN		
CODE 806729547000	FACILITY CODE	11. SHIP TO/MARK FOR Department of Homeland Security 245 Murray Lane Bldg. 410 Washington DC 20528		
12. PAYMENT WILL BE MADE BY DHS ICE Burlington Finance Center PO Box 1000 Attn: S&T Division Chem Bio SAT.Invoice.Consolidation@dhs.gov Williston VT 05495-1000		13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304 (c) () <input type="checkbox"/> 41 U.S.C. 253 (e) ()		
14. ACCOUNTING AND APPROPRIATION DATA See Schedule		15G. TOTAL AMOUNT OF CONTRACT \$3,809,122.0		

16. TABLE OF CONTENTS

(X)	SEC	DESCRIPTION	PAGE(S)	(X)	SEC	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES			
<input type="checkbox"/>	A	SOLICITATION/CONTRACT FORM		<input type="checkbox"/>	I	CONTRACT CLAUSES	
<input type="checkbox"/>	B	SUPPLIES OR SERVICES AND PRICES/COSTS		PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACH.			
<input type="checkbox"/>	C	DESCRIPTION/SPECS/WORK STATEMENT		<input type="checkbox"/>	J	LIST OF ATTACHMENTS	
<input type="checkbox"/>	D	PACKAGING AND MARKING		PART IV - REPRESENTATIONS AND INSTRUCTIONS			
<input type="checkbox"/>	E	INSPECTION AND ACCEPTANCE		<input type="checkbox"/>	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
<input type="checkbox"/>	F	DELIVERIES OR PERFORMANCE		<input type="checkbox"/>	L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
<input type="checkbox"/>	G	CONTRACT ADMINISTRATION DATA		<input type="checkbox"/>	M	EVALUATION FACTORS FOR AWARD	
<input type="checkbox"/>	H	SPECIAL CONTRACT REQUIREMENTS					

CONTRACTING OFFICER WILL COMPLETE 17 OR 18 AS APPLICABLE

<p>17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 1 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if and, (c) such provisions, representations, certifications and specifications, as are attached or incorporated by reference herein. (Attachment are listed herein.)</p>	<p>18. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any condition sheets. This award consummates the contract which consists of the following documents: (a) Government's solicitation and our offer, and (b) this award/contract. No further contractual document is necessary.</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>19A. Name and Title of Signer Douglas J. Swirsky, Chief Financial Officer</p>	<p>20A. Name of Contracting Officer Kristian Jovanovic</p>
<p>19B. Name of Contractor By:/s/ Douglas J. Swirsky (signature of person authorized to sign)</p>	<p>20B. United States of America By:/s/ Kristian Jovanovic (signature of contracting officer)</p>
<p>19C. Date Signed 01/28/2010</p>	<p>20C. Date signed 02/12/2010</p>

NSN 7541-7-152 mei

OPTIONAL FORM 336 14.86
SpOrtSored In GSA
RAE (4 El CFR) 53.110

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.
HSHQDC-10-C-00034

NAME OF OFFEROR OR CONTRACTOR
GENVEC INC

ITEM NO (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
0001	<p>DUNS Number: 806729547+0000 Division: Chemical & Biological PPA: Chemical & Biological Thrust: Agriculture Program: Foreign Animal Diseases (FAD) Project: FAD Vaccines and Diagnostics Performer: GenVec Appropriation Year: FY09 (9X Funds) Budget Authority: No-Year R&D Funds</p> <p>ALC: 70-08-1513 APPS: 70X0800</p> <p>Description: The purpose of this Cost Plus Fixed Fee contract, which is awarded under the Department of Homeland Security (DHS) Long Range Broad Agency Announcement, is to provide support for research and development of a molecular Foot-and-Mouth Disease (FMD) vaccine, in accordance with the attached Terms and Conditions and Statement of Work.</p> <p>Delivery: 365 Days After Award Accounting Info: NONE000-000-9X-31-01-01-002-01-00-0000-00-00-00-00-GE-OE-25-50-000000 FOB: Destination Period of Performance: 01/22/2010 to 01/21/2012</p> <p>Base Year: Foreign Animal Disease Program support. 01/22/2010 until 01/21/2011</p> <p>Est Unit Cost: \$* Fixed Fee: \$* Total CPPF: \$3,809,122.00 Obligated Amount: \$3,809,122.00</p>				3,809,122.00
0002	<p>Option Year: Foreign Animal Disease Program support. 01/22/2011 until 01/21/2012</p> <p>Est Unit Cost: \$* Fixed Fee: \$* Total CPPF: \$746,766.00</p> <p>Amount: \$746,766.00(Option Line Item)</p> <p>Continued ...</p>				0.00

NSN 7540-01-152-8067

OPTIONAL FORM 336(4-86)
 Sponsored by GSA
 FAR (49CFR) 53.110

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.
 HSHQDC-10-C-00034

NAME OF OFFEROR OR CONTRACTOR
GENVEC INC

ITEM NO (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Product/Service Code: AA34 The total amount of award: \$4,555,888.00. The obligation for this award is shown in box 15G.				

NSN 7540-01-152-8067

OPTIONAL FORM 336(4-86)
Sponsored by GSA
FAR (49CFR) 53.110

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.
HSHQDC-10-C-00034

B.0 SUPPLIES/SERVICES AND PRICES/COSTS

B.1 CONTRACT TYPE AND SCHEDULE OF ITEMS

This is a Cost Plus Fixed Fee type contract. Under this contract, GenVec will conduct Research and Development of a molecular Foot-and-Mouth Disease vaccine for the Department of Homeland Security, in accordance with Section C and Section J entitled "Statement of Work" (SOW).

B.2 CONTRACT LINE ITEMS

1. The Contractor shall provide the Contract Line Items (CLINs) identified below on a Cost Plus Fixed Fee (CPFF) basis. The fixed fee for all CLINs is listed below. The Contractor shall consider the Estimated Costs to be Not-To-Exceed (NTE) ceilings that can be changed only through a contract modification.

<i>CLIN</i>	<i>Supplies /Services</i>	<i>Qty</i>	<i>Unit</i>	<i>Est Unit Cost</i>	<i>Fixed Fee</i>	<i>Total CPFF</i>
0001	Base Year	1	LOT	\$*	\$*	\$3,809,122
	*					
	*					
	*					
	*					
	*					
	*					
0002	Option Year	1	LOT	\$*	\$*	\$746,766
	AdVector Technology Development to Improve AdFMD Vaccine Potency - Milestone R1, New FMD serotype vectors					
	Total Not-To-Exceed			\$4,031,759	\$524,129	\$4,555,888

NSN 7541-7-152 mei

OPTIONAL FORM 336 14.86]
SpOrtSored In GSA
RAE (4 E1 CFR) 53.110

2. The sum of funds allotted to this contract and available for payment of costs and fee through 21 January 2011 in accordance with the clause 52.232.20 in Section I entitled "Limitation of Cost" is \$3,809.122.

3. As provided in paragraph (a)(2), the license granted in ATTACHMENT 3 entitled "TO BE USED AS ALTERNATE II TO THE CLAUSE AT 52.227-14, RIGHTS IN DATA-GENERAL" shall remain in effect for the term of all patents licensed hereunder without regard to the expiration, completion, or termination of this contract.

C.0 DESCRIPTION / SPECIFICATIONS / STATEMENT OF WORK

C.1 STATEMENT OF WORK

The work and services to be performed under this contract shall conform with requirements contained in the Statement of Work entitled Attachment 1. See Section J.

D.0 PACKAGING AND MARKING

D.1 PACKAGING AND MARKING

Deliverables shall be electronically submitted to *, and/or provided in accordance with the Statement of Work.

E.0 INSPECTION AND ACCEPTANCE

E.1 CLAUSES INCORPORATED BY REFERENCE

The following FAR clauses are available in full text at <http://farsite.hill.af.mil> and incorporated by reference into this contract:

52.246-9 Inspection of Research and Development (Short Form) (APR 1984)

E.2 INSPECTION AND ACCEPTANCE BY THE GOVERNMENT

The Contracting Officer's Technical Representative (COTR) identified in Section G of this Contract is responsible for inspection and acceptance of all services, incoming shipments, documents, and services performed specifically for the Contract.

E.3 ACCEPTANCE CRITERIA

Certification by the Government of satisfactory services provided is contingent upon the Contractor performing in accordance with the terms and conditions of the contract and all modifications.

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

F.0 DELIVERIES OR PERFORMANCE

F.1 CLAUSES INCORPORATED BY REFERENCE

The following FAR clauses are available in full text at <http://farsite.hill.af.mil> and incorporated by reference into this contract:

52.242-15 (Alt I) Stop Work Order (April 1989) Alternate I (April 1984) 52.247-34 F.O.B. Destination (Nov 1991)

F.2 PERIOD OF PERFORMANCE

The period of performance of this Contract is:

Base Year • 22 January 2010 until 21 January 2011
Option Year • 22 January 2011 until 21 January 2012

F.3 PLACE OF PERFORMANCE

The services shall be performed at the contractor's facility.

F.4 DELIVERY ADDRESS

All deliverables shall be submitted electronically to the COTR identified in Section G of this Contract.

F.5 METHOD OF DELIVERY

Electronic copies shall be delivered in Microsoft Office formatted files, unless otherwise specified by the COTR. Electronic submission shall be made via e-mail, unless otherwise directed by the COTR.

F.6 DELIVERABLE/DELIVERY SCHEDULE

All deliverable schedules are contained in Section C - Statement of Work.

G.0 CONTRACT ADMINISTRATION DATA

G.1 CONTRACTING OFFICER (CO)

The Contracting Officer for this Contract is identified below:

Name: *
Title: Contracting Officer
Agency: Department of Homeland Security
Science and Technology Division
Office of Procurement Operations
Address: Washington, D.C. 20598
Voice: *
Email: *

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

G.2 CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)

The COTR for this Contract is identified below:

Name: *
Title: S&T Program Manager
Agency: Department of Homeland Security
Science and Technology Directorate
Chem/Bio Division
Address: Plum Island, NY
Voice: *
Email: *

G.3 CONTRACTING OFFICER'S AUTHORITY

The Contracting Officer (CO) assigned to this contract has responsibility for ensuring the performance of all necessary actions for effective contracting; ensuring compliance with the terms of the contract and safeguarding the interests of the United States in its contractual relationships. The CO is the only individual who has the authority to enter into, administer, or terminate this contract and is the only person authorized to approve changes to any of the requirements under this contract, and notwithstanding any provision contained elsewhere in this contract, this authority remains solely with the CO.

It is the Contractor's responsibility to contact the CO immediately if there is even the appearance of any technical direction that is or may be outside the scope of the contract. The Government will not reimburse the Contractor for any work not authorized by the CO, including work outside the scope of the contract.

G.4 CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (HSAR 3052.242-72) (DEC 2003)

(a) The Contracting Officer may designate Government personnel to act as the Contracting Officer's Technical Representative (COTR) to perform functions under the contract such as review or inspection and acceptance of supplies, services, including construction, and other functions of a technical nature. The Contracting Officer will provide a written notice of such designation to the Contractor within five working days after contract award or for construction, not less than five working days prior to giving the contractor the notice to proceed. The designation letter will set forth the authorities and limitations of the COTR under the contract.

(b) The Contracting Officer cannot authorize the COTR or any other representative to sign documents, such as contracts, contract modifications, etc., that require the signature of the Contracting Officer.

(End of clause)

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

G.5 INTERPRETATION OR MODIFICATION

No oral statement by any person, and no written statement by anyone other than the Contracting Officer (CO), or his/her authorized representative acting within the scope of his/her authority, shall be interpreted as modifying or otherwise affecting the terms of this contract. All requests for interpretation or modification shall be made in writing to the CO.

G.6 ACCOUNTING AND APPROPRIATION DATA

NONE000-000-9X-31-01-01-002-01-00-0000-00-00-00-00-GE-OE-25-50-000000

Amount: \$3,809,122.00

G.7 INVOICING INSTRUCTIONS

In order to initiate payment, the Contractor shall submit proper invoices for payment in the manner and format described herein:

(a) GenVec will invoice monthly for all costs incurred plus the pro rata portion of fee.

Invoices shall be submitted electronically to:
SAT.Invoice.ConsolidationrCsdhs.gov

Invoices can be mailed to the following address (the preferred method of invoicing is via email):

DHS ICE
Burlington Finance Center
PO Box 1000
Williston, Vermont 05495-1000
Attn: S&T Chem/Bio Division

(b) Each invoice shall include the following:

- (1) Contract Number
- (2) Contractor Name
- (3) Date of Invoice
- (4) Invoice/voucher Number
- (5) Material
- (6) Labor
- (7) Benefits
- (8) Overhead
- (9) Other Direct Cost (ODCs)
- (10) Travel
- (11) Total Costs

Backup documents shall be available for audit/review to DCAA, upon request.

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

G.8 TRAVEL

(a) Domestic/local travel shall take place in accordance with the Federal Travel Regulations (FTR) and will be considered reasonable and allowable to the extent permitted by FAR 31.205-46. Documentation will be available upon request to DCAA.

G.9 GOVERNMENT FURNISHED EQUIPMENT/INFORMATION/MATERIALS

The government shall provide the GFE/GFI/GFM as called out in the Statement of Work.

H.0 SPECIAL CONTRACT REQUIREMENTS

H.1 RIGHTS IN DATA-GENERAL

In accordance with FAR 52.227-14. Rights in Data-General. Alternate II (Dec 2007), see Attachment 3 in Section J.

I.0 CONTRACT CLAUSES

I.1 CLAUSES INCORPORATED BY REFERENCE (FAR 52.252-2) (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://farsite.hill.af.mil> (FAR Clauses 52.###)

http://www.dhs.gov/dhspublic/interweb/assetlibrary/DHS_HSAR_With_Notice_04-01.pdf (HSAR Clauses 30###.###)

(End of Clause)

I.2 CLAUSES INCORPORATED BY REFERENCE

The following FAR and HSAR clauses are incorporated by reference into this contract:

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

52.202-1 (Jul 2004)
52.203-3 (Apr 1984)
52.203-5 (Apr 1984)
52.203-7 (Jul 1995)
52.203-8 (Jan 1997)

52.203-10 (Jan 1997)
52.203-12 (Sep 2007)

52.204-4 (Aug 2000)
52.204-7 (Jul 2006)
52.209-6 (Sep 2006)

52.215-2 (Jun 1999)
52.215-8 (Oct 1997)
52.215-10 (Oct 1997)
52.215-12 (Oct 1997)

52.215-14 (Oct 1997)
52.215-15 (Oct 2004)
52.215-18 (Jul 2005)

52.215-21 (Oct 1997)

52.216-7 (Dec 2002)
52.216-8 (Mar 1997)
52.219-8 (May 2004)
52.222-1 (Feb 1997)
52.222-2 (Jul 1990)
52.222-3 (Jun 2003)
52.222-21 (Feb 1999)
52.222-26 (Mar 2007)

Definitions
Gratuities
Covenant Against Contingent Fees
Anti-Kickback Procedures
Cancellation, Recession and Recovery of Funds for
Illegal or Improper Activity
Price or Fee Adjustment for Illegal or Improper Activity
Limitation on Payments to Influence Certain Federal
Transactions
Printed or Copied Double Sided on Recycled Paper
Central Contractor Registration
Protecting the Government's interest When
Subcontracting with Contractors Debarred, Suspended,
or proposed for Debarment
Audit and Records – Negotiation
Order of Precedence – Uniform Contract Format
Price Reduction for Defective Cost or Pricing Data
Subcontractor cost or Pricing
Data
Integrity of Unit Prices
Pension Adjustments and Asset Reversions
Reversion or Adjustment of Plans for Postretirement
Benefits (PRB) Other Than Pensions
Requirements for Cost or Pricing Data or Information
Other Than Cost or Pricing Data – Modifications
Allowable Cost and Payment
Fixed Fee
Utilization of small business concerns
Notice to the Government of Labor Disputes
Payment for Overtime Premiums
Convict Labor
Prohibition of Segregated Facilities
Equal Opportunity

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52.222-35 (Sep 2006)

52.222-36 (Jun 1998)

52.222-37 (Sep 2006)

52.223-6 (May 2001)

52.223-14 (Aug 2003)

52.225-13 (Feb 2006)

52.227-1 (Dec 2007)

52.227-2 (Dec 2007)

52.227-11 (Dec 2007)

52.227-14 (Dec 2007)

SEE SECTION J OF CONTRACT, ATTACHMENT 3

52.227-16 (Jun 1987)

52.228-7 (Mar 1996)

52.230-2 (Apr 1998)

52.230-6 (Apr 2005)

52.232-9 (Apr 1984)

52.232-17 (Jun 1996)

52.232-20 (Apr 1984)

52.232-23 (Jan 1986)

52.232-25 (Oct 2003)

52.232-33 (Oct 2003)

52.233-1 (Jul 2002)

52.233-3 (Aug 1996)

52.233-4 (Oct 2004)

52.242-1 (Apr 1984)

52.242-3 (Mar 2001)

52.242-4 (Jan 1997)

52.242-13 (Jul 1995)

52.243-2 (Aug 1987)

Equal Opportunity for Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans
Affirmative Action for Workers with Disabilities
Employment Reports on Special Disables Veterans, Veterans of the Vietnam Era and Other Eligible Veterans

Drug Free Workplace

Toxic Chemical Release Reporting

Restrictions on Certain Foreign Purchases

Alt I (Apr. 1984)

Authorization and

Consent – Alternate 1

Notice and Assistance Regarding Patent and Copyright Infringement

Patent Rights – Ownership by the Contractor

Rights in Data – General

Alt II (Dec 2007)

SEE SECTION J OF CONTRACT

Additional Data Rights

Insurance – Liability to Third Persons

Cost Accounting Standards

Administration of Cost Accounting Standards

Limitation on Withholding of Payments

Interest

Limitation of Cost

Assignment of Claims

Prompt payment

Payment of Electronic Funds Transfer – Central

Contractor Registration

Disputes

Alt I (June 1985)

- Alternate I

Protest After Award

Applicable Law for Breach of Contract Claim

Notice of Intent to Disallow Costs

Penalties for Unallowable Costs

Certification of Final Indirect Costs.

Bankruptcy

Alt V (Apr 1984)

- Alternate V

Changes – Cost

Reimbursement

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

52.243-7 (Apr 1984)
52.244-2 (Jun 2007)

52.244-5 (Dec 1996)
52.244-6 (Mar 2007)

52.245-1 (Jun 2007)

52.246-9 (Apr 1984)
52.247- 1 (Feb 2006)
52.247-63 (Jun 2003)
52.249-6 (May 2004)
52.249-14 (Jun 2007)
52.251-1 (Apr 1984)
52.253-1 (Jan 1991)
3052.204-71 (Jun 2006)

Notification of Changes
Alt I (Jun 2007) - Alternate I
Subcontracts
Competition in Subcontracting
Subcontracts for Commercial
Items
Government Property
Alt II (Jun 2007)
Inspection of Research and Development (Short Form)
Commercial Bill of Lading Notations
Preference for U.S. Flag Air Carriers
Termination (Cost Reimbursement)
Excusable Delays
Government Supply Sources
Computer Generated Forms
Contractor Employee Access

1.3 NOTIFICATION OF OWNERSHIP CHANGES (FAR 52.215-19) (OCT 1997)

- (a) The Contractor shall make the following notifications in writing:
- (1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.
 - (2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.
- (b) The Contractor shall •
- (1) Maintain current, accurate, and complete inventory records of assets and their costs;
 - (2) Provide the ACO or designated representative ready access to the records upon request;
 - (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
 - (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.
- (c) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

(End of Clause)

1.4 OPTION TO EXTEND SERVICES (52.217-8) (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days before the end of the current period of performance.

(End of Clause)

1.5 OPTION TO EXTEND THE TERM OF THE CONTRACT (FAR 52.217-9) (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 29 days of the end of the current period of performance; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 30 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 2 years.

(End of Clause)

1.6 NOTIFICATION OF EMPLOYEES RIGHTS CONCERNING PAYMENT OF UNION DUES AND FEES (FAR 52.222-39) (DEC 2004)

(a) Definition. As used in this clause-

“United States” means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) Except as provided in paragraph (e) of this clause, during the term of this contract, the Contractor shall post a notice, in the form of a poster, informing employees of their rights concerning union membership and payment of union dues and fees, in conspicuous places in and about all its plants and offices, including all places where notices to employees are customarily posted. The notice shall include the following information (except that the information pertaining to National Labor Relations Board shall not be included in notices posted in the plants or offices of carriers subject to the Railway Labor Act, as amended (45 U.S.C. 151-188)).

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

Notice to Employees

Under Federal law, employees cannot be required to join a union or maintain membership in a union in order to retain their jobs. Under certain conditions, the law permits a union and an employer to enter into a union-security agreement requiring employees to pay uniform periodic dues and initiation fees. However, employees who are not union members can object to the use of their payments for certain purposes and can only be required to pay their share of union costs relating to collective bargaining, contract administration, and grievance adjustment. If you do not want to pay that portion of dues or fees used to support activities not related to collective bargaining, contract administration, or grievance adjustment, you are entitled to an appropriate reduction in your payment. If you believe that you have been required to pay dues or fees used in part to support activities not related to collective bargaining, contract administration, or grievance adjustment, you may be entitled to a refund and to an appropriate reduction in future payments.

For further information concerning your rights, you may wish to contact the National Labor Relations Board (NLRB) either at one of its Regional offices or at the following address or toll free number:

National Labor Relations Board Division of Information
1099 14th Street, N.W. Washington, DC 20570
1-866-667-6572
1-866-316-6572 (TTY)

To locate the nearest NLRB office, see NLRB's website at <http://www.nlr.gov>.

(c) The Contractor shall comply with all provisions of Executive Order 13201 of February 17, 2001, and related implementing regulations at 29 CFR Part 470, and orders of the Secretary of Labor.

(d) In the event that the Contractor does not comply with any of the requirements set forth in paragraphs (b), (c), or (g), the Secretary may direct that this contract be cancelled, terminated, or suspended in whole or in part, and declare the Contractor ineligible for further Government contracts in accordance with procedures at 29 CFR Part 470, Subpart B•Compliance Evaluations, Complaint Investigations and Enforcement Procedures. Such other sanctions or remedies may be imposed as are provided by 29 CFR Part 470, which implements Executive Order 13201, or as are otherwise provided by law.

(e) The requirement to post the employee notice in paragraph (b) does not apply to-

(1) Contractors and subcontractors that employ fewer than 15 persons:

(2) Contractor establishments or construction work sites where no union has been formally recognized by the Contractor or certified as the exclusive bargaining representative of the Contractor's employees;

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

- (3) Contractor establishments or construction work sites located in a jurisdiction named in the definition of the United States in which the law of that jurisdiction forbids enforcement of union-security agreements;
- (4) Contractor facilities where upon the written request of the Contractor, the Department of Labor Deputy Assistant Secretary for Labor-Management Programs has waived the posting requirements with respect to any of the Contractor's facilities if the Deputy Assistant Secretary finds that the Contractor has demonstrated that-
- (i) The facility is in all respects separate and distinct from activities of the Contractor related to the performance of a contract; and
 - (ii) Such a waiver will not interfere with or impede the effectuation of the Executive order; or
- (5) Work outside the United States that does not involve the recruitment or employment of workers within the United States.
- (f) The Department of Labor publishes the official employee notice in two variations; one for contractors covered by the Railway Labor Act and a second for all other contractors. The Contractor shall-
- (1) Obtain the required employee notice poster from the Division of Interpretations and Standards, Office of Labor-Management Standards, U.S. Department of Labor, 200 Constitution Avenue, NW, Room N-5605, Washington, DC 20210, or from any field office of the Department's Office of Labor-Management Standards or Office of Federal Contract Compliance Programs:
 - (2) Download a copy of the poster from the Office of Labor-Management Standards website at <http://www.olms.dol.gov>; or
 - (3) Reproduce and use exact duplicate copies of the Department of Labor's official poster.
- (g) The Contractor shall include the substance of this clause in every subcontract or purchase order that exceeds the simplified acquisition threshold, entered into in connection with this contract, unless exempted by the Department of Labor Deputy Assistant Secretary for Labor-Management Programs on account of special circumstances in the national interest under authority of 29 CFR 470.3(c). For indefinite quantity subcontracts, the Contractor shall include the substance of this clause if the value of orders in any calendar year of the subcontract is expected to exceed the simplified acquisition threshold. Pursuant to 29 CFR Part 470, Subpart B-Compliance Evaluations, Complaint Investigations and Enforcement Procedures, the Secretary of Labor may direct the Contractor to take such action in the enforcement of these regulations, including the imposition of sanctions for noncompliance with respect to any such subcontract or purchase order. If the Contractor becomes involved in litigation with a subcontractor or vendor, or is threatened with such involvement, as a result of such direction, the Contractor may request the United States, through the Secretary of Labor, to enter into such litigation to protect the interests of the United States.

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(End of clause)

1.7 PROHIBITION ON CONTRACTS WITH CORPORATE EXPATRIATES (HSAR 3052.209-70) (JUN 2006)

(a) Prohibitions.

Section 835 of Public Law 107-296, prohibits the Department of Homeland Security from entering into any contract with a foreign incorporated entity after November 25, 2002, which is treated as an inverted domestic corporation as defined in this clause. The Secretary shall waive the prohibition with respect to any specific contract if the Secretary determines that the waiver is required in the interest of homeland security, or to prevent the loss of any jobs in the United States or prevent the Government from incurring any additional costs that otherwise would not occur.

(b) Definitions. As used in this clause:

“Expanded Affiliated Group” means an affiliated group as defined in section 1504(a) of the Internal Revenue Code of 1986 (without regard to section 1504(b) of such Code), except that section 1504 of such Code shall be applied by substituting ‘more than 50 percent’ for ‘at least 80 percent’ each place it appears. “Foreign Incorporated Entity” means any entity which is, or but for subsection (b) of Section 835 of the Homeland Security Act, Public Law 107-296, would be, treated as a foreign corporation for purposes of the Internal Revenue Code of 1986.

“Inverted Domestic Corporation.” A foreign incorporated entity shall be treated as an inverted domestic corporation if, pursuant to a plan (or a series of related transactions)•

(1) The entity completes after November 25, 2002, the direct or indirect acquisition of substantially all of the properties held directly or indirectly by a domestic corporation or substantially all of the properties constituting a trade or business of a domestic partnership;

(2) After the acquisition at least 80 percent of the stock (by vote or value) of the entity is held-

(i) In the case of an acquisition with respect to a domestic corporation, by former shareholders of the domestic corporation by reason of holding stock in the domestic corporation; or

(ii) In the case of an acquisition with respect to a domestic partnership, by former partners of the domestic partnership by reason of holding a capital or profits interest in the domestic partnership; and

(3) The expanded affiliated group which after the acquisition includes the entity does not have substantial business activities in the foreign country in which or under the law of which the entity is created or organized when compared to the total business activities of such expanded affiliated group. “Person”, “domestic”, and “foreign” have the meanings given such terms by paragraphs (1), (4), and (5) of section 7701(a) of the Internal Revenue Code of 1986, respectively.

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(c) Special rules. The following definitions and special rules shall apply when determining whether a foreign incorporated entity should be treated as an inverted domestic corporation.

(1) Certain Stock Disregarded. For the purpose of treating a foreign incorporated entity as an inverted domestic corporation these shall not be taken into account in determining ownership:

- (i) stock held by members of the expanded affiliated group which includes the foreign incorporated entity; or
- (ii) stock of such entity which is sold in a public offering related to the acquisition described in subsection (b)(1) of Section 835 of the Homeland Security Act, Public Law 107-296.

(2) Plan Deemed In Certain Cases. If a foreign incorporated entity acquires directly or indirectly substantially all of the properties of a domestic corporation or partnership during the 4-year period beginning on the date which is after the date of enactment of this Act and which is 2 years before the ownership requirements of subsection (b)(2) are met, such actions shall be treated as pursuant to a plan.

(3) Certain Transfers Disregarded. The transfer of properties or liabilities (including by contribution or distribution) shall be disregarded if such transfers are part of a plan a principal purpose of which is to avoid the purposes of this section.

(d) Special Rule for Related Partnerships.

For purposes of applying Section 835(b) of Public Law 107-296 to the acquisition of a domestic partnership, except as provided in regulations, all domestic partnerships which are under common control (within the meaning of section 482 of the Internal Revenue Code of 1986) shall be treated as a partnership.

(e) Treatment of Certain Rights.

(1) Certain rights shall be treated as stocks to the extent necessary to reflect the present value of all equitable interests incident to the transaction, as follows:

- (i) warrants;
- (ii) options;
- (iii) contracts to acquire stock;
- (iv) convertible debt instruments; and
- (v) others similar interests.

(2) Rights labeled as stocks shall not be treated as stocks whenever it is deemed appropriate to do so to reflect the present value of the transaction or to disregard transactions whose recognition would defeat the purpose of Section 835.

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(f) Disclosure.

By signing and submitting its offer, an Offer under this solicitation represents that it not a foreign incorporated entity that should be treated as an inverted domestic corporation pursuant to the criteria of Section 835 of the Homeland Security Act, Public Law 107-296 of November 25, 2002.

(g) If a waiver has been granted, a copy of the approved waiver shall be attached to the bid or proposal.

(End of provision)

I.8 INSURANCE (HSAR 3052.228-70) (DEC 2003)

In accordance with the clause entitled "Insurance • Liability to Third Persons" in Section 1, insurance of the following kinds and minimum amounts shall be provided and maintained during the period of performance of this contract;

(a) Worker's compensation and employer's liability. The contractor shall, as a minimum, meet the requirements specified at (FAR) 48 CFR 28.307-2(a).

(b) General liability. The contractor shall, as a minimum, meet the requirements specified at (FAR) 48 CFR 28.307-2(b).

(c) Automobile liability. The contractor shall, as a minimum, meet the requirements specified at (FAR) 48 CFR 28.307-2(c).

(End of clause)

I.9 DISSEMINATION OF CONTRACT INFORMATION (HSAR 3052.242-71) (DEC 2003)

The Contractor shall not publish, permit to be published, or distribute for public consumption, any information, oral or written, concerning the results or conclusions made pursuant to the performance of this contract, without the prior written consent of the Contracting Officer. An electronic or printed copy of any material proposed to be published or distributed shall be submitted to the Contracting Officer.

(End of clause)

I.10 USE OF DEPARTMENT OF HOMELAND SECURITY SEAL

In accordance with DHS Management Directive 0030, 18 U.S.C. § 701, and 28 U.S.C. § 1733(b), the usage of DHS seal shall be requested by completing DHS Form 0030-1 (4/06). Request shall be submitted to the Contracting Officer. In summation:

- Any use of the DHS seal must be approved by the Secretary or his/her designee;

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- Any permission granted by the Secretary will apply only to the specific use outlined on this form and should not be construed as permission for any other use;
- The DHS Seal shall not be used in any manner that implies DHS endorsement of commercial products or services, the user's policies or activities, or on any article that may discredit the seal or reflect unfavorably on the U.S. Department of Homeland Security.

I.11 KICKOFF MEETING – CONTRACTOR SHALL COMMENCE PERFORMANCE, UPON KICKOFF MEETING.

J.0 ATTACHMENTS

ATTACHMENT 1: STATEMENT OF WORK

ATTACHMENT 2: STATEMENT OF WORK MILESTONES, DELIVERABLES AND HMEI/NES

ATTACHMENT 3: TO BE USED AS ALTERNATE II TO THE CLAUSE AT 52.227-14, RIGHTS IN DATA-GENERAL

ATTACHMENT 1 – STATEMENT OF WORK (SOW)

I. Background

The Department of Homeland Security (DHS) is committed to using cutting edge technologies and scientific talent in its quest to make America safer. DHS's Directorate of Science & Technology (S&T) is tasked with researching and organizing the scientific, engineering, and technological resources of the United States and leveraging these existing resources into technological tools to help protect the homeland. In support of this effort, the DHS S&T Plum Island Animal Disease Center (PIADC) in Long Island, NY, is a unique research facility and critical national asset conducting research on diseases of livestock to protect America from terrorist threats directed against agriculture from the intentional introduction of diseases. As defined in Homeland Security Presidential Directive-9 (HSPD-9), the Secretary of Homeland Security is responsible for coordinating the overall national effort to enhance the protection of the critical infrastructure and key resources of the United States, including the defense of agriculture and food. HSPD-9 mandates efforts, coordinated through DHS, to "create a new biological threat awareness capacity that will enhance detection and characterization of an attack." (HSPD-9, paragraph 10). HSPD-9 also mandates that DHS accelerate and enhance the development of countermeasures (including vaccines) for Foreign Animal Diseases (FADs). HSPD-9 also recognized the need for a federal stockpile and mandated the creation of the National Veterinary Stockpile.

To fulfill these requirements, DHS S&T supports Foot-and-Mouth Disease (FMD) vaccine R&D countermeasure programs at PIADC to strengthen the nation's ability to predict and respond to the incursion of a FMD. FMD is one of the most contagious diseases known to man. It affects cattle, swine, sheep and other cloven-hoofed animals such as goats and deer. FMD has been identified as one of the highest potential threats to the U.S. economy and the country's food supply, whether outbreaks were to occur as a result of bioterrorism or by accidental introduction. An intentional introduction of FMD would likely involve the simultaneous infection of susceptible animals in numerous locations, and the number of animals and premises infected in a large multifocal outbreak would quickly overwhelm the ability to stamp out infected and exposed animals. In such a scenario, it would be highly desirable to use prophylactic vaccination to reduce the rate and size of the outbreak and increase the speed of recovery. Adequate doses of serotype or subtype-specific matching vaccines available within 24 hours of FMD diagnosis will be required to bring the outbreak under control as quickly as possible.

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Currently, there are no CVB licensed FMD vaccines or any foreign manufactured FMD vaccines approved for permittee importation, sale or distribution in the U.S. Without FMD vaccines that can be safely manufactured in the US and FMD vaccines that allow the differentiation of vaccinated from infected animals (DIVA), options for responding to an FMD outbreak in the US are limited. An FMD outbreak would result in the curtailment of meat and meat products for domestic supply as well as a stoppage of meat exports leading to severe economic consequences. U.S. exports of cattle, sheep, hogs, and many of their products ranges from \$6 to \$10 billion/annum and many of these exports would face restrictions during an FMD outbreak. Even if a single area of one state was affected by FMD, trade restrictions could be imposed on the nation as a whole, at least during the initial outbreak stage and it is estimated such an outbreak could have more than a \$100 billion impact on the U.S. economy.

The overarching goal of the proposed DHS S&T program is to develop next generation, molecular-based, recombinant FMD vaccines that can differentiate infected from vaccinated animals (DIVA) for licensure approval by CVB. Following licensing approval, FMD vaccine lots can be produced under procurement contracts with USDA APHIS Emergency Management for the inclusion in the National Veterinary Stockpile.

DNS S&T requires vaccine research and development services from GenVec, Inc. (GenVec). GenVec is a contractor that has core competencies in patent protected vaccine and therapeutic product technology platforms using replication-deficient recombinant adenovirus serotype 5 (rAd5) vectors. GenVec also has experience in rAd5 production (scale-up and downstream processing) with an integrated QA program.

GenVec has collaborated with the U.S. Government on next generation, recombinant FMD vaccine R&D since 2004. Specifically, USDA ARS and GenVec entered into Specific Cooperative Agreements (SCAs) in 2004-2005 and 2005-2006 to use reasonable commercial efforts to construct, produce and test rAd5 based vectors containing FMDV serotype empty capsids as part of a Plum Island FMD vaccine program. These SCAs were funded through DHS-USDA interagency agreements and DHS S&T scientists have been involved in the testing and evaluation of several rAd5 based FMD (AdFMD) vaccine candidates since 2005.

The outcome of this collaboration was the identification of a AdFMD vaccine candidate for advanced development. The lead AdFMD vaccine candidate is the first molecular-based FMD, DIVA vaccine. The lead vaccine utilizes GenVec's proprietary adenovector technology and is manufactured on a proprietary, specialized cell line that is capable of producing protective FMDV antigens without the use of the highly contagious FMD virus. Because the vaccine candidate is produced without live or killed virus materials, it can be safely produced in the U.S.

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DHS executed a three-year Other Transaction Agreement with GenVec (base agreement plus two (2) one year option periods; awarded 1 February 2007) to support the development and manufacture of novel adenovector-based vaccines against FMD. GenVec was responsible for the development, production and regulatory components and DHS was responsible for conducting animal studies at PIADC. During the base agreement (\$5.98M), a lead vaccine candidate for FMD was successfully identified utilizing GenVec's proprietary adenovector technology and a novel production cell line capable of producing FMD antigens.

Based on the deliverables produced and milestones achieved in the base agreement, the first 12-month option period was executed (\$5.6M, 5 September 2007). During Option Period One the development program for the lead vaccine candidate was successfully expanded. Based on the deliverables produced and milestones achieved in Option Year One, the second 12-month option period was executed (\$6.6M, 29 July 2008). During Option Period Two, the development program for the lead vaccine candidate has significantly advanced and milestones and deliverables are currently on track for the first AdFMD vaccine license approval by the USDA Center for Veterinary Biologics (CVB) in November 2009.

In order to build a pipeline of next generation, molecular, recombinant DIVA FMD vaccine candidates that can be licensed in the U.S. and manufactured through procurement by the USDA APHIS Emergency Management National Veterinary Stockpile, additional research is needed to identify AdFMD serotype-specific FMD vaccine candidates. In order to develop AdFMD vaccines that can be produced and manufactured in the most cost effective method, additional development is needed to improve current vaccine production and downstream processing methods that will reduce AdFMD cost of goods. The purpose of this agreement is to utilize GenVec's R&D services to achieve these research and development goals.

GenVec has more than ten years of experience in the development of manufacturing processes for applications in compliance with regulatory standards. GenVec has successfully scaled its vector manufacturing process to the one hundred liter (100L) scale and is currently coordinating validation of this scaled-up manufacturing process for a therapeutic application. GenVec has also developed a manufacturing process for AdA24 FMD vaccine, transferring this process to a CVB-licensed facility for manufacture of pre-license serial lots in support of a conditional license. GenVec process scientists have experience in the development of unit operations using both disposable and conventional technologies. GenVec's process engineers have experience in conducting process development projects such as the one described in this proposal.

GenVec also has experience with analytical testing methods in a regulated, quality control environment. GenVec managed the production and release of more than 50 clinical lots of Advector covering a wide array of applications. GenVec developed its release assays for the AdA24 FMD vaccine in compliance with USDA-CVB requirements. GenVec's assay development scientists have the experience to conduct assay development projects described in this proposal.

II. Scope of Work - Introduction

The overarching goals of this SOW are two-fold: (i) Identify, produce and test three new AdFMD-serotype vaccine candidates and make Go/No Go decision for transition into the DHS Targeted Advanced Development FMD vaccine pipeline, and (ii) increase AdFMD vaccine potency in order to lower the USG acquisition cost for AdFMD vaccines for the National Veterinary Stockpile.

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The proposed work is divided into two categories: Research and Manufacturing Development. The Research portion is titled "Advecton Technology Development to Improve AdFMD Vaccine and Potency," and the manufacturing development portion is titled "FMD AdA24 Manufacturing Development." Each of the sections below contains information for the research and manufacturing efforts. Some sections are further divided into milestones.

A. Research

The first research goal, identified as Research Milestone 1 (RM1) *. GenVec's technology is based on the use of adenovectors, in which a vector is an adenovirus that has been modified to express certain proteins which, in this case, generate an immune response against FMD. GenVec will prepare these improved vectors using our * cell line technology for these new FMD-serotype candidate vaccines. Candidate vaccines will be produced with documentation sufficient to enable transition to a pathway for vaccine development and licensing approval.

The second research goal * These research programs are identified as Research Milestones 2 and 3 (RM2 and RM3, respectively). The technical rationale for each milestone is bolstered by the fact that similar approaches with other disease targets have yielded encouraging results. In RM2 and RM3, GenVec expects to produce between * vectors to target FMD-serotypes for testing by the Department of Homeland Security (DHS). These vaccine candidates will be constructed based on GenVec technology and will be reviewed by DHS, though GenVec will not produce documentation sufficient to allow these vectors to proceed to further development.

B. Manufacturing Development

GenVec's manufacturing development goal is to cut costs by simplifying the current Advecton manufacturing process. Manufacturing development work focuses on developing an FMDV production process that can provide acceptable virus yield and serve as the basis for future process scale-up required to deliver material for anticipated vaccine stockpile needs. A simplified manufacturing process is proposed *.

Under the current DHS Other Transaction Agreement (Option Year 2), GenVec has developed a small scale (40L) production process for manufacturing the AdFMD vaccine. The current 40L process involves the following steps:

1. A*

This manufacturing process was transferred to a CVB-licensed facility (PerOs facility operated by Benchmark BioLabs, BBL) for manufacture of Pre-License Serial Lots (PLS) in support of Field Safety Studies. The overarching program goal under the current Other Transaction Agreement (Option Year 2) is contract is to obtain a conditional license from CVB by November 2009. Since the priority during this contract phase was to meet this milestone timeline, effort was not specifically focused on optimizing the process for scalability or on reducing cost of goods. The current proposal now focuses on reducing the cost of goods by simplifying the manufacturing process.

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III. Statement of Work

RESEARCH MILESTONES

GenVec's Research work is divided into three milestones:

1. Research Milestone RM1- *

The chart above illustrates the material steps in the preparation of an AdFMD vaccine, and these steps are outlined in detail below. All steps in RM1 should be completed prior to making a Go/No Go decision on moving a vector from preseed testing to production of master seed (outside the scope of this SOW).

Work Plan RMI -

*

2. Research Milestone RM2 - *

General Approach RM2 - *

Work Plan RM2 - *

3. Research Milestone RM3 - *

General Approach RM3 -*

Work Plan RM3 - *

MANUFACTURING DEVELOPMENT MILESTONES

GenVec's manufacturing development work is divided into three milestones:

1. Manufacturing Development Milestone DM1 - *

General Approach DM1 - *.

Work plan DM1 -*

2. Manufacturing Development Milestone DM2 • *

General Approach DM2 - *

a. Work Plan DM2 - *

3. Manufacturing Development Milestone D3 - *

General Approach DM3 - *

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IV. Deliverables.

See Attachment 11 for detailed list and description of technical data and deliverables associated with each of the six milestones.

V. Other Contract Details

- A. **Period of Performance.** The period of performance for the Base Year is 12 month from the contract award date, which is followed by an Option Year of 12 months that may be exercised at the Government's discretion and subject to the availability of funds.
- B. **Travel.** All travel must be approved by the DHS Technical Representative. All foreign travel must be approved in advance by the ORD Program Manager, DHS Programs, Plans and Budgets (PPB), and the DHS S&T Special Assistant for International Policy.
- C. **DHS-Furnished Information.**
 - i. DHS will provide certain DHS information, materials, and forms unique to DHS to GenVec, Inc. to support certain tasks under this SOW. Delays in the supply of DHS information, materials to GenVec could result in delays to the completion of certain deliverables.
 - ii. The DHS S&T Technical Representative identified in this SOW will be the point of contact (POC) for identification of any required information to be supplied by DHS.
 - iii. GenVec, Inc. will prepare any documentation according to the guidelines provided by DHS.
- D. **Place of Performance.** GenVec, Inc. will perform the work under this SOW at their place of R&D business, located in Gaithersburg, MD and through the use of subcontractors where required as identified in this SOW.
- E. **DHS-Furnished Property.** DHS property will not be provided to GenVec, Inc. unless otherwise agreed to by the parties of the agreement.
- F. **Deliverables.** GenVec, Inc. will provide all deliverables identified in this SOW directly to the DHS S&T Technical Representative with a copy of the transmittal letter to the Contracting Officer and as otherwise specified in this SOW.
- G. **Publications.** DISSEMINATION OF CONTRACT INFORMATION (HSAR 3052.242-71) (DEC 2003)

The Contractor shall not publish, permit to be published, or distribute for public consumption, any information, oral or written, concerning the results or conclusions made pursuant to the performance of this contract, without the prior written consent of the Contracting Officer. An electronic or printed copy of any material proposed to be published or distributed shall be submitted to the Contracting Officer.

(End of clause)

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- H. **Program Status Report.** GenVec, Inc. will deliver a quarterly program status reports to the DHS S&T Technical Representative and DHS S&T Resource Manager containing the following metrics: (1) monthly scientific reports will be delivered to the DHS S&T Technical Representative according to mutually agreed upon format and content requirements; and (2) a monthly report, including financial, schedule, and scope information, risk information and an assessment of performance will be delivered to the DHS S&T Technical Representative and the DHS S&T Resource Manager. Financial data should include monthly expenditures for labor, travel and equipment.
- I. **Security Requirements.** All work performed under this SOW is unclassified unless otherwise specified by **DFIS**. If classified work is required under this SOW, DHS will provide specific guidance to the contractor as to Which work will he conducted in a classified manner and at which classification level. GenVec, Inc. participants will also adhere to applicable government orders, guides, and directives while performing the work hereunder.
- J. **Team Meetings/Communication Plan.** DHS/GenVec research-oriented meetings will he held bi-weekly by teleconference. DHS/GenVec R&D meetings will be held monthly by videoconference. DHS/PIADC program meetings will be held quarterly by videoconference or site visits.

VI. Points of Contact

GenVec, Inc. Points of Contact (POCs) are as follows:

- *
 - Technical POC(s)
 - *
 - 65 West Watkins Road
 - Gaithersburg, MD 20878 Phone : * *
 - Financial POC(s)
 - *
 - 65 West Watkins Road
 - Gaithersburg, MD 20878
 - Phone: *
 - *

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

The DHS POCs are as follows:

- DHS S&T Technical Representative -
*
Science & Technology
Department of Homeland Security
Plum Island Animal Disease Center
P.O. Box 848
Greenport, NY.
Voice: *
Fax: *
Mobile:*
Email: *

- Resource Manager
*
Department of Homeland Security
ATTN: Science and Technology Directorate/Office,*
Washington, DC 20528
Voice:*
Email: *

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Thrust: Agricultural
 Program: FAD Vaccine & Diagnostics
 Project: Foot-and-Mouth Disease Vaccine Candidate Research and Development
ATTACHMENT 2 • STATEMENT OF WORK MILESTONES, DELIVERABLES

AND TIMELINES

BASE YEAR	Milestone*	Deliverables	Timelines	Cost
RM1	*	2) *	*	\$*
RM2	*	*	*	\$*
RM3	*	*	*	\$*

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Thrust: Agricultural
 Program: FAD Vaccine & Diagnostics
 Project: Foot-and-Mouth Disease Vaccine Candidate Research and Development
ATTACHMENT 2 • STATEMENT OF WORK MILESTONES, DELIVERABLES

AND TIMELINES

DM1	*	1) *	*	\$*
DM2	*	*	*	\$*
DM3	*	*assays	*	\$*
	Research Milestones 1-3 Subtotal			\$*
	Development Milestones 1-3 Subtotal			\$*
BASE YEAR	Research and Development Milestone TOTAL.			\$3,809,122
OPTION YEAR	*	Deliverables to be spelled out before exercising Option Year.	To be determined, before exercising Option Year	\$746,766
TOTAL				\$4,555,888

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ATTACHMENT 3

To be used as Alternate II to the Clause at 52.227-14, Rights in Data-General

Special License Notice

(a) These data, computer software, and Licensed Inventions are submitted with special license rights under Government Contract No. HSHQDC-10-C-00034. These data, computer software, and licensed inventions may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any; provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

(1) Purpose.

This license is to allow DHS to fulfill the Plum-Island Animal Disease Center's mission in perfecting an improved Foot and Mouth 'Disease (FMD) vaccine, which result will be accomplished by DHS's meeting United States Department of Agriculture (USDA) Center for Veterinary Biologics (CVB) licensing requirements for Adenovirus-based FMD vaccine candidates and the procurement by the USDA for inclusion in the Animal and Plant Health and Inspection Service (APHIS) Emergency Management National Veterinary Stockpile. This license provides the Government with certain rights in Licensed Inventions, copyrighted works, proprietary technical data, and computer software.

(2) Grant.

Accordingly, GenVec, Inc. hereby grants the Government a Special Purpose License, as defined in Paragraph (a)(3) of this License, in Adenovirus-based FMD viruses in any form or embodiment, including vaccines and vaccine virus seeds. This license shall remain in effect for the term of all patents licensed hereunder without regard to the expiration, completion, or termination of Contract HSHQDC-10-C-00034.

(3) Definitions.

(i) "Special Purpose License," for the purposes of this contract, means: (1) a nonexclusive, irrevocable, worldwide, paid up license to use, practice and have practiced any Licensed Inventions by or on behalf of the Government for Government purposes and (2) a nonexclusive, nontransferable, irrevocable, worldwide, paid up license to use, duplicate, prepare derivative works, distribute, or disclose copyrighted information or Proprietary Information, listed in Attachment A to this License, and any other Proprietary Information necessary to accomplishing the Purpose of this license, in whole or in part and in any manner, and to have or permit others to do so, for Government Purposes.

(ii) This "Special Purpose License" is unconditionally binding upon any successors to GenVec, Inc.'s interests and will remain in effect regardless of (i) the reorganization, merger, or consolidation of GenVec, Inc. into or with another entity, corporate or otherwise, or the liquidation or dissolution of GenVec, Inc. or the sale or other disposition of all or substantially all of the capital stock, business, or assets of GenVec, Inc. to any other person or party, or (ii) the institution of any bankruptcy, reorganization, insolvency, debt agreement, or receivership proceedings by or against GenVec, Inc., or adjudication of GenVec, Inc. as a bankrupt.

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

(iii)(A) "Government Purposes," for the purpose of this contract, include, but are not limited to, the right of the Government to solicit competitively, to contract for, and to transfer GenVec, Inc. made Adenovirus-based FMD vaccine candidates and master seed 293-ORF6 and M2A cell lines to third parties for use in the production and manufacturing of Adenovirus-based FMD vaccine candidate master seeds, working seeds, clinical lots, and Pre-Licensing Serials for the purpose of obtaining USDA Conditional or final license approval of the Adenovirus-based FMD vaccines owned by GenVec, Inc. Government purposes include the competitive solicitation and procurement of services relating to the license application to and processing of the application with USDA. Government purposes include the right to transfer GenVec, Inc.-made Adenovirus-based FMD vaccine candidates to third parties to perform Adenovirus-based FMD vaccine process improvements and Adenovirus-based FMD vaccine yield optimization services.

"Government Purposes" also include the solicitation by, purchase by, and distribution by the Animal and Plant Health and Inspection Service (APHIS) of the manufactured FMD vaccine and the use by distributees and recipients of the vaccine from APHIS of the Adenovirus-based FMD USDA CVB licensed vaccines using Adenovirus-based FMD working seeds derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks and master cell stocks produced from * cell line made by GenVec, Inc. Contractor shall not charge Third Party Licensees or the US Government a royalty as a result of the solicitation by, manufacturing for, purchase by, and distribution by APHIS of the manufactured FMD vaccine and the use by distributees and recipients of the vaccine from APHIS of the Adenovirus-based FMD USDA CVB licensed vaccines using Adenovirus-based FMD working seeds derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks and master cell stocks produced from * cell line made by GenVec, Inc. and shall assure that each Third Party Licensee prohibits a Third Party Licensee from charging any portion of or any entire Third Party Royalty to the US Government.

"Third Party License" shall mean a license granted by GenVec to a Third Party Licensee to practice the Licensed Inventions for the purpose of solicitation by, purchase by, and distribution by APHIS of the manufactured FMD vaccine and the use by distributees and recipients of the vaccine from APHIS of the Adenovirus-based FMD USDA CVB licensed vaccines using Adenovirus-based FMD working seeds derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks and master cell stocks produced from* cell line made by GenVec.

(B) "Government Purposes" include the right of the Department of Homeland Security to competitively solicit and procure:

1. Adenovirus-based FMD master seed vaccine virus stocks derived from Adenovirus-based FMD pre-master seed vaccine virus stocks made by GenVec, Inc.;
2. Adenovirus-based FMD master seed derived vaccine virus working seed stocks derived from pre-master seed Adenovirus-based FMD vaccine virus research and development (R&D) stocks made by GenVec, Inc.;
3. Adenovirus-based FMD vaccine candidate clinical lots made from Adenovirus-based FMD master seed vaccine virus derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks made by GenVec, Inc.;
4. Adenovirus-based FMD vaccine candidate pre-licensing serial lots made from Adenovirus-based FMD master seed vaccine virus derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks and master cell stocks produced from * or * cell line made by GenVec, Inc.;

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

5. Animal testing of Adenovirus-based FMD vaccine candidate clinical lots and pre-licensing serial lots made from Adenovirus-based FMD master seed vaccine virus derived from pre-master seed vaccine virus Adenovirus-based FMD R&D stocks and master cell stocks produced from * or * cell line made by GenVec, Inc.;

6. U.S. veterinary regulatory services and expertise for Adenovirus-based FMD vaccine candidates seeds derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks made by GenVec, Inc.;

7. Adenovirus-based FMD vaccine process improvement and vaccine yield optimization services using Adenovirus-based FMD master seed derived working seed vaccine virus derived from pre-master seed Adenovirus-based FMD vaccine virus R&D stocks and master cell stocks produced from * or * cell line made by GenVec, Inc.; and

(C) Except for standard USDA regulatory safety testing of Master and Working Cell Banks (such as, for example, testing for sterility, mycoplasma, in vivo and in vitro adventitious virus), clinical trials, or other processes necessary to acquire USDA approval, "Government Purposes" do not include:

1. The right of the Government or third parties to characterize, or issue Releases or Certificates of Analysis for, or analyze the genome of, any * or * cell, or engage in any research of *or * cells that concerns any safety, toxicity or tumorigenicity of * or * cells, without the prior written agreement of GenVec, Inc., such agreement not to be unreasonably withheld or delayed.

2. The right to have or permit others to practice a Licensed Invention or use, duplicate, prepare derivative works, distribute or disclose copyrighted works or Proprietary Information for commercial purposes, including but not limited to sales of products other than to the Government for distribution in the United States.

3. The right to have or permit third parties to change, modify, or alter the molecular composition or genetic structure of the Adenovirus-based FMD vaccine candidates.

(iv) "Licensed Inventions," for the purposes of this contract, means U.S. Patent Nos. *, and any other invention of which a GenVec employee is an inventor or co-inventor that would aid in accomplishing the purpose of this license.

(v) "*", "*", or "*", for the purposes of this Contract, means:

(A) Cell line composed of *cells;

(B) Cells or cell lines derived from * cells, based upon further modifications and/or alterations of the genome of the * cells; and

(4) Regulatory Consultation.

The Department of Homeland Security agrees to use its best efforts to promptly notify GenVec, Inc. of any and all communications to and from Regulatory Authorities relating to the safety of * or * cells, and agrees to consult promptly with * or* to resolve any such concerns with the CVB or such other Regulatory Authorities. Notwithstanding any of the foregoing, the Department of Homeland shall not be prohibited from taking any action(s) to comply with any requirements of the CVB or other Regulatory Authorities.

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

(b) This notice shall be marked on any reproduction of these data, computer software, or Licensed Inventions, in whole or in part.

(End of notice)

Attachment A

Specific copyrighted information or Proprietary Information,

All CVB regulatory submissions associated with USDA product (unlicensed) code Adt.A24.11D including, but not limited to documents and reports associated with:

1. Master seed virus (Adt.A24.11D)
2. Master seed stock cell line (*)
3. Adt.A24.11D Outline of Production
4. Adt.A24.11D Special Outlines
5. Adt.A24.11D Potency test development
6. Adt.A24.11D In-process procedures
7. Adt.A24.11D Summary of Information Format
8. Adt.A24.11D Risk Assessment
9. Adt.A24.11D protocols for studies of host animal immunogenicity/efficacy, safety,backpassage, shed/spread, immunological interference
10. Adt.A24.11D Field Safety Studies
11. Adt.A24.11D Stability Studies
12. Adt.A24.11D Veterinary Biologics Production (prelicensing serials) and Test Reports

GenVec Patent Applications
09/964065

* The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission.

LICENSE AGREEMENT

This License Agreement (“Agreement”), dated May 26, 1993, between ARCH Development Corporation, an Illinois not-for-profit corporation (“ARCH”) and GenVec, Inc., a Delaware corporation (“Licensee”).

Purpose and Intent

A. ARCH (hereinafter referred to as “Licensor”) hold rights to the Licensed Patents defined below and Licensee desires to obtain exclusive rights to such Licensed Patents for commercialization in a certain field.

B. On even date herewith, DFCI, ARCH and Licensee have entered into a separate License Agreement regarding certain other patent rights owned jointly by the Dana-Farber Cancer Institute (“DFCI”) and ARCH.

Therefore, the parties agree as follows:

Agreement

1. Definitions. The following capitalized terms used in this Agreement shall mean:

A. “Affiliate” means as to any person or entity, the possession of the power to direct or cause the direction of the management and the policies of an entity whether through ownership directly or indirectly of fifty percent (50%) or more of the stock entitled to vote, and for non-stock organizations, the right to receive fifty percent (50%) or more of the profits by contract or otherwise, or in countries where control of fifty percent (50%) or more of such rights is not permitted in the country where such entity exists, the maximum permitted in such country.

B. “Effective Date” means the date set forth on page 1, line 1, of this Agreement.

C. “Field” means all Gene Therapy applications.

D. “Gene Therapy” means the introduction of nucleic acid into a person with the purpose of modifying the functions or behaviors of cells of the human body, either by *ex vivo* introduction of nucleic acid into cells, which cells are later introduced into such person’s body, or by *in vivo* introduction of nucleic acid into the person’s body, to be incorporated into cells of such person (nucleic acid being any composition of matter that includes two or more covalently joined nucleotides and/or variants thereof, including, without limitation, variants of the phosphate, ribose sugar and/or heterocyclic base portions thereof, provided that such nucleotides and variants comprise a substantial component of such composition of matter).

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

E. "Joint Agreement" shall mean that certain License Agreement entered by DFCl, ARCH and Licensee effective of even date herewith.

F. "Licensed Patents" means the United States patent applications listed on Schedule A, attached hereto; United States patents issued from the applications listed on Schedule A and from divisionals and continuations of these applications and any reissues, renewals, substitutions, or extensions of such United States patents or patent applications; claims of continuation-in-part applications and patents directed to subject matter specifically described in the patent applications listed on Schedule A; and claims of all foreign patent applications, patents, and other intellectual property which are directed to subject matter specifically described in the United States patent applications listed on Schedule A. Licensed Patents shall not include any applications and any patents issuing from applications filed in countries (i) that Licensee elected not to file in pursuant to Paragraph 4.A. and (ii) where Licensee's rights are terminated under Paragraph 4.D.

G. "Licensed Product" means any product within the scope of any Valid Claim, or a product made by a process, method or technique within the scope of any Valid Claim, or a product, the method of use of which is within the scope of any Valid Claim.

H. "Net Sales" means:

(1) the gross amounts received by Licensee and its Affiliates and Sublicensees for Licensed Products, less the following amounts directly chargeable to such Licensed Products: (a) customary trade, quantity or cash discounts and rebates, actually allowed and taken; (b) amounts repaid or credited to customers on account of rejections; (c) freight and other transportation costs, including insurance charges, and duties, tariffs, sales and excise taxes and other governmental charges based directly on sales, turnover or delivery of such Licensed Products and actually paid or allowed by Licensee and its Affiliates or any Sublicensee; and (d) amounts allowed or credited due to returns or uncollectible amounts. If Licensee or a Sublicensee or the Affiliates of either of them do not sell Licensed Products but use Licensed Products as part of selling a service or other means of deriving commercial benefit from a Licensed Product, the parties agree to negotiate in good faith to determine a method of calculating a running royalty equivalent to the running royalty set out in this Agreement on Net Sales. Net Sales shall be calculated on sales to independent third parties and not on sales between Licensee and its Affiliates or Sublicensees unless such a purchaser is the end-user of the Licensed Product. For Licensed Products consumed by Licensee, its Affiliates or any Sublicensee, the price used to calculate Net Sales shall be equal to the average of the sales price of the same or substantially similar Licensed Products, whichever is relevant, sold to its three largest customers during the same time period.

(2) with respect to any Licensed Product sold in combination with one or more active therapeutic ingredient(s), or devices) for the administration of the Licensed Product, in each case, which are not Licensed Products, Net Sales for such combination products shall be calculated by multiplying the Net Sales calculated pursuant to Paragraph H(1) above by the fraction $A/(A + B)$, where A is the gross selling price of the Licensed Product sold separately and B is the gross selling price of the other product(s) or active therapeutic ingredient(s) or agent(s) sold separately. In the event that no such separate sales are made by Licensee, Net Sales for royalty determination shall be as reasonably allocated by Licensee and ARCH, as agreed by the parties, between such Licensed Product and such other product(s), ingredient(s) and/or agent(s) based upon their relative importance and proprietary protection.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

I. "Royalties" means all amounts payable under Paragraph 3. B. of this Agreement.

J. "Sublicensee" means any person, company or other entity granted a sublicense by Licensee under Paragraph 2. B. below, including Affiliates of the Sublicensee.

K. "Sublicense" means the license agreement entered into by Licensee with a Sublicensee under Paragraph 2. B. below.

L. "Territory" means worldwide.

M. "University" means the University of Chicago.

N. "Valid Claim" means an issued claim of any unexpired patent or a claim of any pending patent application within the Licensed Patents which has not been held unenforceable, unpatentable or invalid by a decision of a court or governmental body of competent jurisdiction, in a ruling that is unappealable or unappealed within the time allowed for appeal which has not been rendered unenforceable through disclaimer or otherwise, and which has not been lost through an interference proceeding. Notwithstanding the foregoing, a claim of a pending patent application shall cease to be a Valid Claim if no patent has issued on such claim on or prior to the seventh anniversary of the date of filing of the corresponding parent patent application, provided that such claim shall once again become a Valid Claim on the issue date of a patent that subsequently issues and contains such claim.

2. GRANT OF LICENSE AND RESERVATION OF RESEARCH RIGHTS

A. Grant. Licensor hereby grants to Licensee and its Affiliates an exclusive, worldwide license under the Licensed Patents to make, have made, use, import, have imported, offer to sell and sell Licensed Products within the Field and within the Territory.

B. Sublicense.

(1) Licensee shall have the exclusive right to grant sublicenses to third parties to the rights granted Licensee under Paragraph 2.A on terms not in conflict with the terms of this Agreement. ARCH shall be informed by written notice of the identity of any prospective Sublicensee and shall have the right to approve of said Sublicensee, which approval shall not be unreasonably withheld. If ARCH does not object in writing within forty-five (45) days of said written notice, approval shall be presumed conclusively to have been given. Notwithstanding the foregoing GenVec may grant a sublicense to any of the top 100 pharmaceutical and/or biopharmaceutical companies as reported by Scrip, without the prior approval of ARCH.

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(2) GenVec agrees that any sublicenses granted by it or its Sublicensees shall provide that the obligations to ARCH contained in this Agreement to the extent applicable shall be binding upon the Sublicensee. GenVec further agrees to provide a copy of this Agreement (which may be redacted to remove financial and other competitive information) to each Sublicensee.

(3) GenVec agrees to forward to ARCH a copy of any and all fully executed sublicense agreements with financial terms redacted, and further agrees to forward to ARCH annually a copy of such reports received by GenVec from its Sublicensee during the preceding twelve (12) month period under the sublicenses as shall be pertinent to a royalty accounting under said sublicense agreements.

(4) All sublicenses shall provide that the Sublicensee may not grant further sublicenses to third parties, without the written consent of ARCH, which consent shall not be unreasonably withheld; provided, that Sublicensees may grant further sublicenses without the prior consent of ARCH (i) to their Affiliates, and (ii) in connection with the development and/or commercialization of Licensed Products.

(5) GenVec hereby agrees that every sublicensing agreement to which it is a party and which relates to the rights, privileges and license granted hereunder shall contain a statement setting forth the date upon which GenVec's exclusive rights, privileges and license hereunder shall terminate.

C. Reservation of Rights. ARCH reserves for itself and for the University the non-transferable right to practice at the University the inventions claimed in the Licensed Patents to make, have made, and use Licensed Products within the Field for all educational and non-commercial research purposes it may choose, in its own discretion, and without any payment therefore. The inventions claimed in the Licensed Patents were made with the use of funds from the United States government and the Howard Hughes Medical Institute ("HHMI"). Therefore, to the extent required by United States law, there is reserved from the rights granted hereunder the worldwide, non-exclusive right of the United States government to use and to practice or have practiced the inventions claimed in the Licensed Patents. ARCH and/or the University, has granted, or will grant, HEM a paid-up, non-exclusive, irrevocable license to use the Licensed Products for its non-commercial purposes, but with no right to sublicense.

D. U.S. Laws. The inventions claimed in the Licensed Patents were developed with the use of United States government funds. Therefore, any right granted in this Agreement greater than that permitted under Public Law 96-517 or Public Law 98-620 shall be subject to modification as may be required to conform to the provisions of those laws.

E. Supersession. This Agreement supersedes the Agreement effective May 26, 1993 by and between ARCH and Licensee, which is hereby terminated and of no further force or effect.

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3. Royalties and Other Payments

A. License Payment.

(1) Subject to reduction pursuant to subsection 3.A (2) below, Licensee agrees to make the following payments to ARCH within forty-five (45) days after the occurrence of each of the following events:

(1) \$* at the time of the filing in the United States by Licensee or any Sublicensee of an IND for the first Licensed Product (such payment referred to as an "IND Fee"); and

(2) \$* at the time of filing in the United States by Licensee or any Sublicensee of an NDA on a Licensed Product (such payment referred to as an "NDA Fee").

Each payment pursuant to this Paragraph 3.A.(1) may be credited against any Royalties due under Paragraph 3.B. on the sale of the Licensed Product with respect to which such payment is made (or if the development of a particular Licensed Product is terminated, a successor Licensed Product thereto) in amounts not to exceed * of the Royalties otherwise due each calendar quarter. Any such amount not credited against Royalties in any quarter may be carried forward until the credit is fully applied. It is understood and agreed that any amounts paid under Section 3.A(1) of the Joint Agreement shall be fully creditable against any amounts due to ARCH pursuant to this Section 3.A(1).

(2) If in Licensee's judgment, based on reasonable legal or commercial considerations, it is desirable for Licensee or any Affiliate or Sublicensee to enter into a licensing agreement (each, a "Third Party Licensing Agreement") pursuant to which Licensee or the applicable Affiliate or Sublicensee must also pay to the third party licensor an IND Fee and/or an NDA Fee in connection with a Licensed Product, then, at such time as an IND Fee or NDA Fee shall become payable, Licensee shall allocate the IND Fee or NDA Fee (as the case may be) payable under this Agreement equally among ARCH and any third party licensors (up to a maximum of two additional third party licensors).

B. Royalties.

(1) Subject to reduction pursuant to subsection 3.B(2), and subject to subsections 3.B(3), (4) and (5) below, Licensee shall pay a royalty to ARCH during the term of this Agreement equal to * of Net Sales by Licensee or any Affiliate or Sublicensee of Licensed Products within the scope of a Valid Claim in the country of manufacture or sale.

(2) In the event that Licensee enters into a license agreement with any third party with respect to intellectual property rights which are necessary or useful for Licensee's practice of the Licensed Patents or the manufacture, use, import and/or sale of any Licensed Product, Licensee may offset any payments made in accordance with such license agreements against any amounts owed Licensor pursuant to Paragraph 3B herein, on a country-by-country basis, up to a maximum of * of the amounts due under Paragraph 3B. Any such amounts which are not offset in any quarter may be carried forward until applied.

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(3) No Royalties shall be due on Licensed Products distributed for use at cost or less in research and/or development, in clinical trials or as promotional samples.

(4) No more than one Royalty payment shall be due with respect to a sale of a particular Licensed Product. No multiple Royalties shall be payable because any Licensed Product, or its manufacture, sale or use is covered by more than one Valid Claim. It is understood and agreed that Licensee's total Royalty obligation under this Agreement and the Joint Agreement shall not exceed a cumulative total of * of Net Sales (as defined in such Agreements), and that any Royalties paid under the Joint Agreement shall be fully creditable against any royalties due to ARCH under this Agreement.

(5) Royalties due under this Paragraph 3.B shall be payable on a country-by-country and Licensed Product-by-Licensed Product basis until the expiration of the last-to-expire issued Valid Claim covering such Licensed Product in such country, or if no such patent has issued in a country, until there are no remaining pending Valid Claims covering such Licensed Product in such country.

C. Appointment of Agent. Licensor hereby represents to Licensee that pursuant to a patent management agreement between ARCH and DFCI dated as of December 1, 1990 (the "Management Agreement"), DFCI appointed ARCH as the agent of DFCI to collect and account for all Royalties and other amounts paid to Licensor pursuant to licensing agreement(s) for the Licensed Patents. Therefore, Licensor hereby directs Licensee, and Licensee hereby agrees, that all payments to be made by Licensee to Licensor under this Agreement and the Joint Agreement shall be paid to ARCH on behalf of the Licensor (and/or DFCI) at ARCH's principal place of business, or at such other place and in such other way as ARCH may designate, without deduction of exchange, collection or other charges. ARCH agrees to notify Licensee in writing within thirty (30) days of the termination of the Management Agreement if such termination occurs during the term of this Agreement.

D. Calculation of Royalties. Royalties shall be payable in U.S. currency within * days after the end of each calendar quarter for the term specified in Paragraph 9. A. below, beginning with the calendar quarter in which the first commercial sale of a Licensed Product occurs. Each payment shall be accompanied by a statement showing Net Sales for each country in the Territory and calculation of the Royalties due. All such statements shall be deemed to be Confidential Information of Licensee. There shall be deducted from all such payments taxes required to be withheld by any governmental authority and Licensee shall provide copies of receipts for such taxes to ARCH along with each royalty payment. Any necessary conversion of currency into United States dollars shall be at the applicable rate of exchange for buying U.S. dollars of Citibank, N.A., in New York, New York, on the last day of the calendar quarter in which such transaction occurred. If at any time legal restrictions prevent the prompt remittance of any Royalties owed on Net Sales in any jurisdiction, Licensee may notify Licensor and make such payments by depositing the amount thereof in local currency in a bank account or other depository in such country in the name of Licensor, and Licensee shall have no further obligations under this Agreement with respect thereto.

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E. Records. Licensee shall keep, and shall cause its Affiliates and Sublicensees of either, to keep, full and accurate books and records in sufficient detail so that sums due Licensor hereunder can be properly calculated. Such books and records shall be maintained for at least three (3) years after the Royalty reporting period(s) to which they relate. During the term hereof and for three (3) calendar years thereafter, Licensee shall permit, and shall cause its Affiliates to permit, and use reasonable efforts to have its Sublicensees permit certified independent accountants designated by ARCH, to whom Licensee has no reasonable objection, to examine its books and records solely for the purpose of verifying the accuracy of the written statements submitted by Licensee and sums paid or payable. ARCH may conduct such examination no more than once in any calendar year and conduct no more than one audit of any period. After completion of any such examination, ARCH shall promptly notify Licensee in writing of any proposed modification to Licensee's statement of sums due and payable. If Licensee accepts such modification, or if the parties agree on other modifications, one party shall promptly pay or credit the other in accordance with such resolution. Such examination shall be made at the expense of ARCH, except that if such examination discloses a discrepancy of ten percent (10%) or more in the amount of Royalties and other payments due ARCH, then Licensee shall reimburse ARCH for the cost of such examination.

F. Overdue Payments. Payments due to ARCH under this Agreement shall, if not paid when due under the terms of this Agreement, bear simple interest at the lower of the prime rate of interest (as published by Citibank, N.A. on the date such payment is due) plus * or the highest rate permitted by law, calculated on the basis of a 360 day year for the number of days actually elapsed, beginning on the due date and ending on the day prior to the day on which payment is made in full. Interest accruing under this Paragraph shall be due to Licensor on demand or upon payment of past due amounts, whichever is sooner. The accrual or receipt by ARCH of interest under this Paragraph shall not constitute a waiver by Licensor of any right it may otherwise have to declare a default under this Agreement or to terminate this Agreement.

4. Prosecution and Maintenance of Patents; Patent Costs.

A. Prosecution and Maintenance.

(1) ARCH shall be responsible, using any of the following patent counsel, that are acceptable to Licensee: Arnold, White & Durkee; Dressler, Rocky, Milnamow & Katz, Ltd.; Marshall, O'Toole, Gerstein, Murray, & Borum; or Foley & Lardner for the filing, preparation, registration, prosecution and maintenance of the Licensed Patents. Licensee shall select patent counsel from the above list, or such other counsel as the parties agree, as patent counsel for maintenance of all patent applications and patents within the Licensed Patents.

(2) ARCH shall cause such patent counsel to provide Licensee with a list of the countries in which ARCH has filed and/or intends to file applications. Such list shall be provided to Licensee at least ninety (90) days prior to the expiration of the corresponding United States priority date to allow Licensee to suggest that additional countries be added to the list or that one or more countries be deleted from the list. ARCH agrees to timely file applications in each of the countries requested by Licensee unless it otherwise notifies Licensee under Paragraph 4.B below.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

(3) Licensee agrees to cooperate, and agrees to cause its Sublicensees and Affiliates of either to cooperate, with ARCH in the preparation, filing, prosecution and maintenance of the Licensed Patents by disclosing such information as may be necessary for the same and by promptly executing such documents as ARCH may reasonably request in connection therewith. Licensee and its Sublicensees and Affiliates of either shall bear their own costs in connection with their cooperation with ARCH under this Paragraph.

(4) ARCH will provide Licensee copies of all material documents received or prepared by ARCH in the prosecution and maintenance of the Licensed Patents. Licensee shall have reasonable opportunities to advise ARCH concerning, and ARCH shall cooperate with Licensee with respect to, filing, registration, prosecution and maintenance of all patents and patent applications within the Licensed Patents. "Reasonable opportunities" shall mean that Licensee shall receive from ARCH or its patent counsel copies of all documents and materials relating to filing, registration, prosecution and maintenance of patent applications and patents within the Licensed Patents as soon as is reasonably practical after ARCH has received such documents and materials, and at least forty-five (45) days or the maximum time provided by the Patent Office before any date imposed upon ARCH for action or response with respect to such patent applications and patents. ARCH agrees to use its best efforts to incorporate into the final version of such documents and materials any reasonable change(s) and/or claims (s) requested by Licensee thereof prior to submission to the applicable government agencies or other parties. In addition, to avoid any prejudice and added unnecessary costs to Licensee, ARCH shall adhere to the applicable deadlines, and Licensee shall not be responsible for the costs of any time extensions for reasons that are not approved in advance by Licensee.

B. Licensee's Rights to Prosecute and Maintain Patents. ARCH shall notify Licensee in writing of any country(ies) where it either previously declared its intention to file under Paragraph 4.A. and subsequently decided not to file in such country(ies) or previously filed and decided to abandon the patent application or issued patent. Such notice shall be given so as to allow Licensee a reasonable time, but not less than ninety (90) days, within which to file in countries where ARCH does not intend to file a patent application or is not going to continue the prosecution or maintenance of the application or patent, whichever is relevant. In all cases where Licensee elects to file, Licensee shall file, prosecute and maintain the applications and patents in ARCH's name and at Licensee's expense. Such applications and patents shall be included in the definition of Licensed Patents for all purposes of this Agreement.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

C. Patent Costs. Licensee agrees to pay all necessary and reasonable third party fees and out-of-pocket expenses incurred by ARCH in obtaining and maintaining the Licensed Patents, including those incurred by ARCH pursuant to the terms of the Agreement effective May 26, 1993 by and between ARCH, DFCI and Licensee. Payment for fees and expenses incurred after the date of this Agreement shall be invoiced to Licensee on a monthly basis and Licensee agrees to pay such invoices within thirty (30) days of receipt. Licensee also agrees upon reasonable request by ARCH to make timely reasonable estimated advanced payments for the filing of national applications in countries selected by Licensee; provided, that Licensor provides Licensee with invoices for such amounts at least thirty (30) days prior to the date payment must be made by ARCH to a third party. Documentation received from the third party vendors to support the amounts invoiced, in a form reasonably acceptable to Licensee, shall be included with each invoice. Licensee shall raise any objections to such amounts invoiced within the thirty (30) day time period for payment. Invoices for advanced payments shall be reconciled with the advance payments made by Licensee every six (6) months. Any excess payment by Licensee shall be credited to future patent costs specified in this Paragraph 4.C.

D. Failure to Pay Patent Costs. If Licensee declines or fails to make advance payments or pay or reimburse ARCH for any material portion of any reasonable patent fees and expenses (including maintenance fees) as required by Paragraph 4.C. for any application or patent, Licensee's rights with respect to the applicable applications and patents shall terminate effective sixty (60) days after written notice from ARCH requesting such payment, unless payment in full is made within such time; provided, if Licensee disputes that any portion of such fees are reasonable, it may provide notice to ARCH that it wishes to have such dispute settled by arbitration pursuant to Paragraph 10, and in such event ARCH may not terminate Licensee's rights with respect to the applicable applications and patents until and unless the arbitrator determines that such fees and expenses were reasonable, in which case Licensee shall pay the unpaid fees and expenses (with interest from the date due) in full within ten days from the date of the arbitrator's final written determination that such fees and expenses were reasonable and also pay the arbitrators fees incurred in connection with the arbitration. Such notice can be sent by ARCH at any time after the expiration of the thirty (30) days provided in Paragraph 4.C. for payment of invoices or in the case of advance payments, any time after the date five (5) business days before payment must be made by ARCH to a third party.

5. Due Diligence and Milestones.

A. Diligence and Development Expenditures. Licensee or its Sublicensees shall use commercially reasonable diligent efforts to develop and commercialize Licensed Products. Through September 30, 2000, "commercially reasonable diligent efforts" shall automatically be deemed to have been met if Licensee achieves the following milestones:

Event	Date
Obtain rights to TNFalpha or alternative therapeutic gene designated by Licensee for use in conjunction with one or more of the Licensed Patents ("Milestone 1").	3/31/99
File IND for a Licensed Product ("Milestone 2").	Within 24 months of the Effective Date; provided, however, Licensee need not accomplish Milestone 2 if it has expended at least \$* on the development of Licensed Product(s) as of 24 months after the Effective Date.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

The foregoing milestones may be satisfied by Licensee and/or its Affiliates or Sublicensees.

B. Progress Report. Within thirty (30) days of the end of each June 30 and January 31 during the term of this Agreement, Licensee shall make a written report to ARCH, in such detail as ARCH may reasonably request, covering the preceding six months and describing the progress of Licensee toward achieving the development and commercialization of Licensed Products. Licensee agrees to immediately notify ARCH in writing when commercial products are first sold and when Licensee's obligation to begin making running Royalty payments begins. When Licensee begins making running Royalty payments, the six month reports required by this Paragraph shall be reduced to a yearly report due by January 31 of each year, covering the preceding year's commercialization efforts.

6. Warranties; Disclaimer, Indemnification, Insurance.

A. ARCH. ARCH represents and warrants that: (i) it is the sole and exclusive owner of all right, title and interest in the Licensed Patents; (ii) it has the right to grant the rights and licenses granted herein, and the Licensed Patents are free and clear of any lien, encumbrance, security interest or restriction on license; (iii) it has not previously granted, and will not grant during the term of this Agreement (with the exception of the Regulon Option of March 15, 1993, which has since expired), any right, license or interest in and to the Licensed Patents, or any portion thereof, inconsistent with the license granted to Licensee herein; and (iv) there are no threatened or pending actions, suits, investigations, claims or proceedings in any way relating to the Licensed Patents.

B. Disclaimer of Warranties. Except as expressly provided above, Licensor make no representations or warranties of any kind, express or implied, with respect to the invention(s) claimed in the Licensed Patents or with respect to the Licensed Patents themselves, including but not limited to, any representations or warranties about (i) the validity, scope or enforceability of any of the Licensed Patents; (ii) the accuracy, safety or usefulness for any purpose of any information provided by Licensor to Licensee, its Sublicensees or Affiliates of either, with respect to the invention(s) claimed in the Licensed Patents or with respect to the Licensed Patents themselves and any products developed from or covered by them; (iii) whether the practice of any claim contained in any of the Licensed Patents will or might infringe a patent or other intellectual property right owned or licensed by a third party; (iv) the patentability of any invention claimed in the Licensed Patents; or (v) the accuracy, safety, or usefulness for any purpose of any product or process made or carried out in accordance with or through the use of the Licensed Patents.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

C. Indemnification. Licensee agrees, and agrees to cause its Sublicensees and Affiliates of either, to indemnify, defend and hold harmless Licensor, its Affiliates and all trustees, directors, officers, employees, fellows and agents of any of the foregoing (including Licensor and its Affiliates, each an "Indemnified Person") from and against any and all third party claims, demands, loss, damage, penalty, cost or expense (including attorneys' and witnesses' fees and costs) of any kind or nature, arising from the development, production, use, sale or other disposition of Licensed Products and all activities associated therewith by Licensee, its Sublicensees or Affiliates of either, or any use by Licensee and its Sublicensees or Affiliates of information provided by Licensor to Licensee. Licensee agrees and agrees to use reasonable efforts to cause each of its Sublicensees and Affiliates of either to agree not to sue any Indemnified Person in connection with the development, production, use, sale or other disposition of Licensed Product and all activities associated therewith, except if the Indemnified Person has breached this Agreement. Licensor shall be entitled to participate, at its option and expense, through counsel of its own selection, and may join in any legal actions related to any such third party claims, demands, losses, damages, costs, expenses and penalties. Licensee, its Sublicensees and Affiliates of either, shall not enter into any settlement affecting any rights or obligations of any Indemnified Person or which includes an express or implied admission of liability, negligence or wrongdoing by any Indemnified Person, without the prior written consent of such Indemnified Person, which consent shall not be unreasonably withheld.

Licensee agrees, and agrees to cause its Sublicensees and Affiliates of either to indemnify, defend by counsel acceptable to HH1VII, and hold harmless the Howard Hughes Medical Institute, and its trustees, officers, employees, and agents (collectively, "HHMI Indemnified Persons"), from and against any claim, liability, cost, expense, damage, deficiency, loss, or obligation, of any kind or nature (including, without limitation, reasonable attorney's fees and other costs and expenses of defense) (collectively, "Claims"), based upon, arising out of, or otherwise relating to this License Agreement, including without limitation, any cause of action relating to product liability. The previous sentence will not apply to any Claim that is determined with finality by a court of competent jurisdiction to result solely from the gross negligence or willful misconduct of an HHMI Indemnified Person. In addition, Licensee and its Sublicensees and Affiliates agree not to settle any Claim against an HHMI Indemnified Person without HHMI's written consent, where (a) such settlement would include any admission of liability on the part of any HHMI Indemnified Person, (b) such settlement would impose any restriction on any HHMI Indemnified Person's conduct of any of its activities, or (c) such settlement would not include an unconditional release of all HHMI Indemnified Persons from all liability for claims that are the subject matter of the settled Claim.

D. Assumption of Risk. The entire risk as to the performance, safety and efficacy of any invention claimed in the Licensed Patents practiced by Licensee or its Affiliates or Sublicensees or of any Licensed Product made by Licensee or its Affiliates or Sublicensees is assumed by Licensee, its Sublicensees and Affiliates of either, provided that such assumption of the risk shall not apply to the intentional misconduct or gross negligence by Indemnified Persons. Indemnified Persons shall not, except for their intentional misconduct or gross negligence, be responsible or liable for any injury, loss, or damage of any kind, including but not limited to direct, indirect, special, incidental or consequential damages or lost profits to Licensee, any Sublicensee, Affiliates of either or customers or any of the foregoing, or for any such injury, loss or damage to any other individual or entity, regardless of legal theory based on the development, manufacture, use, sale or other disposition of Licensed Products and all activities associated therewith. The above limitations on liability apply even though the Indemnified Person may have been advised of the possibility of such injury, loss or damage. Licensee shall not, and shall require all Sublicensees and Affiliates of either to not, make any agreements, statements, representations or warranties or accept any liabilities or responsibilities whatsoever with regard to any person or entity which are inconsistent with this Paragraph.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

E. Insurance. At such time as any product, process or service relating to, or developed pursuant to this Agreement is being commercially distributed or sold (other than for the purpose of obtaining regulatory approvals) by Licensee or by a Sublicensee or agent of Licensee, Licensee shall, at its sole cost and expense, procure and maintain policies of comprehensive general liability insurance in amounts not less than \$2,000,000 per incident and \$2,000,000 annual aggregate and naming the Indemnified Persons, including HHMI Indemnified Persons, as additional insureds. Such comprehensive general liability insurance shall provide (a) product liability coverage, and (b) broad form contractual liability coverage for Licensee's indemnification under Paragraph 6.C. of this Agreement. If Licensee elects to self-insure all or part of the limits described above (including deductibles or retentions which are in excess of \$250,000 annual aggregate), such self-insurance program must be reasonably acceptable to the Licensor and DFCE's associated Risk Management Foundation. The minimum amounts of insurance coverage required under these provisions shall not be construed to create a limit of Licensee's liability with respect to its indemnification obligation under Paragraph 6.C. of this Agreement. Licensee shall provide Licensor with written evidence of such insurance upon written request. Licensee shall provide the Licensor with written notice at least fifteen (15) days prior to the cancellation, non-renewal or material reduction in the extent of such insurance; if Licensee does not obtain replacement insurance providing comparable coverage within such fifteen (15) day period, Licensor shall have the right to terminate this Agreement effective at the end of such fifteen (15) day period without any notice or additional waiting periods. Licensee shall maintain such comprehensive general liability insurance beyond the expiration or termination of this Agreement during (i) the period that any product, process, or service, relating to, or developed pursuant to, this Agreement is being commercially distributed or sold (other than for the purpose of obtaining regulatory approvals) by Licensee or by a Sublicensee or agent of Licensee, and (ii) a reasonable period after the period referred to in (i) above which in no event shall be less than fifteen (15) years.

7. Confidentiality.

A. Confidentiality, Publications and Data Access. All information submitted by one party to the other concerning the invention(s) claimed in the Licensed Patents and Licensed Products identified as confidential at the time of disclosure shall be considered as confidential ("Confidential Information") and shall be utilized only pursuant to the licenses granted hereunder. Subject to Paragraph 7(d) below, during the term of this Agreement and for a period of ten (10) years thereafter, neither party shall disclose to any third party any Confidential Information received from the other party without the specific written consent of such party. The foregoing shall not apply where such Information a) was or becomes public through no fault of the receiving party, b) was, at the time of receipt, already in the possession of receiving party as evidenced by its prior written records, c) was obtained from a third party legally entitled to use and disclose the same, d) is independently developed by the receiving party without use of any Confidential Information of the disclosing party, or e) is required by law to be disclosed to a court or governmental agency.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

B. Permitted Use and Disclosures. Notwithstanding Paragraph 7.A above, each party hereto may use or disclose information disclosed to it by the other party to the extent such use or disclosure is reasonably necessary in filing or prosecuting patent applications, prosecuting or defending litigation, complying with applicable governmental regulations or otherwise submitting information to tax or other governmental authorities, conducting clinical trials, or making a permitted sublicense or otherwise exercising its rights hereunder, provided that if a party is required to make any such disclosure of another party's confidential information, other than pursuant to a confidentiality agreement, it will give reasonable advance notice to the latter party of such disclosure and, save to the extent inappropriate in the case of patent applications, will use its best efforts to secure confidential treatment of such information prior to its disclosure (whether through protective orders or otherwise).

C. Confidential Terms. Except as expressly provided herein, each party agrees not to disclose any terms of this Agreement to any third party without the consent of the other party; provided, disclosures may be made as required by securities or other applicable laws, or to actual or prospective investors or corporate partners, or to a party's accountants, attorneys and other professional advisors.

D. Publications. Licensor shall provide to Licensee copies of any proposed written publication by Licensor containing any Confidential Information and, to the extent Licensor is aware of them, proposed publications containing any information relating to the Licensed Patents. Licensee agrees to use reasonable efforts to provide copies of any proposed written publication containing any information relating to the Licensed Patents of Licensee, its Sublicensees and Affiliates of either of them to Licensor. The parties shall provide copies of such proposed written publications at least thirty(30) days in advance of publication. In addition, the topic and contents of any proposed oral disclosures regarding the Licensed Patents which will be made to third persons by Licensor shall be disclosed in writing to Licensee at least thirty (30) days prior to any proposed oral presentation. The receiving party may object to such proposed publication or disclosure within thirty (30) days of receipt of the publication or disclosure on the grounds that (i) it contains patentable subject matter that needs patent protection or (ii) that the publication contains Confidential Information of the objecting party. At the request of the objecting party, Confidential Information of such party shall be deleted from the publication or oral disclosure. If the objecting party decides to seek patent protection, the proposed publication or disclosure shall be delayed for up to a period of thirty (30) additional days to permit the preparation and filing of appropriate patent applications.

8. Infringement. In the event of an infringement of a Licensed Patent the following shall apply:

A. Notice. Each party shall give the others written notice if one of them becomes aware of any infringement by a third party of any Licensed Patent. Upon notice of any such infringement, the parties shall promptly consult with one another with a view toward reaching agreement on a course of action to be pursued.

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B. Licensee's Right to Bring Infringement Action.

(1) If a third party infringes any patent included in the Licensed Patents within the Field, Licensee shall have the first right, but not the obligation, to institute and prosecute an action or proceeding to abate such infringement and to resolve such matter by settlement or otherwise. Licensee agrees to notify ARCH of its intention to bring an action or proceeding prior to filing the same (or responding to any declaratory judgment action) and in sufficient time to allow ARCH the opportunity to discuss with Licensee the choice of counsel for such matter. Licensee agrees to hire counsel reasonably acceptable to ARCH. Licensee shall keep ARCH timely informed of material developments in the prosecution or settlement of such action or proceeding. Licensee shall be responsible for all costs and expenses of any action or proceeding against infringers which Licensee initiates. Licensor shall cooperate fully in such action, including without limitation, by joining as a party plaintiff if required to do so by law to maintain such action or proceeding, and by executing and making available such documents as Licensee may reasonably request. Licensee agrees to promptly reimburse Licensor for its reasonable third party out-of-pocket fees and expenses incurred in joining an action or proceeding or cooperating with Licensee. Licensor may be represented by counsel in any such legal proceedings, at Licensor's own expense, acting in an advisory but not controlling capacity.

(2) The prosecution, settlement, or abandonment of any action or proceeding under Paragraph 8.B.(1) shall be at Licensee's reasonable discretion provided that Licensee shall not have any right to surrender any of Licensor's rights to the Licensed Patents.

(3) Except as provided herein, all amounts of every kind and nature recovered from an action or proceeding of infringement by Licensee shall belong to Licensee. After deduction of the fees and expenses of both parties to this Agreement, any remaining amounts recovered shall be considered Net Sales under this Agreement and subject to Royalty payments in accordance with Paragraph 3.B.

C. Licensor's Right to Bring Infringement Action. If a third party infringes any patent included in the Licensed Patents within the Field, and Licensor wish to initiate a legal proceeding against such infringement, Licensor shall first notify Licensee in writing and may request that Licensee bring an action or proceeding against the infringing third party; provided, within sixty (60) days of receiving such notice Licensee's patent counsel shall notify ARCH of Licensee's plans for abating such infringement. If Licensee declines or fails to bring such an action or proceeding within one hundred and eighty (180) days of receipt of the notice, Licensor shall have the right, at its discretion, to institute and prosecute an action or proceeding to abate such infringement and to resolve such matter by settlement or otherwise. Licensee shall cooperate fully by joining as a party plaintiff if required to do so by law to maintain such action and by executing and making available such documents as Licensor may reasonably request. Except as specifically provided in this Paragraph, Licensor shall have the right to retain all amounts recovered of every kind and nature. Amounts recovered by Licensor shall not be considered Net Sales under this Agreement and shall not give rise to royalty payments under Paragraph 3.

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9. Termination.

A. Term. Unless terminated earlier, this Agreement shall expire on the expiration date of the last to expire of the Licensed Patents. The term of this Agreement shall commence on the Effective Date, and unless earlier terminated as provided herein, shall continue in full force and effect on a country-by-country and Licensed Product-by-Licensed Product basis until there are no remaining royalty payment obligations in a country, at which time the Agreement shall expire in its entirety in such country.

B. ARCH's Right to Terminate. ARCH shall have the right to terminate this Agreement as follows, in addition to all other available remedies:

(1) Subject to Paragraph 9.C, if Licensee fails to make any royalty or other payment when due, this Agreement shall terminate effective thirty (30) days after ARCH's written notice to Licensee to such effect, unless Licensee makes such payment within such thirty (30) days.

(2) Subject to Paragraph 9.C, if Licensee fails to observe any other material obligation of this Agreement, this Agreement shall terminate effective ninety (90) days after ARCH's written notice to Licensee describing such failure, unless Licensee cures such failure within such ninety (90) days.

(3) If Licensee shall have filed by or against it a petition under any bankruptcy or insolvency law and such petition is not dismissed within sixty (60) days of its filing, or if Licensee makes an assignment of all or substantially all of its assets for the benefit of its creditors Licensee may terminate this Agreement by written notice effective as of the (i) date of filing by Licensee of any such petition, (ii) date of any such assignment to creditors, or (iii) end of the sixty (60) days if a petition is filed against it and not dismissed by such time, whichever is applicable.

(4) If Licensee shall be dissolved, liquidated or otherwise ceases to exist due to insolvency, other than for reasons specified in Paragraph 9. B (3) above, this Agreement shall automatically terminate as of (i) the date articles of dissolution or a similar document is filed on behalf of Licensee with the appropriate government authority, or (ii) the date of establishment of a liquidating trust or other arrangement for the winding up of the affairs of Licensee.

C. Termination for Cause. If any party materially breaches this Agreement, the Licensee, if Licensor is the breaching party, or ARCH, if Licensee is the breaching party, may elect to give the breaching party written notice describing the alleged breach. If the breaching party has not cured such breach within sixty (60) days after receipt of such notice, the notifying party will be entitled, in addition to any other rights it may have under this Agreement, to terminate this Agreement effective immediately; provided, however, if either party receives notification from the other of a material breach and if the party alleged to be in default notifies the other party in writing within thirty (30) days of receipt of such default notice that it disputes the asserted default, the matter will be submitted to arbitration as provided in Article 10 of this Agreement. In such event, the nonbreaching party shall not have the right to terminate this Agreement until it has been determined in such arbitration proceeding that the other party materially breached this Agreement, and the breaching party fails to cure such breach within ninety (90) days after the conclusion of such arbitration proceeding, including any appeal subject to Section 10.B.

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D. Licensee's Right to Terminate. Licensee may terminate this Agreement as to any of the patent applications and/or patents within the Licensed Patents and/or any country at any time by giving ARCH ninety (90) days prior written notice.

E. Effect of Termination.

(1) Accrued Rights and Obligations. Termination of this Agreement for any reason shall not release any party hereto from any liability which, at the time of such termination, has already accrued to the other party or which is attributable to a period prior to such termination, nor preclude either party from pursuing any rights and remedies it may have hereunder or at law or in equity which accrued or are based upon any event occurring prior to such termination.

(2) Stock on Hand. In the event this Agreement is terminated for any reason, Licensee and its Affiliates and Sublicensees shall have the right to sell or otherwise dispose of the stock of any Licensed Product subject to this Agreement then on hand, subject to Article 3.

(3) Sublicensees. Upon termination of this Agreement for any reason, any sublicense not then in default shall continue in force and effect and shall be assigned by Licensee to Licensors; provided, the financial obligations of each Sublicensee to Licensors shall be limited to the amounts Licensee shall be obligated to pay to Licensors for the activities of such Sublicensee pursuant to this Agreement.

F. Survival. The provisions of (i) Licensee's obligation to pay Royalties and Patent Costs accrued prior to the date of termination and which were not paid or payable before termination, along with the report of Net Sales and record keeping required by Paragraphs 3.D and E, and (ii) Paragraphs 6, 7, 9.E, 9.F, 10 and 11 shall survive termination of this Agreement for any reason.

10. Arbitration. If the parties cannot satisfactorily settle any claim, disagreement or controversy arising out of or related to this Agreement or its interpretation, performance, nonperformance, breach or their respective rights and obligations hereunder, such disagreement shall, at the request of either party, be settled by arbitration as follows:

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A. Panel. All such disputes shall be referred to an arbitration panel comprised of three persons, one to be selected by each party hereto and the third selected by the first two. The arbitrators shall be persons involved in and familiar with the licensing and technology transfer field. Each party shall select an arbitrator within twenty (20) days of request for arbitration by either party. The first two arbitrators shall select the third member of the panel within fifteen (15) days after their selection. The arbitration shall be held as soon as is reasonably possible after selection of the arbitration panel. The proceedings shall be held in an informal manner as reasonably determined by the arbitrators. Except for the right of appeal as set forth in Section 10.B below, the parties shall be bound by a decision of the arbitration panel with respect to the matter in dispute. All proceedings of the arbitration panel shall be held in Chicago, Illinois. The panel's costs and fees shall be borne by the losing party if the arbitrators designate one party as the losing party.

B. Appeals. There shall be no appeal from an arbitration panel's unanimous decision. In the event of a majority decision by the arbitration panel, a dissatisfied party may appeal the panel's decision to the American Arbitration Association (AAA) for an independent, final, binding decision. All appeals shall be heard in Chicago, Illinois. The dissatisfied party must make such an appeal within thirty (30) days after receipt of the arbitration panel's decision and if it loses the appeal must bear the parties' expenses and costs for such appeal. The AAA is hereby authorized to make arrangements for such appeal, to be held under the procedures provided by its arbitration rules. Judgment upon any award rendered by all or a majority of the appeal arbitrators or a unanimous judgment of the initial panel, may be entered in any court of competent jurisdiction, after any and all applicable appeal periods have passed.

C. Not Applicable to HIM. This Paragraph 10 does not apply to any such claims, disagreements, or controversies involving HHMI.

11. Miscellaneous.

A. Marking. Licensee shall and agrees to cause its Sublicensees and Affiliates of either, to place in a conspicuous location on Licensed Product (or its packaging where marking the Product is physically impossible) sold to third parties, a patent notice in accordance with the laws concerning the marking of patented articles in the country in which such articles are sold.

B. United States Manufacture. Licensee agrees that, to the extent required by 35 United States Code Section 204, any Licensed Products sold in the United States will be manufactured substantially in the United States of America.

C. Export Regulations. To the extent that the United States Export Control Regulations are applicable, neither Licensee nor Licensor shall, without having first fully complied with such regulations, (i) knowingly transfer, directly or indirectly, any unpublished technical data obtained or to be obtained from the other party hereto to a destination outside the United States, or (ii) knowingly ship, directly or indirectly, any product produced using such unpublished technical data to any destination outside the United States.

D. Entire Agreement, Amendment, Waiver. This Agreement together with the Schedules attached hereto constitutes the entire agreement between the parties regarding the subject matter hereof, and supersedes all prior written or oral agreements or understandings (express or implied) between them concerning the same subject matter. This Agreement may not be amended or modified except in a writing signed by duly authorized representatives of each party. No waiver of any default hereunder by any party or any failure to enforce any rights hereunder shall be deemed to constitute a waiver of any subsequent default with respect to the same or any other provision hereof

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E. Notice. Any notice required or otherwise made pursuant to this Agreement shall be in writing, sent by registered or certified mail properly addressed, or by facsimile with confirmed answer-back, to the other party at the address set forth below or at such other address as may be designated by written notice to the other parties. Notice shall be deemed effective three (3) business days following the date of sending such notice if by mail, on the day following deposit with an overnight courier, if sent by overnight courier, or upon confirmed answer-back if by facsimile.

If to ARCH:

ARCH Development Corporation
1101 East 58th Street
Chicago, Illinois 60637
Attention: President

If to Licensee:

GenVec, Inc.
12111 Parklawn Drive
Rockville, MD 20852
Attention: President
With a copy to: Vice President, Corporate Development

F. Assignment. This Agreement shall be binding on the parties hereto and upon their respective successors and assigns. ARCH may assign this Agreement at any time to a third party that performs a similar role as ARCH for the University on written notice to Licensee and to any other party with the written approval of Licensee, said approval not to be unreasonably withheld. This Agreement shall not be assignable by Licensee without prior written consent from ARCH, which consent shall not to be unreasonably withheld; provided, however, that Licensee may assign this Agreement without such consent in connection with a transfer of all or substantially all of its assets, whether by sale, merger, operation of law or otherwise. In the event of any permitted assignment, the assignee shall be substituted for the assigning party as a party hereto, and the assigning party shall no longer be bound hereby by the other parties.

G. Governing Law. The interpretation and performance of this Agreement shall be governed by the laws of the State of Illinois applicable to contracts made and to be fully performed in that state.

H. The University. This Agreement is entered into by ARCH in its own private capacity and not on behalf of the University, nor as its contractor or agent. It is understood and agreed that the University is not a party to this Agreement and is not liable for nor assumes any responsibility or obligation under this Agreement, and is not liable for any action or lack thereof by ARCH.

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I. Advertising. Each party agrees not to use the name of the other party in any commercial activity, marketing, advertising or sales brochures except with the prior written consent of the other party, which consent may be granted or withheld in such party's sole discretion. Licensee agrees not to use, and shall prohibit its Sublicensees and the Affiliates of either from using, the name of HHMI, the University or any of the inventor(s) in any commercial activity, marketing, advertising or sales brochures, except to the extent required by law.

J. Independent Contractors. The relationship of the parties hereto is that of independent contractors. The parties hereto are not deemed to be agents, partners or joint venturers of the others for any purpose as a result of this Agreement or the transactions contemplated thereby.

K. Right to Develop Independently. Nothing in this Agreement will impair Licensee's right to independently acquire, license, develop for itself, or have others develop for it, intellectual property and technology performing similar functions as the Licensed Patents or to market and distribute Licensed Products or other products based on such other intellectual property and technology.

L. Force Majeure. Neither party shall lose any rights hereunder or be liable to the other party for damages or losses (except for payment obligations) on account of failure of performance by the defaulting party if the failure is occasioned by war, strike, fire, Act of God, earthquake, flood, lockout, embargo, governmental acts or orders or restrictions, failure of suppliers, or any other reason where failure to perform is beyond the reasonable control and not caused by the negligence, intentional conduct or misconduct of the nonperforming party and the non-performing party has exerted all reasonable efforts to avoid or remedy such force majeure; provided, however, that in no event shall a party be required to settle any labor dispute or disturbance.

M. LIMITATION OF LIABILITY. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES ARISING OUT OF THIS AGREEMENT, HOWEVER CAUSED, UNDER ANY THEORY OF LIABILITY.

N. Severability. In the event that any provisions of this Agreement are determined to be invalid or unenforceable by a court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect without said provision. The parties shall in good faith negotiate a substitute clause for any provision declared invalid or unenforceable, which shall most nearly approximate the intent of the parties in entering this Agreement.

O. Counterparts. This Agreement may be executed in two counterparts, each of which shall be deemed an original and which together shall constitute one instrument.

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P. HHMI. HHMI is not a party to this License Agreement and has no liability to any licensee, Sublicensee, or user of any technology covered by this License Agreement, but HHMI is an intended third-party beneficiary of this License Agreement and certain of its provisions are for the benefit of HHMI and are enforceable by HHMI in its own name.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed by their respective duly authorized officers or representatives on the date first above written.

ARCH DEVELOPMENT CORPORATION

GENVEC, INC.

By:

Its: CEO

By:

Its: Vice President/Corporate
Development

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Schedule A

*

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LICENSE AGREEMENT

This License Agreement ("Agreement"), dated May 26, 1993, between DANA-FARBER CANCER INSTITUTE, INC., a Massachusetts not-for-profit corporation ("DFCI"), ARCH Development Corporation, an Illinois not-for-profit corporation ("ARCH"), and GenVec, Inc., a Delaware corporation ("Licensee").

Purpose and Intent

A ARCH and DFCI (hereinafter referred to collectively as "Licensors" and referred to individually as a "Licensor") hold rights to the Licensed Patents defined below and Licensee desires to obtain exclusive rights to such Licensed Patents for commercialization in a certain field.

B. On even date herewith, ARCH and Licensee have entered into a separate License Agreement regarding certain other patent rights owned solely by ARCH.

Therefore, the parties agree as follows:

Agreement

1. Definitions. The following capitalized terms used in this Agreement all mean:

A. "Affiliate" means as to any person or entity, the possession of the power to direct or cause the direction of the management and the policies of an entity whether through ownership directly or indirectly of fifty percent (50%) or more of the stock entitled to vote, and for non-stock organizations, the right to receive fifty percent (50%) or more of the profits by contract or otherwise, or in countries where control of fifty percent (50%) or more of such rights is not permitted in the country where such entity exists, the maximum permitted in such country.

B. "ARCH Agreement" shall mean that certain License Agreement entered into by ARCH and Licensee effective of even date herewith.

C. "Effective Date" means the date set forth on page 1, line 1, of this Agreement.

D. "Field" means all Gene Therapy applications.

E. "Gene Therapy" means the introduction of nucleic acid into a person with the purpose of modifying the functions or behaviors of cells of the human body, either by *ex vivo* introduction of nucleic acid into cells, which cells are later introduced into such person's body, or by *in vivo* introduction of nucleic acid into the person's body, to be incorporated into cells of such person (nucleic acid being any composition of matter that includes two or more covalently joined nucleotides and/or variants thereof, including, without limitation, variants of the phosphate, ribose sugar and/or heterocyclic base portions thereof, provided that such nucleotides and variants comprise a substantial component of such composition of matter).

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

F. "Licensed Patents" means the patent applications listed on Schedule A attached hereto, including all divisions, continuations, continuations-in-part, foreign counterparts, and any valid patents which may issue therefrom and any reissues, renewals, substitutions, or extensions of or to any such patents or patent applications. Licensed Patents shall not include any applications and any patents issuing from applications filed in countries (i) that Licensee elected not to file in pursuant to Paragraph 4.A. and (ii) where Licensee's rights are terminated under Paragraph 4.D.

G. "Licensed Product" means any product within the scope of any Valid Claim, or a product made by a process, method or technique within the scope of any Valid Claim, or a product, the method of use of which is within the scope of any Valid Claim.

H. "Net Sales" means:

(1) the gross amounts received by Licensee and its Affiliates and Sublicensees for Licensed Products, less the following amounts directly chargeable to such Licensed Products: (a) customary trade, quantity or cash discounts and rebates, actually allowed and taken; (b) amounts repaid or credited to customers on account of rejections; (c) freight and other transportation costs, including insurance charges, and duties, tariffs, sales and excise taxes and other governmental charges based directly on sales, turnover or delivery of such Licensed Products and actually paid or allowed by Licensee and its Affiliates or any Sublicensee; and (d) amounts allowed or credited due to returns or uncollectible amounts. If Licensee or a Sublicensee or the Affiliates of either of them do not sell Licensed Products but use Licensed Products as part of selling a service or other means of deriving commercial benefit from a Licensed Product, the parties agree to negotiate in good faith to determine a method of calculating a running royalty equivalent to the running royalty set out in this Agreement on Net Sales. Net Sales shall be calculated on sales to independent third parties and not on sales between Licensee and its Affiliates or Sublicensees unless such a purchaser is the end-user of the Licensed Product. For Licensed Products consumed by Licensee, its Affiliates or any Sublicensee, the price used to calculate Net Sales shall be equal to the average of the sales price of the same or substantially similar Licensed Products, whichever is relevant, sold to its three largest customers during the same time period.

(2) with respect to any Licensed Product sold in combination with one or more active therapeutic ingredient(s), or device(s) for the administration of the Licensed Product, in each case, which are not Licensed Products, Net Sales for such combination products shall be calculated by multiplying the Net Sales calculated pursuant to Paragraph H(1) above by the fraction $A/(A + B)$, where A is the gross selling price of the Licensed Product sold separately and B is the gross selling price of the other product(s) or active therapeutic ingredient(s) or agent(s) sold separately. In the event that no such separate sales are made by Licensee, Net Sales for royalty determination shall be as reasonably allocated by Licensee and ARCH, as agreed by the parties, between such Licensed Product and such other product(s), ingredient(s) and/or agent(s) based upon their relative importance and proprietary protection.

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I. "Royalties" means all amounts payable under Paragraph 3.B. of this Agreement.

J. "Sublicensee" means any person, company or other entity granted a sublicense by Licensee under Paragraph 2.B. below, including Affiliates of the Sublicensee.

K. "Sublicense" means the license agreement entered into by Licensee with a Sublicensee under Paragraph 2.B. below.

L. "Territory" means worldwide.

M. "University" means the University of Chicago.

N. "Valid Claim" means an issued claim of any unexpired patent or a claim of any pending patent application within the Licensed Patents which has not been held unenforceable, unpatentable or invalid by a decision of a court or governmental body of competent jurisdiction, in a ruling that is unappealable or unappealed within the time allowed for appeal which has not been rendered unenforceable through disclaimer or otherwise, and which has not been lost through an interference proceeding. Notwithstanding the foregoing, a claim of a pending patent application shall cease to be a Valid Claim if no patent has issued on such claim on or prior to the seventh anniversary of the date of filing of the corresponding parent patent application, provided that such claim shall once again become a Valid Claim on the issue date of a patent that subsequently issues and contains such claim.

2. GRANT OF LICENSE AND RESERVATION OF RESEARCH RIGHTS.

A. Grant. Licensors hereby grant to Licensee and its Affiliates an exclusive, worldwide license under the Licensed Patents to make, have made, use, import, have imported, offer to sell and sell Licensed Products within the Field and within the Territory.

B. Sublicense.

(1) Licensee shall have the exclusive right to grant sublicenses to third parties to the rights granted Licensee under Paragraph 2.A on terms not in conflict with the terms of this Agreement. ARCH shall be informed by written notice of the identity of any prospective Sublicensee and shall have the right to approve of said Sublicensee, which approval shall not be unreasonably withheld. If ARCH does not object in writing within forty-five (45) days of said written notice, approval shall be presumed conclusively to have been given. Notwithstanding the foregoing GenVec may grant a sublicense to any of the top 100 pharmaceutical and/or biopharmaceutical companies as reported by Scrip, without the prior approval of ARCH.

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(2) GenVec agrees that any sublicenses granted by it or its Sublicensees shall provide that the obligations to ARCH contained in this Agreement to the extent applicable shall be binding upon the Sublicensee. GenVec further agrees to provide a copy of this Agreement (which may be redacted to remove financial and other competitive information) to each Sublicensee.

(3) GenVec agrees to forward to ARCH a copy of any and all fully executed sublicense agreements with financial terms redacted, and further agrees to forward to ARCH annually a copy of such reports received by GenVec from its Sublicensee during the preceding twelve (12) month period under the sublicenses as shall be pertinent to a royalty accounting under said sublicense agreements.

(4) All sublicenses shall provide that the Sublicensee may not grant further sublicenses to third parties, without the written consent of ARCH, which consent shall not be unreasonably withheld; provided, that Sublicensees may grant further sublicenses without the prior consent of ARCH (i) to their Affiliates, and (ii) in connection with the development and/or commercialization of Licensed Products.

(5) GenVec hereby agrees that every sublicensing agreement to which it is a party and which relates to the rights, privileges and license granted hereunder shall contain a statement setting forth the date upon which Licensee's exclusive rights, privileges and license hereunder shall terminate.

C. **Reservation of Rights.** Each of DFCI and ARCH reserves for itself and ARCH reserves for the University the non-transferable right to practice the inventions claimed in the Licensed Patents to make, have made, and use Licensed Products within the Field for all educational and non-commercial research purposes it may choose, in its own discretion, and without any payment therefore. The inventions claimed in the Licensed Patents were made with the use of funds from the United States government. Therefore, to the extent required by United States law, there is reserved from the rights granted hereunder the worldwide, non-exclusive right of the United States government to use and to practice or have practiced the inventions claimed in the Licensed Patents.

D. **U.S. Laws.** The inventions claimed in the Licensed Patents were developed with the use of United States government funds. Therefore, any right granted in this Agreement greater than that permitted under Public Law 96-517 or Public Law 98-620 shall be subject to modification as may be required to conform to the provisions of those laws.

E. **Supercession.** This Agreement supersedes the prior agreement effective May 26, 1993 by and between ARCH, DFCI and Licensee, which is hereby terminated and of no further force or effect.

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3. Royalties and Other Payments.

A. License Payment.

(1) Subject to reduction pursuant to subsection 3.A(2) below, Licensee agrees to make the following payments to ARCH within forty-five (45) days after the occurrence of each of the following events:

(a) \$* at the time of the filing in the United States by Licensee or any Sublicensee of an IND for the first Licensed Product (such payment referred to as an "IND Fee"); and

(b) \$* at the time of filing in the United States by Licensee or any Sublicensee of an NDA on a Licensed Product (such payment referred to as an "NDA Fee").

Each payment pursuant to this Paragraph 3.A.(1) may be credited against any Royalties due under Paragraph 3.B. on the sale of the Licensed Product with respect to which such payment is made (or if the development of a particular Licensed Product is terminated, a successor Licensed Product thereto) in amounts not to exceed * of the Royalties otherwise due each calendar quarter. Any such amount not credited against Royalties in any quarter may be carried forward until the credit is fully applied. It is understood and agreed that any amounts paid under this Section 3.A(1) shall be fully creditable against any amounts due to ARCH under Section 3.A(1) of the ARCH Agreement.

(2) If in Licensee's judgment, based on reasonable legal or commercial considerations, it is desirable for Licensee or any Affiliate or Sublicensee to enter into a licensing agreement (each, a "Third Party Licensing Agreement") pursuant to which Licensee or the applicable Affiliate or Sublicensee must also pay to the third party licensor an IND Fee and/or an NDA Fee in connection with a Licensed Product, then, at such time as an IND Fee or NDA Fee shall become payable, Licensee shall allocate the IND Fee or NDA Fee (as the case may be) payable under this Agreement equally among ARCH and third party licensors (up to a maximum of two additional third party licensors)

B. Royalties.

(1) Subject to reduction pursuant to subsection 3.8(2), and subject to subsections 3.B(3), (4) and (5) below, Licensee shall pay a royalty to ARCH during the term of this Agreement equal to * of Net Sales by Licensee or any Affiliate or Sublicensee of Licensed Products within the scope of a Valid Claim in the country of manufacture or sale.

(2) In the event that Licensee enters into a license agreement with any third party with respect to intellectual property rights which are necessary or useful for Licensee's practice of the Licensed Patents or the manufacture, use, import and/or sale of any Licensed Product, Licensee may offset any payments made in accordance with such license agreements against any amounts owed Licensors pursuant to Paragraph 3B herein, on a country-by-country basis, up to a maximum of * of the amounts due under Paragraph 3.B. Any such amounts which are not offset in any quarter may be carried forward until applied.

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(3) No Royalties shall be due on Licensed Products distributed for use at cost or less in research and/or development, in clinical trials or as promotional samples.

(4) No more than one Royalty payment shall be due with respect to a sale of a particular Licensed Product. No multiple Royalties shall be payable because any Licensed Product, or its manufacture, sale or use is covered by more than one Valid Claim. It is understood and agreed that Licensee's total Royalty obligation under this Agreement and the ARCH Agreement shall not exceed a cumulative total of * of Net Sales (as defined in such Agreements), and that any Royalties paid under this Agreement shall be fully creditable against any royalties due to ARCH under the ARCH Agreement.

(5) Royalties due under this Paragraph 3.B shall be payable on a country-by-country and Licensed Product-by-Licensed Product basis until the expiration of the last-to-expire issued Valid Claim covering such Licensed Product in such country, or if no such patent has issued in a country, until there are no remaining pending Valid Claims covering such Licensed Product in such country.

C. Appointment of Agent. Licensors hereby represent to Licensee that pursuant to a patent management agreement between ARCH and DFCI dated as of December 1, 1990 (the "Management Agreement"), DFCI appointed ARCH as the agent of DFCI to collect and account for all Royalties and other amounts paid to Licensors pursuant to licensing agreement(s) for the Licensed Patents. Therefore, Licensors hereby direct Licensee, and Licensee hereby agrees, that all payments to be made by Licensee to Licensors under this Agreement shall be paid to ARCH on behalf of the Licensors at ARCH's principal place of business, or at such other place and in such other way as ARCH may designate, without deduction of exchange, collection or other charges. ARCH agrees to notify Licensee in writing within thirty (30) days of the termination of the Management Agreement if such termination occurs during the term of this Agreement.

D. Calculation of Royalties. Royalties shall be payable in U.S. currency within * days after the end of each calendar quarter for the term specified in Paragraph 9.A. below, beginning with the calendar quarter in which the first commercial sale of a Licensed Product occurs. Each payment shall be accompanied by a statement showing Net Sales for each country in the Territory and calculation of the Royalties due. All such statements shall be deemed to be Confidential Information of Licensee. There shall be deducted from all such payments taxes required to be withheld by any governmental authority and Licensee shall provide copies of receipts for such taxes to ARCH along with each royalty payment. Any necessary conversion of currency into United States dollars shall be at the applicable rate of exchange for buying U.S. dollars of Citibank, N.A., in New York, New York, on the last day of the calendar quarter in which such transaction occurred. If at any time legal restrictions prevent the prompt remittance of any Royalties owed on Net Sales in any jurisdiction, Licensee may notify Licensors and make such payments by depositing the amount thereof in local currency in a bank account or other depository in such country in the name of Licensors, and Licensee shall have no further obligations under this Agreement with respect thereto.

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E. Records. Licensee shall keep, and shall cause its Affiliates and Sublicensees of either, to keep, full and accurate books and records in sufficient detail so that sums due Licensors hereunder can be properly calculated. Such books and records shall be maintained for at least three (3) years after the Royalty reporting period(s) to which they relate. During the term hereof and for three (3) calendar years thereafter, Licensee shall permit, and shall cause its Affiliates to permit, and use reasonable efforts to have its Sublicensees permit certified independent accountants designated by ARCH, to whom Licensee has no reasonable objection, to examine its books and records solely for the purpose of verifying the accuracy of the written statements submitted by Licensee and sums paid or payable. ARCH may conduct such examination no more than once in any calendar year and conduct no more than one audit of any period. After completion of any such examination, ARCH shall promptly notify Licensee in writing of any proposed modification to Licensee's statement of sums due and payable. If Licensee accepts such modification, or if the parties agree on other modifications, one party shall promptly pay or credit the other in accordance with such resolution. Such examination shall be made at the expense of ARCH, except that if such examination discloses a discrepancy of ten percent (10%) or more in the amount of Royalties and other payments due ARCH, then Licensee shall reimburse ARCH for the cost of such examination.

F. Overdue Payments. Payments due to ARCH under this Agreement shall, if not paid when due under the terms of this Agreement, bear simple interest at the lower of the prime rate of interest (as published by Citibank, N.A. on the date such payment is due) plus * or the highest rate permitted by law, calculated on the basis of a 360 day year for the number of days actually elapsed, beginning on the due date and ending on the day prior to the day on which payment is made in full. Interest accruing under this Paragraph shall be due to Licensors on demand or upon payment of past due amounts, whichever is sooner. The accrual or receipt by ARCH of interest under this Paragraph shall not constitute a waiver by Licensors of any right it may otherwise have to declare a default under this Agreement or to terminate this Agreement.

4. Prosecution and Maintenance of Patents; Patent Costs.

A. Prosecution and Maintenance.

(1) ARCH shall be responsible, using any of the following patent counsel, that are acceptable to Licensee: Arnold, White & Durkee; Dressler, Rocky, Milnamow & Katz, Ltd.; Marshall, O'Toole, Gerstein, Murray, & Borum; or Foley & Lardner for the filing, preparation, registration, prosecution and maintenance of the Licensed Patents. Licensee shall select patent counsel from the above list, or such other counsel as the parties agree, as patent counsel for maintenance of all patent applications and patents within the Licensed Patents.

(2) ARCH shall cause such patent counsel to provide Licensee with a list of the countries in which ARCH has filed and/or intends to file applications. Such list shall be provided to Licensee at least ninety (90) days prior to the expiration of the corresponding United States priority date to allow Licensee to suggest that additional countries be added to the list or that one or more countries be deleted from the list. ARCH agrees to timely file applications in each of the countries requested by Licensee unless it otherwise notifies Licensee under Paragraph 4.B below.

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(3) Licensee agrees to cooperate, and agrees to cause its Sublicensees and Affiliates of either to cooperate, with ARCH in the preparation, filing, prosecution and maintenance of the Licensed Patents by disclosing such information as may be necessary for the same and by promptly executing such documents as ARCH may reasonably request in connection therewith. Licensee and its Sublicensees and Affiliates of either shall bear their own costs in connection with their cooperation with ARCH under this Paragraph.

(4) ARCH will provide Licensee copies of all material documents received or prepared by ARCH in the prosecution and maintenance of the Licensed Patents. Licensee shall have reasonable opportunities to advise ARCH concerning, and ARCH shall cooperate with Licensee with respect to, filing, registration, prosecution and maintenance of all patents and patent applications within the Licensed Patents. "Reasonable opportunities" shall mean that Licensee shall receive from ARCH or its patent counsel copies of all documents and materials relating to filing, registration, prosecution and maintenance of patent applications and patents within the Licensed Patents as soon as is reasonably practical after ARCH has received such documents and materials, and at least forty-five (45) days or the maximum time provided by the Patent Office before any date imposed upon ARCH for action or response with respect to such patent applications and patents. ARCH agrees to use its best efforts to incorporate into the final version of such documents and materials any reasonable change(s) and/or claims (s) requested by Licensee thereof prior to submission to the applicable government agencies or other parties. In addition, to avoid any prejudice and added unnecessary costs to Licensee, ARCH shall adhere to the applicable deadlines, and Licensee shall not be responsible for the costs of any time extensions for reasons that are not approved in advance by Licensee.

B. Licensee's Rights to Prosecute and Maintain Patents. ARCH shall notify Licensee in writing of any country(ies) where it either previously declared its intention to file under Paragraph 4.A. and subsequently decided not to file in such country(ies) or previously filed and decided to abandon the patent application or issued patent. Such notice shall be given so as to allow Licensee a reasonable time, but not less than ninety (90) days, within which to file in countries where ARCH does not intend to file a patent application or is not going to continue the prosecution or maintenance of the application or patent, whichever is relevant. In all cases where Licensee elects to file, Licensee shall file, prosecute and maintain the applications and patents in ARCH's name and at Licensee's expense. Such applications and patents shall be included in the definition of Licensed Patents for all purposes of this Agreement.

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C. Patent Costs. Licensee agrees to pay all necessary and reasonable third party fees and out-of-pocket expenses incurred by ARCH in obtaining and maintaining the Licensed Patents, including those incurred by ARCH pursuant to the terms of the Agreement effective May 26, 1993 by and between ARCH, DFCI and Licensee. ARCH and DFCI acknowledge that a total amount of \$333,333.75 shall be paid to ARCH for such fees and expenses in full payment of such amounts due as of May 15, 1999 pursuant to the terms of the letter sent by GenVec to ARCH and DFCI dated June 14, 1999. Payment for fees and expenses incurred after the date of this Agreement shall be invoiced to Licensee on a monthly basis and Licensee agrees to pay such invoices within thirty (30) days of receipt. Licensee also agrees upon reasonable request by ARCH to make timely reasonable estimated advanced payments for the filing of national applications in countries selected by Licensee; provided, that ARCH provides Licensee with invoices for such amounts at least thirty (30) days prior to the date payment must be made by ARCH to a third party. Documentation received from the third party vendors to support the amounts invoiced, in a form reasonably acceptable to Licensee, shall be included with each invoice. Licensee shall raise any objections to such amounts invoiced within the thirty (30) day time period for payment. Invoices for advanced payments shall be reconciled with the advance payments made by Licensee every six (6) months. Any excess payment by Licensee shall be credited to future patent costs specified in this Paragraph 4.C.

D. Failure to Pay Patent Costs. If Licensee declines or fails to make advance payments or pay or reimburse ARCH for any material portion of any reasonable patent fees and expenses (including maintenance fees) as required by Paragraph 4.C. for any application or patent, Licensee's rights with respect to the applicable applications and patents shall terminate effective sixty (60) days after written notice from ARCH requesting such payment, unless payment in full is made within such time; provided, if Licensee disputes that any portion of such fees are reasonable, it may provide notice to ARCH that it wishes to have such dispute settled by arbitration pursuant to Paragraph 10, and in such event ARCH may not terminate Licensee's rights with respect to the applicable applications and patents until and unless the arbitrator determines that such fees and expenses were reasonable, in which case Licensee shall pay the unpaid fees and expenses (with interest from the date due) in full within ten days from the date of the arbitrator's final written determination that such fees and expenses were reasonable and also pay the arbitrators fees incurred in connection with the arbitration. Such notice can be sent by ARCH at any time after the expiration of the thirty (30) days provided in Paragraph 4.C. for payment of invoices or in the case of advance payments, any time after the date five (5) business days before payment must be made by ARCH to a third party.

5. Due Diligence and Milestones.

A. Diligence and Development Expenditures. Licensee or its Sublicensees shall use commercially reasonable diligent efforts to develop and commercialize Licensed Products. Through September 30, 2000, "commercially reasonable diligent efforts" shall automatically be deemed to have been met if Licensee achieves the following milestones:

Event	Date
Obtain rights to TNF ^{alpha} or alternative therapeutic gene designated by Licensee for use in conjunction with one or more of the Licensed Patents ("Milestone 1")	3/31/99
File IND for a Licensed Product ("Milestone 2").	Within 24 months of the Effective Date; provided, however, Licensee need not accomplish Milestone 2 if it has expended at least \$* on the development of Licensed Product(s) as of 24 months after the Effective Date.

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The foregoing milestones may be satisfied by Licensee and/or its Affiliates or Sublicensees.

B. Progress Report. Within thirty (30) days of the end of each June 30 and January 31 during the term of this Agreement, Licensee shall make a written report to ARCH, in such detail as ARCH may reasonably request, covering the preceding six months and describing the progress of Licensee toward achieving the development and commercialization of Licensed Products. Licensee agrees to immediately notify ARCH in writing when commercial products are first sold and when Licensee's obligation to begin making running Royalty payments begins. When Licensee begins making running Royalty payments, the six month reports required by this Paragraph shall be reduced to a yearly report due by January 31 of each year, covering the preceding year's commercialization efforts.

6. Warranties; Disclaimer, Indemnification, Insurance.

A. ARCH. ARCH represents and warrants that: (i) it, together with DFCI, is the sole and exclusive owner of all right, title and interest in the Licensed Patents; (ii) it has the right to grant the rights and licenses granted herein, and the Licensed Patents are free and clear of any lien, encumbrance, security interest or restriction on license; (iii) it has not previously granted, and will not grant during the term of this Agreement, any right, license or interest in and to the Licensed Patents, or any portion thereof, inconsistent with the license granted to Licensee herein; and (iv) there are no threatened or pending actions, suits, investigations, claims or proceedings in any way relating to the Licensed Patents.

B. DFCI. DFCI represents and warrants that: (i) it, together with ARCH, is the sole and exclusive owner of all right, title and interest in the Licensed Patents; (ii) it has the right to grant the rights and licenses granted herein, and the Licensed Patents and are free and clear of any lien, encumbrance, security interest or restriction on license; (iii) it has not previously granted, and will not grant during the term of this Agreement, any right, license or interest in and to the Licensed Patents, or any portion thereof, inconsistent with the license granted to Licensee herein; and (iv) there are no threatened or pending actions, suits, investigations, claims or proceedings in any way relating to the Licensed Patents.

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C. Disclaimer of Warranties. Except as expressly provided above, Licensors make no representations or warranties of any kind, express or implied, with respect to the inventions) claimed in the Licensed Patents or with respect to the Licensed Patents themselves, including but not limited to, any representations or warranties about (i) the validity, scope or enforceability of any of the Licensed Patents; (ii) the accuracy, safety or usefulness for any purpose of any information provided by Licensors to Licensee, its Sublicensees or Affiliates of either, with respect to the invention(s) claimed in the Licensed Patents or with respect to the Licensed Patents themselves and any products developed from or covered by them; (iii) whether the practice of any claim contained in any of the Licensed Patents will or might infringe a patent or other intellectual property right owned or licensed by a third party; (iv) the patentability of any invention claimed in the Licensed Patents; or (v) the accuracy, safety, or usefulness for any purpose of any product or process made or carried out in accordance with or through the use of the Licensed Patents.

D. Indemnification. Licensee agrees, and agrees to use its Sublicensees and Affiliates of either, to indemnify, defend and hold harmless Licensors, their Affiliates and all trustees, directors, officers, employees, fellows and agents of any of the foregoing (including Licensors and their Affiliates, each an "Indemnified Person") from and against any and all third party claims, demands, loss, damage, penalty, cost or expense (including attorneys' and witnesses' fees and costs) of any kind or nature, arising from the development, production, use, sale or other disposition of Licensed Products and all activities associated therewith by Licensee, its Sublicensees or Affiliates of either, or any use by Licensee and its Sublicensee or Affiliates of information provided by Licensors to Licensee. Licensee agrees and agrees to use reasonable efforts to cause each of its Sublicensees and Affiliates of either to agree not to sue any Indemnified Person in connection with the development, production, use, sale or other disposition of Licensed Product and all activities associated therewith, except if the Indemnified Person has breached this Agreement. Licensors shall be entitled to participate, at their option and expense, through counsel of their own selection, and may join in any legal actions related to any such third party claims, demands, losses, damages, costs, expenses and penalties. Licensee, its Sublicensees and Affiliates of either, shall not enter into any settlement affecting any rights or obligations of any Indemnified Person or which includes an express or implied admission of liability, negligence or wrongdoing by any Indemnified Person, without the prior written consent of such Indemnified Person, which consent shall not be unreasonably withheld.

E. Assumption of Risk. The entire risk as to the performance, safety and efficacy of any invention claimed in the Licensed Patents practiced by Licensee or its Affiliates or Sublicensees or of any Licensed Product made by Licensee or its Affiliates or Sublicensees is assumed by Licensee, its Sublicensees and Affiliates of either, provided that such assumption of the risk shall not apply to the intentional misconduct or gross negligence by Indemnified Persons. Indemnified Persons shall not, except for their intentional misconduct or gross negligence, be responsible or liable for any injury, loss, or damage of any kind, including but not limited to direct, indirect, special, incidental or consequential damages or lost profits to Licensee, any Sublicensee, Affiliates of either or customers or any of the foregoing, or for any such injury, loss or damage to any other individual or entity, regardless of legal theory based on the development, manufacture, use, sale or other disposition of Licensed Products and all activities associated therewith. The above limitations on liability apply even though the Indemnified Person may have been advised of the possibility of such injury, loss or damage. Licensee shall not, and shall require all Sublicensees and Affiliates of either to not, make any agreements, statements, representations or warranties or accept any liabilities or responsibilities whatsoever with regard to any person or entity which are inconsistent with this Paragraph.

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F. Insurance. At such time as any product, process or service relating to, or developed pursuant to this Agreement is being commercially distributed or sold (other than for the purpose of obtaining regulatory approvals) by Licensee or by a Sublicensee or agent of Licensee, Licensee shall, at its sole cost and expense, procure and maintain policies of comprehensive general liability insurance in amounts not less than \$2,000,000 per incident and \$2,000,000 annual aggregate and naming the Indemnitees as additional insureds. Such comprehensive general liability insurance shall provide (a) product liability coverage, and (b) broad form contractual liability coverage for Licensee's indemnification under Paragraph 6.D. of this Agreement. If Licensee elects to self-insure all or part of the limits described above (including deductibles or retentions which are in excess of \$250,000 annual aggregate), such self-insurance program must be reasonably acceptable to the Licensors and DFCL's associated Risk Management Foundation. The minimum amounts of insurance coverage required under these provisions shall not be construed to create a limit of Licensee's liability with respect to its indemnification obligation under Paragraph 6.D. of this Agreement. Licensee shall provide a Licensor with written evidence of such insurance upon written request of such Licensor. Licensee shall provide each of the Licensors with written notice at least fifteen (15) days prior to the cancellation, non-renewal or material reduction in the extent of such insurance; if Licensee does not obtain replacement insurance providing comparable coverage within such fifteen (15) day period, Licensors shall have the right to terminate this Agreement effective at the end of such fifteen (15) day period without any notice or additional waiting periods Licensee shall maintain such comprehensive general liability insurance beyond the expiration or termination of this Agreement during (i) the period that any product, process, or service, relating to, or developed pursuant to, this Agreement is being commercially distributed or sold (other than for the purpose of obtaining regulatory approvals) by Licensee or by a Sublicensee or agent of Licensee, and (ii) a reasonable period after the period referred to in (i) above which in no event shall be less than fifteen (15) years.

7. Confidentiality.

A. Confidentiality Publications and Data Access. All information submitted by one party to the other concerning the invention(s) claimed in the Licensed Patents and Licensed Products identified as confidential at the time of disclosure shall be considered as confidential ("Confidential Information") and shall be utilized only pursuant to the licenses granted hereunder. During the term of this Agreement and for a period of ten (10) years thereafter, neither party shall disclose to any third party any Confidential Information received from the other party without the specific written consent of such party. The foregoing shall not apply where such Information a) was or becomes public through no fault of the receiving party, b) was, at the time of receipt, already in the possession of receiving party as evidenced by its prior written records, c) was obtained from a third party legally entitled to use and disclose the same, d) is independently developed by the receiving party without use of any Confidential Information of the disclosing party, or e) is required by law to be disclosed to a court or governmental agency.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

B. Permitted Use and Disclosures. Notwithstanding Paragraph 7.A above, each party hereto may use or disclose information disclosed to it by the other party to the extent such use or disclosure is reasonably necessary in filing or prosecuting patent applications, prosecuting or defending litigation, complying with applicable governmental regulations or otherwise submitting information to tax or other governmental authorities, conducting clinical trials, or making a permitted sublicense or otherwise exercising its rights hereunder, provided that if a party is required to make any such disclosure of another party's confidential information, other than pursuant to a confidentiality agreement, it will give reasonable advance notice to the latter party of such disclosure and, save to the extent inappropriate in the case of patent applications, will use its best efforts to secure confidential treatment of such information prior to its disclosure (whether through protective orders or otherwise).

C. Confidential Terms. Except as expressly provided herein, each party agrees not to disclose any terms of this Agreement to any third party without the consent of the other party; provided, disclosures may be made as required by securities or other applicable laws, or to actual or prospective investors or corporate partners, or to a party's accountants, attorneys and other professional advisors.

D. Publications. Licensors shall provide to Licensee copies of any proposed written publication by Licensors containing any Confidential Information and, to the extent Licensors are aware of them, proposed publications containing any information relating to the Licensed Patents. Licensee agrees to use reasonable efforts to provide copies of any proposed written publication containing any information relating to the Licensed Patents of Licensee, its Sublicensees and Affiliates of either of them to Licensors. The parties shall provide copies of such proposed written publications at least ninety (90) days in advance of publication. In addition, the topic and contents of any proposed oral disclosures regarding the Licensed Patents which will be made to third persons by Licensors shall be disclosed in writing to Licensee at least thirty (30) days prior to any proposed oral presentation. The receiving party may object to such proposed publication or disclosure on the grounds that (i) it contains patentable subject matter that needs patent protection or (ii) that the publication contains Confidential Information of the objecting party. At the request of the objecting party, Confidential Information of such party shall be deleted from the publication or oral disclosure. If the objecting party decides to seek patent protection, the proposed publication or disclosure shall be delayed for up to a period of thirty (30) additional days to permit the preparation and filing of appropriate patent applications.

8. Infringement. In the event of an infringement of a Licensed Patent the following shall apply:

A. Notice. Each party shall give the others written notice if one of them becomes aware of any infringement by a third party of any Licensed Patent. Upon notice of any such infringement, the parties shall promptly consult with one another with a view toward reaching agreement on a course of action to be pursued.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

B. Licensee's Right to Bring Infringement Action.

(1) If a third party infringes any patent included in the Licensed Patents within the Field, Licensee shall have the first right, but not the obligation, to institute and prosecute an action or proceeding to abate such infringement and to resolve such matter by settlement or otherwise. Licensee agrees to notify ARCH of its intention to bring an action or proceeding prior to filing the same (or responding to any declaratory judgment action) and in sufficient time to allow ARCH the opportunity to discuss with Licensee the choice of counsel for such matter. Licensee agrees to hire counsel reasonably acceptable to ARCH. Licensee shall keep ARCH timely informed of material developments in the prosecution or settlement of such action or proceeding. Licensee shall be responsible for all costs and expenses of any action or proceeding against infringers which Licensee initiates. Licensors shall cooperate fully in such action, including without limitation, by joining as a party plaintiff if required to do so by law to maintain such action or proceeding, and by executing and making available such documents as Licensee may reasonably request. Licensee agrees to promptly reimburse Licensors for its reasonable third party out-of-pocket fees and expenses incurred in joining an action or proceeding or cooperating with Licensee. Licensors may be represented by counsel in any such legal proceedings, at Licensors' own expense, acting in an advisory but not controlling capacity.

(2) The prosecution, settlement, or abandonment of any action or proceeding under Paragraph 8.8.(1) shall be at Licensee's reasonable discretion provided that Licensee shall not have any right to surrender any of Licensors' rights to the Licensed Patents.

(3) Except as provided herein, all amounts of every kind and nature recovered from an action or proceeding of infringement by Licensee shall belong to Licensee. After deduction of the fees and expenses of both parties to this Agreement, any remaining amounts recovered shall be considered Net Sales under this Agreement and subject to Royalty payments in accordance with Paragraph 3.B.

C. Licensors' Right to Bring Infringement Action. If a third party infringes any patent included in the Licensed Patents within the Field, and Licensors wish to initiate a legal proceeding against such infringement, Licensors all first notify Licensee in writing and may request that Licensee bring an action or proceeding against the infringing third party; provided, within sixty (60) days of receiving such notice Licensee's patent counsel shall notify ARCH of Licensee's plans for abating such infringement. If Licensee declines or fails to bring such an action or proceeding within one hundred and eighty (180) days of receipt of the notice, Licensors shall have the right, at their discretion, to institute and prosecute an action or proceeding to abate such infringement and to resolve such matter by settlement or otherwise. Licensee shall cooperate fully by joining as a party plaintiff if required to do so by law to maintain such action and by executing and making available such documents as Licensors may reasonably request. Except as specifically provided in this Paragraph, Licensors shall have the right to retain all amounts recovered of every kind and nature. Amounts recovered by Licensors shall not be considered Net Sales under this Agreement and shall not give rise to royalty payments under Paragraph 3

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

9. Termination.

A. Term. Unless terminated earlier, this Agreement shall expire on the expiration date of the last to expire of the Licensed Patents. The term of this Agreement shall commence on the Effective Date, and unless earlier terminated as provided herein, shall continue in full force and effect on a country-by-country and Licensed Product-by-Licensed Product basis until there are no remaining royalty payment obligations in a country, at which time the Agreement shall expire in its entirety in such country.

B. ARCH's Right to Terminate. ARCH shall have the right to terminate this Agreement as follows, in addition to all other available remedies:

(1) Subject to Paragraph 9.C, if Licensee fails to make any royalty or other payment when due, this Agreement shall terminate effective thirty (30) days after ARCH's written notice to Licensee to such effect, unless Licensee makes such payment within such thirty (30) days.

(2) Subject to Paragraph 9.C, if Licensee fails to observe any other material obligation of this Agreement, this Agreement shall terminate effective ninety (90) days after ARCH's written notice to Licensee describing such failure, unless Licensee cures such failure within such ninety (90) days.

(3) If Licensee shall have filed by or against it a petition under any bankruptcy or insolvency law and such petition is not dismissed within sixty (60) days of its filing, or if Licensee makes an assignment of all or substantially all of its assets for the benefit of its creditors Licensees may terminate this Agreement by written notice effective as of the (i) date of filing by Licensee of any such petition, (ii) date of any such assignment to creditors, or (iii) end of the sixty (60) days if a petition is filed against it and not dismissed by such time, whichever is applicable.

(4) If Licensee shall be dissolved, liquidated or otherwise ceases to exist due to insolvency, other than for reasons specified in Paragraph 9.B.(3) above, this Agreement shall automatically terminate as of (i) the date articles of dissolution or a similar document is filed on behalf of Licensee with the appropriate government authority, or (ii) the date of establishment of a liquidating trust or other arrangement for the winding up of the affairs of Licensee.

C. Termination for Cause. If any party materially breaches this Agreement, the Licensee, if a Licensor is the breaching party, or ARCH, if Licensee is the breaching party, may elect to give the breaching party written notice describing the alleged breach. If the breaching party has not cured such breach within sixty (60) days after receipt of such notice, the notifying party will be entitled, in addition to any other rights it may have under this Agreement, to terminate this Agreement effective immediately; provided, however, if either party receives notification from the other of a material breach and if the party alleged to be in default notifies the other party in writing within thirty (30) days of receipt of such default notice that it disputes the asserted default, the matter will be submitted to arbitration as provided in Article 10 of this Agreement. In such event, the nonbreaching party shall not have the right to terminate this Agreement until it has been determined in such arbitration proceeding that the other party materially breached this Agreement, and the breaching party fails to cure such breach within ninety (90) days after the conclusion of such arbitration proceeding, including any appeal subject to Section 10.B.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

D. Licensee's Right to Terminate. Licensee may terminate this Agreement as to any of the patent applications and/or patents within the Licensed Patents and/or any country at any time by giving ARCH ninety (90) days prior written notice.

E. Effect of Termination.

(1) Accrued Rights and Obligations. Termination of this Agreement for any reason shall not release any party hereto from any liability which, at the time of such termination, has already accrued to the other party or which is attributable to a period prior to such termination, nor preclude either party from pursuing any rights and remedies it may have hereunder or at law or in equity which accrued or are based upon any event occurring prior to such termination.

(2) Stock on Hand. In the event this Agreement is terminated for any reason, Licensee and its Affiliates and Sublicensees shall have the right to sell or otherwise dispose of the stock of any Licensed Product subject to this Agreement then on hand, subject to Article 3.

(3) Sublicensees. Upon termination of this Agreement for any reason, any sublicense not then in default shall continue in force and effect and shall be assigned by Licensee to Licensors; provided, the financial obligations of each Sublicensee to Licensors shall be limited to the amounts Licensee shall be obligated to pay to Licensors for the activities of such Sublicensee pursuant to this Agreement.

F. Survival. The provisions of (i) Licensee's obligation to pay Royalties and Patent Costs accrued prior to the date of termination and which were not paid or payable before termination, along with the report of Net Sales and record keeping required by Paragraphs 3.D and E, and (ii) Paragraphs 6, 7, 9.E, 9.F, 10 and 11 shall survive termination of this Agreement for any reason.

10. Arbitration. If the parties cannot satisfactorily settle any claim, disagreement or controversy arising out of or related to this Agreement or its interpretation, performance, nonperformance, breach or their respective rights and obligations hereunder, such disagreement shall, at the request of either party, be settled by arbitration as follows:

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

A. Panel. All such disputes shall be referred to an arbitration panel comprised of three persons, one to be selected by each party hereto and the third selected by the first two. The arbitrators shall be persons involved in and familiar with the licensing and technology transfer field. Each party shall select an arbitrator within twenty (20) days of request for arbitration by either party. The first two arbitrators shall select the third member of the panel within fifteen (15) days after their selection. The arbitration shall be held as soon as is reasonably possible after selection of the arbitration panel. The proceedings shall be held in an informal manner as reasonably determined by the arbitrators. Except for the right of appeal as set forth in Section 10.B below, the parties shall be bound by a decision of the arbitration panel with respect to the matter in dispute. All proceedings of the arbitration panel shall be held in Chicago, Illinois. The panel's costs and fees shall be borne by the losing party if the arbitrators designate one party as the losing party.

B. Appeals. There shall be no appeal from an arbitration panel's unanimous decision. In the event of a majority decision by the arbitration panel, a dissatisfied party may appeal the panel's decision to the American Arbitration Association (AAA) for an independent, final, binding decision. All appeals shall be heard in Chicago, Illinois. The dissatisfied party must make such an appeal within thirty (30) days after receipt of the arbitration panel's decision and if it loses the appeal must bear the parties' expenses and costs for such appeal. The AAA is hereby authorized to make arrangements for such appeal, to be held under the procedures provided by its arbitration rules. Judgment upon any award rendered by all or a majority of the appeal arbitrators or a unanimous judgment of the initial panel, may be entered in any court of competent jurisdiction, after any and all applicable appeal periods have passed.

11. Miscellaneous.

A. Marking. Licensee shall and agrees to cause its Sublicensees and Affiliates of either, to place in a conspicuous location on Licensed Product (or its packaging where marking the Product is physically impossible) sold to third parties, a patent notice in accordance with the laws concerning the marking of patented articles in the country in which such articles are sold.

B. United States Manufacture. Licensee agrees that, to the extent required by 35 United States Code Section 204, any Licensed Products sold in the United States will be manufactured substantially in the United States of America.

C. Export Regulations. To the extent that the United States Export Control Regulations are applicable, neither Licensee nor Licensors shall, without having first fully complied with such regulations, (i) knowingly transfer, directly or indirectly, any unpublished technical data obtained or to be obtained from the other party hereto to a destination outside the United States, or (ii) knowingly ship, directly or indirectly, any product produced using such unpublished technical data to any destination outside the United States.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

D. Entire Agreement, Amendment, Waiver. This Agreement together with the Schedules attached hereto constitutes the entire agreement between the parties regarding the subject matter hereof, and supersedes all prior written or oral agreements or understandings (express or implied) between them concerning the same subject matter. This Agreement may not be amended or modified except in a writing signed by duly authorized representatives of each party. No waiver of any default hereunder by any party or any failure to enforce any rights hereunder shall be deemed to constitute a waiver of any subsequent default with respect to the same or any other provision hereof.

E. Notice. Any notice required or otherwise made pursuant to this Agreement shall be in writing, sent by registered or certified mail properly addressed, or by facsimile with confirmed answer-back, to the other party at the address set forth below or at such other address as may be designated by written notice to the other parties. Notice shall be deemed effective three (3) business days following the date of sending such notice if by mail, on the day following deposit with an overnight courier, if sent by overnight courier, or upon confirmed answer-back if by facsimile.

If to ARCH:

ARCH Development Corporation
1101 East 58th Street
Chicago, Illinois 60637
Attention: President

If to DFCI:

Dana-Farber Cancer Institute, Inc.
44 Binney Street
Boston, MA
Attention: Director for Research
With a copy to: Director, Office of Technology Transfer

If to Licensee:

GenVec, Inc.
12111 Parklawn Drive
Rockville, MD 20852
Attention: President
With a copy to: Vice President, Corporate Development

F. Assignments. This Agreement shall be binding on the parties hereto and upon their respective successors and assigns. ARCH may assign this Agreement at any time to a third party that performs a similar role as ARCH for the University on written notice to Licensee and to any other party with the written approval of Licensee, said approval not to be unreasonably withheld. This Agreement shall not be assignable by Licensee without prior written consent from ARCH, which consent shall not to be unreasonably withheld; provided, however, that Licensee may assign this Agreement without such consent in connection with a transfer of all or substantially all of its assets, whether by sale, merger, operation of law or otherwise. In the event of any permitted assignment, the assignee shall be substituted for the assigning party as a party hereto, and the assigning party shall no longer be bound hereby by the other parties.

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G. Governing Law. The interpretation and performance of this Agreement shall be governed by the laws of the State of Illinois applicable to contracts made and to be fully performed in that state.

H. The University. This Agreement is entered into by ARCH in its own private capacity and not on behalf of the University, nor as its contractor or agent. It is understood and agreed that the University is not a party to this Agreement and is not liable for nor assumes any responsibility or obligation under this Agreement, and is not liable for any action or lack thereof by ARCH.

I. Advertising. Each party agrees not to use the name of the other parties in any commercial activity, marketing, advertising or sales brochures except with the prior written consent of the other party, which consent may be granted or withheld in such party's sole discretion. Licensee agrees not to use, and shall prohibit its Sublicensees and the Affiliates of either from using, the name of DFCl, the University or any of the inventor(s) in any commercial activity, marketing, advertising or sales brochures, except to the extent required by law.

J. Independent Contractors. The relationship of the parties hereto is that of independent contractors. The parties hereto are not deemed to be agents, partners or joint venturers of the others for any purpose as a result of this Agreement or the transactions contemplated thereby

K. Right to Develop Independently. Nothing in this Agreement will impair Licensee's right to independently acquire, license, develop for itself, or have others develop for it, intellectual property and technology performing similar functions as the Licensed Patents or to market and distribute Licensed Products or other products based on such other intellectual property and technology.

L. Force Majeure. Neither party shall lose any rights hereunder or be liable to the other party for damages or losses (except for payment obligations) on account of failure of performance by the defaulting party if the failure is occasioned by war, strike, fire, Act of God, earthquake, flood, lockout, embargo, governmental acts or orders or restrictions, failure of suppliers, or any other reason where failure to perform is beyond the reasonable control and not caused by the negligence, intentional conduct or misconduct of the nonperforming party and the non-performing party has exerted all reasonable efforts to avoid or remedy such force majeure; provided, however, that in no event shall a party be required to settle any labor dispute or disturbance.

M. Joint Action of Licensors. Any action taken by ARCH hereunder shall be taken as an action by Licensors jointly, and at Licensee's request, Licensors shall provide to Licensee a written statement signed by both Licensors, or their successors in interest, providing confirmation of such joint action.

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N. LIMITATION OF LIABILITY. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES ARISING OUT OF THIS AGREEMENT, HOWEVER CAUSED, UNDER ANY THEORY OF LIABILITY.

O. Severability. In the event that any provisions of this Agreement are determined to be invalid or unenforceable by a court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect without said provision. The parties shall in good faith negotiate a substitute clause for any provision declared invalid or unenforceable, which shall most nearly approximate the intent of the parties in entering this Agreement.

P. Counterparts. This Agreement may be executed in two counterparts, each of which shall be deemed an original and which together shall constitute one instrument.

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed by their respective duly authorized officers or representatives on the date first above written.

ARCH DEVELOPMENT CORPORATION

GENVEC, INC.

By: _____
Its: CEO

By: _____
Its: Vice President, Corporate
Development

DANA FARBER CANCER INSTITUTE

By: _____
Its: Director, Office of Technology Transfer

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

Schedule A

1. *

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission



September 21, 1999

Via Federal Express

Andrew Scott
ARCH Development Corporation
5640 South Ellis
Suite 405
Chicago, IL 60637

Ruth Emyanitoff, Ph.D.
Dana-Farber Cancer Institute
375 Longwood
6th Floor
Boston, MA 02115

Dear Andrew & Ruth:

This will confirm the agreement of GenVec, Inc. ("GenVec"), ARCH Development Corporation ("ARCH") and the Dana-Farber Cancer Institute, Inc. ("DFCI") regarding the amendment of that certain license agreement entered into by and between DFCI, ARCH and GenVec with respect to that certain license agreement dated May 26, 1993. The parties agree that Section 3B(4) shall be amended to provide in its entirety as follows:

No more than one Royalty payment shall be due with respect to a sale of a particular Licensed Product under this Agreement and the ARCH Agreement and shall be due and payable to ARCH and DFCI. No multiple Royalties shall be payable because any Licensed Product, or its manufacture, sale or use is covered by more than one Valid Claim under this Agreement and the ARCH Agreements. It is understood and agreed that Licensee's total Royalty obligation under this Agreement and the ARCH Agreement shall not exceed a cumulative total of * of Net Sales (as defined in such Agreements) and may be as low as * of Net Sales due to offsets available pursuant to Section 3B(2), and that any Royalties paid under this Agreement shall be fully creditable against any royalties due to ARCH under the ARCH Agreement and shall fully satisfy Licensee's royalty obligations to ARCH due under the ARCH Agreement on a Licensed Product-by-Licensed Product basis.

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Please indicate your agreement with the foregoing by signing below and returning one copy to me.

Sincerely,

Thomas E. Smart
Vice President, Corporate Development

UNDERSTOOD AND AGREED:

ARCH DEVELOPMENT CORPORATION

By: _____

Name: Alan Thomas

Title: Assistant Secretary

Date: 10/1/1999 _____

DANA-FARBER CANCER INSTITUTE

By: _____

Name: Ruth Emyanitoff, Ph.D.

Title: Director, Office of Technology

Transfer

Date: 10/20/1999 _____

**FIRST AMENDMENT to the May 26, 1993 License Agreement between ARCH
Development Corporation and GenVec, Inc.**

This Amendment is effective as of December 31, 2001 between the University of Chicago (the "University"), Dana Farber Cancer Institute, Inc. ("DFCI"), and GenVec Corporation, a Delaware Corporation ("GenVec").

WHEREAS, ARCH Development Corporation ("ARCH"), DFCI and GenVec entered into a License Agreement effective on August 20, 1997 (the "Agreement") that includes various technologies discovered by Dr. Ralph Weichselbaum and colleagues while at the University and Dr. Donald Kufe at DFCI;

WHEREAS, The University, under an agreement with its affiliated corporation, ARCH has the right to license the Licensed Patents and other intellectual property assigned to ARCH;

WHEREAS, GenVec, ARCH, DFCI and the University have identified a new invention of Dr. Weichselbaum and colleagues at the University and DFCI which is deemed complimentary to the business of GenVec but which does not fall within the Licensed Patents found in Schedule A of the Agreement (the "Complimentary Invention" as further described in Schedule A of this First Amendment);

WHEREAS, GenVec desires to include the Complimentary Invention in the terms of the Agreement and also desires certain modifications of the terms and conditions of the Agreement for the Complimentary Invention; and;

WHEREAS, ARCH or the University and DFCI are or will become an assignee of the Complimentary Invention;

WHEREAS, the University has completed an inter-institutional agreement with DFCI giving the University the right to exclusively license the Complimentary Invention;

WHEREAS, ARCH, DFCI and the University are willing to amend the Agreement to include the Complimentary Invention and to include such other modifications to the Agreement as are listed below.

NOW, THEREFORE, in consideration of the mutual promises set forth herein and rights obtained thereby, it is agreed as follows:

1. All references to "ARCH" in the Agreement shall be changed to "University".
2. Paragraph 3.A(1)(1) will be deleted in its entirety and replaced with the following: "\$* at the time of the filing in the United States by Licensee or any Sublicensee of an NDA on a Licensed Product (such payment referred to as an "NDA Fee"), provided a Licensed Product utilizes the Complimentary Invention. If Complimentary Invention is not utilized in an NDA on a Licensed Product, NDA"

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

8. Paragraph 11.H. shall be deleted in its entirety.

In all other respects the Agreement remains unmodified and in full force and effect.

UCTech, DFCI and GenVec agree to the above amendments to the terms of the License Agreement by the signing of this Amendment by their respective duly authorized officers or representatives:

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective duly authorized officers or representatives on the Effective Date above written.

UCTech

By: _____

Alan E. P. Thomas

Director of Technology Transfer

Date: 2/13/2002

GenVec Corporation

By: _____

Thomas Smart

Senior Vice President of Corporate
Development

Date: 2/27/2002

DFCI

By: _____

Ruth Emyanitoff

Director, Office of Technology Transfer

Date: 2/21/2002

With a copy to: Vice President, Corporate Development

3. Schedule A shall be amended to include:

Title: Transcriptional Targeting of an Adenoviral Delivered Tumor Necrosis Factor Alpha by Temozolamide
in Experimental Glioblastoma
Inventors: Weichselbaum and Kufe
Application Number: 60/604,251
File Date: 8-25-04
University Reference: 1250
DFCI Reference: 1021

4. Schedule A shall be amended to delete: "*"

5. Schedule A, 24. shall be replaced with: " *"

Except as specifically amended by this Amendment to AGREEMENT, all other terms and conditions of the AGREEMENT shall remain in full force and effect without modification. If there is any inconsistency or conflict between any provision in this Amendment to AGREEMENT and any provision in the AGREEMENT, the provision in this Amendment to AGREEMENT shall control.

This Amendment to AGREEMENT may be signed in counterparts, each of which shall be deemed an original, all of which taken together shall be deemed one instrument.

IN WITNESS WHEREOF, the Parties have duly executed this Amendment to AGREEMENT as of the date first written above.

UNIVERSITY GENVEC, INC.

By: _____ By: _____

Title: Director, UCTech Title: SVP

Date: 4/26/05 Date: 4/20/05

DFCI

By: _____

Title: Anthony A. delCampo, M.B.A.
Vice President
Research and Technology Ventures
Dana Farber Cancer Institute

Date: 5/5/05

*The asterisk denotes that confidential portions of this exhibit have been omitted in reliance on Rule 24b-2 of the Securities Exchange Act of 1934. The confidential portions have been submitted separately to the Securities and Exchange Commission

Consent of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders:
GenVec, Inc.:

We consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-164862, No. 333-140373, No. 333-133366 and No. 333-76886), and on Form S-8 (File No. 333-153694, No. 333-153693, No. 333-110446, No. 333-55590, No. 333-55586 and No. 333-55584) of GenVec, Inc. of our reports dated March 12, 2009, with respect to (1) the balance sheets of GenVec, Inc., as of December 31, 2009 and 2008 and the related statements of operations, stockholders' equity and comprehensive loss and cash flows for each of the years in the three-year period ended December 31, 2009, and (2) the effectiveness of internal control over financial reporting as of December 31, 2009 which reports appear in the December 31, 2009 Annual Report on Form 10-K of GenVec, Inc.

Our report refers to the adoption of FASB Accounting Standards Codification Section 730-20 (formerly Emerging Issues Task Force Issue No. 07-3), "Research and Development Costs," effective January 1, 2008.

/s/KPMG LLP

McLean, Virginia
March 12, 2010

GENVEC, INC.
Power of Attorney

KNOW ALL MEN BY THESE PRESENTS that each of the undersigned officers and directors of GenVec, Inc., a Delaware corporation (the "Corporation"), hereby constitutes and appoints Paul H. Fischer and Douglas J. Swirsky, and each of them, the true and lawful agents and attorneys-in-fact of the undersigned with full power and authority in said agents and attorneys-in-fact, and any one or more of them, in connection with the Corporation's Annual Report on Form 10-K (the "Form 10-K") for the fiscal year ended December 31, 2009 under the Securities Exchange Act of 1934, as amended, including, without limitation, to sign the Form 10-K in the name and on behalf of the Corporation or on behalf of the undersigned, and in their respective names as officers and as directors of the Corporation, and any amendments to the Form 10-K and any instrument, contract, document or other writing, of or in connection with the Form 10-K or amendments thereto, and to file the same, with all exhibits thereto, and other documents in connection therewith, including this power of attorney, with the Securities and Exchange Commission and any applicable securities exchange or securities self-regulatory body, and the undersigned hereby ratifies and confirms all that said attorneys-in-fact and agents, each acting alone, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof. Each of the undersigned hereby represents and warrants that he has not executed this Power of Attorney within the State of New York.

Name and Title	Date
/s/ Paul H. Fischer, Ph.D. Paul H. Fischer, Ph.D. President, Chief Executive Officer and Director	March 12, 2010
/s/ Douglas J. Swirsky Douglas J. Swirsky Senior Vice President, Chief Financial Officer, Treasurer and Corporate Secretary	March 12, 2010
/s/ Wayne T. Hockmeyer, Ph.D. Wayne T. Hockmeyer, Ph.D. Director	March 12, 2010
/s/ Zola P. Horovitz, Ph.D. Zola P. Horovitz, Ph.D. Director	March 5, 2010
/s/ William N. Kelley, M.D. William N. Kelley, M.D. Director	March 5, 2010
/s/ Kevin M. Rooney Kevin M. Rooney Director	March 7, 2010
/s/ Joshua Ruch Joshua Ruch Director	March 11, 2010
/s/ Marc R. Schneebaum Marc R. Schneebaum Director	March 10, 2010

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, Paul H. Fischer, Ph.D., certify that:

1. I have reviewed this annual report on Form 10-K of GenVec, Inc.
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report.
4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a.) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b.) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c.) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d.) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the Audit Committee of the Registrant's Board of Directors (or persons performing the equivalent function):
 - a.) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and
 - b.) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 12, 2010

/s/ Paul H Fischer Ph.D.

Paul H. Fischer, Ph.D.
President and Chief Executive Officer

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, Douglas J. Swirsky, certify that:

1. I have reviewed this annual report on Form 10-K of GenVec, Inc.
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report.
4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a.) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b.) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c.) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d.) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting ;and
5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the Audit Committee of the Registrant's Board of Directors (or persons performing the equivalent function):
 - a.) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and
 - b.) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 12, 2010

/s/ Douglas J. Swirsky

Douglas J. Swirsky

Sr. Vice President, Chief Financial Officer,
Treasurer & Corporate Secretary

**CERTIFICATION BY CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of GenVec, Inc. (the "Registrant") on Form 10-K as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Paul H. Fischer, as President and Chief Executive Officer of the Registrant, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge, that:

- (1) The Report fully complies with the requirements of section 13(a) or 15 (d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant for the dates and periods covered by the Report.

This certificate is being made for the exclusive purpose of compliance by the Chief Executive Officer of the Company with the requirements of Section 906 of the Sarbanes-Oxley Act of 2002, and may not be disclosed, distributed or used by any person or for any reason other than as specifically required by law.

A signed original of this written statement required by Section 906 has been provided to GenVec, Inc. and will be retained by GenVec, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

March 12, 2010

/s/ Paul H. Fischer, Ph.D.
Paul H. Fischer, Ph.D.
President and Chief Executive Officer

**CERTIFICATION BY CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of GenVec, Inc. (the "Registrant") on Form 10-K as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Douglas J. Swirsky, as Senior Vice President, Chief Financial Officer, Treasurer and Corporate Secretary of the Registrant, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to the best of my knowledge, that:

- (1) The Report fully complies with the requirements of section 13(a) or 15 (d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant for the dates and periods covered by the Report.

This certificate is being made for the exclusive purpose of compliance by the Chief Financial Officer of the Company with the requirements of Section 906 of the Sarbanes-Oxley Act of 2002, and may not be disclosed, distributed or used by any person or for any reason other than as specifically required by law.

A signed original of this written statement required by Section 906 has been provided to GenVec, Inc. and will be retained by GenVec, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

March 12, 2010

/s/ Douglas J. Swirsky
Douglas J. Swirsky
Sr. Vice President, Chief Financial Officer,
Treasurer & Corporate Secretary
