VICAL INC

FORM 10-K405

(Annual Report (Regulation S-K, item 405))

Filed 03/30/98 for the Period Ending 12/31/97

Address	10390 PACIFIC CENTER COURT . SAN DIEGO, CA 92121-4340
Telephone	858-646-1100
CIK	0000819050
Symbol	VICL
SIC Code	2836 - Biological Products, Except Diagnostic Substances
Industry	Biotechnology & Drugs
Sector	Healthcare
Fiscal Year	12/31

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

FORM 10-K

/ X / Annual Report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

For the fiscal year ended DECEMBER 31, 1997, 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: 0-21088

VICAL INCORPORATED

(Exact name of registrant as specified in its charter)

DELAWARE 93-0948554
(State or other jurisdiction of (IRS Employer Identification No.)

incorporation or organization)

9373 TOWNE CENTRE DRIVE, SUITE 100, SAN DIEGO, CA 92121
Address of principal executive offices

(619) 453-9900
Registrant's telephone number including area code

Securities registered pursuant to Section 12(b) of the Act:	None
Securities registered pursuant to Section 12(g) of the Act:	Common Stock, Par Value $0.01 Preferred Stock Purchase Rights, Par Value $0.01 (Title of Class)

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 X 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. [X]

The aggregate market value of the Common Stock held by non-affiliates of the registrant, based upon the last sale price of the Common Stock reported on the National Association of Securities Dealers Automated Quotation National Market System on March 2, 1998, was $218,308,645.

The number of shares of Common Stock outstanding as of March 2, 1998, was 15,749,307.

DOCUMENTS INCORPORATED BY REFERENCE

(To the Extent Indicated Herein)

Registrant's Proxy Statement to be filed with the Securities and Exchange Commission in connection with the solicitation of proxies for the Registrant's 1998 Annual Meeting of Stockholders to be held on May 28, 1998, is incorporated by reference in Part III, Items 10 (as to directors), 11, 12 and 13 of this Form 10-K.

PART I

ITEM 1. BUSINESS

OVERVIEW

Vical Incorporated ("Vical" or "the Company") discovers and develops gene-based pharmaceutical product candidates for human therapy. Gene transfer is an approach to the treatment and prevention of genetic and acquired diseases in which genes are introduced into cells in an effort to produce specific proteins needed to selectively correct or modulate disease conditions. The Company and its collaborators have developed core technologies that allow direct transfer of specific genes into cells IN VIVO (inside the body). The Company believes that its gene-based drug therapy approach may offer safer and more cost-effective treatment opportunities for many diseases as well as novel treatment alternatives for certain diseases that are currently poorly addressed.

Except for the historical information contained herein, the matters discussed in this Annual Report on Form 10-K are forward-looking statements that involve risks and uncertainties, including the timely and successful development of candidate products, receipt of necessary regulatory approvals and commercial acceptance of products, the obtaining of proprietary protection for any such products, the impact of competitive products and pricing and reimbursement policies, changing market conditions and the other risks detailed throughout this Form 10-K. Actual results may differ materially from those projected. These forward-looking statements represent the Company's judgment as of the date of the filing of this Form 10-K. The Company disclaims, however, any intent or obligation to update these forward-looking statements.

The key discoveries leading to Vical's proprietary direct gene transfer technology were that, under certain conditions, some muscle tissues are able to absorb genetic material directly and subsequently express a desired protein for periods ranging from weeks to several months. From these basic findings the Company has developed yield increases and productivity improvements that have led to what the Company refers to as "naked DNA" reagents for gene transfer. In addition, the Company is developing other technologies that may allow the delivery of DNA directly into certain non-muscle tissues, including the use of lipid molecules (cytofectins) that facilitate direct absorption of DNA into cells. The active ingredients of products under development at Vical consist of highly purified, well-defined gene sequences produced by conventional fermentation processes. The Company believes that the broad applicability, ease of manufacturing and potential cost effectiveness of its gene-based drug therapy approach may provide it with competitive advantages for commercialization.

Vical is concentrating its research and development activities in oncology, infectious diseases and therapeutic proteins for metabolic disorders. Currently, the Company is developing its cancer product candidates internally, while developing vaccines for infectious diseases and metabolic disorder candidates primarily in collaboration with corporate partners.

PRODUCT DEVELOPMENT PROGRAMS

Vical is applying its direct gene transfer technology to the following therapeutic areas:

ONCOLOGY

The Company is developing novel gene-based cancer immunotherapies to address the shortcomings of existing therapies. Vical has formulated ALLOVECTIN-7, a complex containing the gene encoding a particular human histocompatibility antigen, HLA-B7, and a lipid material to facilitate gene uptake. After direct injection of ALLOVECTIN-7 into a tumor, the Company believes that the HLA-B7 gene will cause the tumor cells to produce the HLA-B7 antigen. This gene expression may then trigger a potent cellular immune response against the tumor cells.

Vical has conducted several Phase I/II clinical trials and a multi-center Phase II clinical trial in patients with advanced metastatic melanoma and other cancers. The Company concluded, based on the Phase I/II trial results, that ALLOVECTIN-7 was well-tolerated, and that gene transfer and expression were detectable in the majority of patients, with measurable tumor shrinkage observed in 13 of 36 patients with advanced metastatic melanoma. The Company believes Phase II results confirmed the potential efficacy of ALLOVECTIN-7 in treating melanoma patients, in particular, in patients whose tumors had not yet metastasized to internal organs.

In 1996, Vical commenced additional multi-center Phase II clinical testing of ALLOVECTIN-7 in approximately 50 advanced melanoma patients. The Company expects to initiate further clinical trials in 1998 to support product license approval submissions.

Results from another Phase I/II trial of ALLOVECTIN-7 suggested potential efficacy in certain patients with unresectable head and neck cancer. A multi-center Phase II trial with ALLOVECTIN-7 in approximately 25 patients with unresectable head and neck cancer began in September 1997.

Vical is developing its second gene-based product candidate, LEUVECTIN, also intended for direct injection into tumor lesions of cancer patients. LEUVECTIN contains a gene that encodes the potent immunostimulator IL-2 and a lipid material to facilitate gene uptake. Recombinant IL-2 protein is an FDA-approved anti-cancer agent for the treatment of advanced renal cell carcinoma and melanoma. It has been investigated widely as a cancer immunotherapeutic agent, but is frequently associated with serious side effects. The Company expects that LEUVECTIN, when injected into tumors, will cause the malignant cells to produce and secrete IL-2 in the vicinity of the tumor, stimulating the patient's immune system to attack and destroy tumor cells. Because LEUVECTIN is designed to deliver IL-2 only at the site of tumor lesions, the Company believes that it may provide similar efficacy with fewer side effects than systemic IL-2 therapy.

Upon completion of Phase I/II clinical trials of LEUVECTIN the Company concluded that LEUVECTIN was well-tolerated, induced detectable gene transfer and expression, and resulted in measurable tumor shrinkage in 5 of 23 patients with various types of advanced malignancies. In 1996, the Company initiated additional multi-center Phase I/II clinical testing of higher doses of LEUVECTIN in approximately 45 patients with advanced melanoma, renal cell carcinoma, and soft-tissue sarcoma. Of the 11 renal cell carcinoma patients initially evaluable in the LEUVECTIN trials, 2 patients achieved objective clinical partial responses persisting for more than six and nine months, respectively, and 2 achieved stable disease. Responses appear to be dose-related, and no serious treatment-related adverse events were reported, even at the highest doses tested. In June 1997, the Company initiated a Phase I/II clinical trial with LEUVECTIN in approximately 18 prostate cancer patients.

In collaboration with Dr. Ronald Levy of Stanford University Medical Center, the Company is developing a naked DNA anti-idiotype vaccine, VAXID, against low-grade non-Hodgkin's B-cell lymphoma. VAXID is a DNA plasmid that encodes the patient-specific idiotype of the B-cell tumor immunoglobulin. The Company believes that immunization of post-chemotherapy patients with VAXID could result in the elimination of residual disease and the prevention of the relapse of disease. In October 1997, a Phase I/II clinical trial of VAXID began at the Stanford University Medical Center under the direction of Dr. Levy.

In February 1998, Vical entered into a license agreement allowing Centocor, Inc. to use Vical's naked DNA technology to develop gene-based vaccines for the treatment of certain types of cancer. See "--Collaboration and Licensing Agreements--Corporate Partners--Centocor, Inc."

INFECTIOUS DISEASE VACCINES

Vical and its collaborators have generated preclinical data demonstrating that direct intramuscular injection of specific genes can induce a potent, specific and prolonged immune response to infectious disease-causing agents. In preclinical models, a direct injection of genes for antigens of influenza resulted in both antibody-mediated and cell-mediated immunity that was protective across widely divergent strains of influenza. Thus, Vical's naked DNA vaccine technology may enable the development of a new generation of preventive vaccine products effective against a variety of microorganism strains. Additional studies by Vical, its collaborators and several independent laboratories have extended these findings to preclinical models for more than a dozen infectious diseases, suggesting a wide array of potential targets for Vical's naked DNA vaccine technology.

In May 1991, Vical entered into a commercial collaborative agreement with Merck & Co., Inc. ("Merck") to undertake research and development in the area of infectious disease preventive vaccines. As of April 1995, Merck had exercised its options to exclusive licenses to use Vical's naked DNA technology for development of vaccines directed against seven human infectious disease targets: influenza, human immunodeficiency virus (HIV), herpes, hepatitis B virus (HBV), hepatitis C, human papilloma virus (HPV) and tuberculosis. The 1991 Agreement was amended in December 1995 and again in November 1997 to grant Merck rights to develop and market therapeutic vaccines against HPV, HIV and HBV. Merck has conducted Phase I clinical trials with a preventive DNA vaccine candidate for influenza since April 1996.

In September 1994, the Company entered into a collaborative agreement with Pasteur Merieux Serums & Vaccins, subsequently renamed Pasteur Merieux Connaught ("PMC"), covering the use of Vical's proprietary naked DNA technology for developing vaccine products directed against cytomegalovirus, respiratory syncytial virus, Lyme disease, helicobacter pylori and malaria. In July 1997, the Company and PMC began a Phase I trial of an experimental vaccine against the parasite that causes malaria. As of December 31, 1997, PMC had added a new target, herpes zoster, exercised four of the options, and extended one option. See "--Collaboration and Licensing Agreements--Corporate Partners--Merck & Co., Inc." and "--Pasteur Merieux Connaught."

THERAPEUTIC PROTEINS FOR METABOLIC DISORDERS

Vical's direct gene transfer technology may also permit the development of sustained-release alternatives to chronically administered therapeutic proteins. Delivering therapeutic proteins by way of direct gene injection may represent a more cost-effective, more convenient and safer mode of administration than using the protein itself. The Company has a collaborative agreement with Genzyme Corporation ("Genzyme") for the treatment of cystic fibrosis. See "--Collaboration and Licensing Agreements--Corporate Partners--Genzyme Corporation." In September 1997, the Company and Merck entered into an option and license agreement granting Merck certain rights to use Vical's technology to deliver certain growth factors that may be useful in treating particular cardiovascular diseases. See "--Collaboration and Licensing Agreements--Corporate Partners--Merck & Co., Inc."

In October 1997, the Company and Rhone-Poulenc Rorer, the pharmaceutical subsidiary of Rhone-Poulenc S.A. signed an agreement for an exclusive worldwide license to use Vical's technology to deliver certain neurologically active proteins for potential treatment of neurodegenerative diseases. See "--Collaboration and Licensing Agreements--Corporate Partners--Rhone-Poulenc Rorer."

Vical's product development programs are summarized in the following table:

Project	Target Indication(s)	Development Status(1)	Development Rights(2)
ONCOLOGY			
ALLOVECTIN-7	Melanoma Head and Neck Tumors	Phase II Clinical Trials	Vical
LEUVECTIN	Melanoma Renal Cell Carcinoma Sarcoma Prostate Carcinoma	Phase I/II Clinical Trials	Vical
VAXID	Non-Hodgkin's B-Cell Lymphoma	Phase I/II Clinical Trial	Vical
Cancer Vaccines	Various	Research/Preclinical Development	Centocor
INFECTIOUS DISEASES			
Preventive DNA Vaccines	Influenza Hepatitis B Virus (HBV) Hepatitis C Herpes Simplex HIV Human Papilloma Virus (HPV) Tuberculosis	Phase I Clinical Trials Research/Preclinical Development	Merck
	Malaria Cytomegalovirus Helicobacter Pylori Herpes Zoster Lyme Disease Respiratory Syncytial Virus	Phase I Clinical Trial Research/Preclinical Development	PMC
Therapeutic DNA Vaccines	HBV HIV	Research/Preclinical	Merck
Animal Health Vaccines	Various	Research	Merial
METABOLIC DISORDERS			
Cystic Fibrosis Transmembrane Regulator (CFTR)	Cystic Fibrosis	Phase I/II	Genzyme
Therapeutic protein DNA	Ischemic Diseases	Research/Preclinical	Merck
Therapeutic protein DNA	Neurodegenerative Diseases	Research/Preclinical	Rhone-Poulenc Rorer

(1) As denoted in the table, "Research" indicates research related to identification and synthesis of lead compounds. "Preclinical Development" indicates that a specific compound is undergoing toxicology testing and manufacturing scale-up, among other things, in preparation for filing an IND. In Phase I, trials are conducted with a small number of healthy volunteers to determine the safety profile, the pattern of drug distribution and metabolism. In Phase II, trials are conducted with a larger group of patients afflicted with a target disease in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In the case of products for life-threatening diseases, the initial human testing is generally done in patients rather than in healthy volunteers. Since these patients are already afflicted with the target disease, it is possible that such studies may provide results traditionally obtained in Phase II trials. Such trials are frequently referred to as "Phase I/II" trials. See "--Government Regulation."

(2) See "--Collaboration and Licensing Agreements--Corporate Partners."

TECHNOLOGY

GENE TRANSFER OVERVIEW

Gene transfer is an approach to the treatment and prevention of genetic and acquired diseases in which genes are introduced into cells to direct the production of specific proteins needed to selectively correct or modulate disease conditions. A typical human cell contains thousands of different proteins essential to cellular structure, growth and function. Proteins are produced by the cell according to a set of genetic instructions encoded by the DNA, which contains all the information necessary to control the cell's biological processes. DNA is organized into segments called genes, with each gene containing the information required to produce a specific protein. Production of the protein encoded by a particular gene is known as gene expression. The aberrant expression of even a single gene can severely alter a cell's normal function, frequently resulting in a disease condition.

Gene transfer approaches include the use of (i) cells genetically altered EX VIVO (outside the body) using viral vectors or other gene transfer methods, (ii) viral vectors (such as retroviruses, adenoviruses and adeno-associated viruses) that have been genetically "crippled" so that they cannot reproduce and infect other cells and that are delivered IN VIVO to the patient, and (iii) non-viral vectors or synthetic formulations of DNA that are delivered IN VIVO to the patient. EX VIVO cell-based therapies are cumbersome and expensive relative to IN VIVO therapies since individual products must be designed and manufactured for each patient. Thus, gene transfer product candidates currently in development rely primarily either on viral or non-viral vectors that are delivered IN VIVO to patients. IN VIVO approaches using viral vectors suffer several drawbacks that may limit their widespread usefulness, including adverse immune responses and inflammation caused by the vector that may inhibit the activity of the virus-based therapy and prevent repeated administration. In addition, certain viral vectors induce permanent changes in the patient's genetic makeup, which may cause malignant transformation of cells leading to cancer. IN VIVO methods using non-viral vectors or synthetic DNA formulations may offer the best combination of effective gene transfer to the patient while minimizing safety concerns.

VICAL'S NAKED DNA GENE TRANSFER TECHNOLOGY

Vical has developed a non-viral gene transfer technology which it believes has the potential to allow a safe and cost-effective method of gene therapy in a number of therapeutic applications. Vical and its collaborators are developing core technologies to allow the delivery of synthetic DNA formulations, or "naked DNA" as these formulations are referred to by the Company, directly into cells IN VIVO. The initial observation that led to Vical's naked DNA gene transfer approach was that, under certain conditions, some tissues, specifically myocardial (heart) and peripheral striated skeletal muscle tissues, are able to directly absorb genetic material into cells and subsequently express the desired protein for periods ranging from weeks to several months. In addition, the Company has developed proprietary methods to allow the delivery of genes directly into certain non-muscle tissues, including the use of lipid molecules (cytofectins) that facilitate absorption of genes into cells.

Vical's naked DNA gene transfer approach involves the design and construction of plasmids, DNA segments whose ends are attached together to form a highly stable closed loop. These plasmids contain the gene encoding the protein of interest as well as short segments of DNA, or flanking sequences, that control the rate and location of protein expression. These plasmids can be manufactured through conventional fermentation and purification techniques.

Vical's gene-based products are intended to be administered to patients by different techniques depending on the therapeutic application and the target tissue. For many applications, intramuscular injection of a pure plasmid DNA in an aqueous solution may suffice. For delivery to non-muscle tissues, the Company anticipates that the plasmids will generally be formulated with a cytofectin.

Cytofectins are proprietary lipid substances that Vical is developing specifically as drug delivery vehicles for its gene transfer technology. These lipid molecules are positively charged, allowing them to bind to negatively charged molecules of DNA. The resulting cytofectin-DNA complex can be delivered in an aqueous solution to tissues IN VIVO using a syringe or a catheter. Cytofectins are capable of delivering DNA to the interior of the target cell while allowing the DNA to evade metabolic processes that normally degrade internalized material. In preliminary studies, cytofectins appear to be superior for the IN VIVO delivery of DNA, as compared with other lipid-based vehicles (e.g., liposomes), in which there is rapid degradation of the genetic material following ingestion by cells.

The Company believes that the potential benefits of Vical's gene transfer technology may include:

- CONVENIENCE. Vical's gene-based drug therapy is intended to be directly administered to patients similar to conventional pharmaceuticals.

- SAFETY. Vical's anticipated products will contain no viral structural components that may induce an unwanted immune response or infection.

- EASE OF MANUFACTURING. Vical's products are expected to be manufactured using conventional fermentation techniques and standardized purification procedures.

- COST-EFFECTIVENESS. The Company believes that its gene transfer technology will prove more cost-effective than gene transfer systems requiring EX VIVO manipulation of cells on a patient-by-patient basis. In certain clinical situations, administering a gene-based drug consisting of DNA encoding a particular protein may prove to be more cost-effective than administering a therapeutically effective dose of the protein itself. This is because the DNA, once introduced into the body, is intended to stimulate the production of a therapeutic protein over a prolonged period of time.

PRODUCT DEVELOPMENT PROGRAMS

ONCOLOGY

Cancer is a disease in which certain cells grow uncontrolled by the body's normal self-regulatory mechanisms. Traditional chemotherapy seeks to control cancer by killing rapidly dividing cells. However, a number of non-malignant cells in the body, such as intestinal epithelium and bone marrow cells, are also rapidly dividing and hence are highly susceptible to chemotherapy. Thus, doses sufficient to eradicate the cancer often cannot be administered without life-threatening side effects.

A therapeutic approach that selectively kills tumor cells would be far superior to currently available therapies. One such approach would be the generation of a specific immune response targeting cancer cells. It is generally believed that the immune system is capable of selectively recognizing cancer cells as abnormal and destroying them. However, the vast majority of cancers arise spontaneously in patients with an otherwise normal immune system. This observation suggests that cancer cells somehow escape the normal immune defense mechanisms or that the cytotoxic T lymphocytes ("CTLs") response produced by cancer patients is not powerful enough to kill all of the abnormal cells. A variety of methods have been used to augment the immune response against tumor cells, including the administration of natural immune-enhancing proteins such as IL-2, either alone or in combination with other agents. These methods have shown encouraging results in some patients with certain tumor types but also cause serious side effects.

Vical scientists are developing novel gene-based cancer immunotherapies to address the shortcomings of existing therapies. Vical has formulated a complex it calls ALLOVECTIN-7 that contains the gene encoding a particular human histocompatibility antigen, HLA-B7 and a lipid material to facilitate gene uptake. ALLOVECTIN-7 is designed to be directly injected into a tumor, with the therapeutic goal of causing the tumor cells to produce the HLA-B7 antigen which triggers a potent CTL response against the tumor cells.

Vical has conducted several Phase I/II clinical trials and a multi-center Phase II clinical trial in patients with advanced metastatic melanoma and other cancers. The Company concluded based on the Phase I/II trial results that ALLOVECTIN-7 was well-tolerated, and that gene transfer and expression were detectable in the majority of patients, with measurable tumor shrinkage observed in 13 of 36 patients with advanced metastatic melanoma.

Melanoma is a skin cancer found predominantly in Caucasians, most often in fair-skinned people susceptible to sunburn. Exposure to sunlight, particularly UVB rays, is considered the primary cause. According to the American Cancer Society, the incidence of melanoma is doubling every 6 to 10 years among affected populations, with more than 40,000 new cases diagnosed annually in the U.S. and an estimated 7,000 deaths for 1997.

If detected in Stages I and II, defined as localized disease of varying diameter and thickness, melanoma often can be successfully treated by surgical removal. The five-year survival rate for localized malignant melanoma, if treated, is about 95 percent.

If untreated, melanoma spreads to tissue beneath the skin and to internal organs, most often the lymph glands, lungs, brain, or liver. If the disease progresses to Stage III, defined as limited regional metastases, treatment may involve surgical removal of the tumors and any affected lymph glands, followed by systemic or local chemotherapy with single or multiple agents. The five-year survival rate for treated Stage III patients is about 60 percent, and quality of life is compromised by both the disease and the treatment.

If the disease progresses to Stage IV, defined as advanced regional or any distant metastases, treatment may include surgical removal of tumors and affected lymph glands, systemic or local chemotherapy, radiation therapy, and immunotherapy. The prognosis is poor, with a five-year survival rate for treated Stage IV patients of about 15 percent and a severely impaired quality of life.

Vical's multi-center Phase II clinical testing of ALLOVECTIN-7 in patients with advanced melanoma and other cancers (breast, colorectal, non-Hodgkin's lymphoma and renal cell) concluded in early 1997. The Company believes Phase II results confirmed the potential efficacy of ALLOVECTIN-7 in treating melanoma patients. Among 11 melanoma patients with metastatic disease involving only subcutaneous tissue or lymph nodes, 5 patients exhibited tumor shrinkage, with 2 of those characterized as partial clinical responses. In 14 patients with widespread advanced disease affecting internal organs, 2 exhibited tumor shrinkage and none achieved clinical responses. At this time, the Company has no plans to pursue further development in the other cancer indications tested.

In 1996, Vical commenced additional multi-center Phase II clinical testing of ALLOVECTIN-7 in approximately 50 advanced melanoma patients. The Company expects to present results from this trial and initiate further clinical trials in 1998 to support product license approval submissions.

Results from a pilot Phase I/II trial of ALLOVECTIN-7 indicated potential efficacy in certain patients with unresectable head and neck cancer. Of the 11 patients evaluated, 4 achieved partial clinical responses.
A multi-center Phase II trial with ALLOVECTIN-7 in approximately 25 patients with unresectable head and neck cancer began in September 1997.

Head and neck cancer describes any of several localized tumors affecting the oral cavity, the pharynx or larynx, or the esophagus. Head and neck cancers are found more frequently in men than in women, and most often in men over age 40. Risk factors vary with the particular location, but can include use of tobacco and excessive consumption of alcohol. According to the American Cancer Society, new diagnoses in the United States for the various head and neck cancers total more than 50,000 new cases annually, and such cancers were estimated to have caused more than 20,000 deaths in 1997.

Most head and neck cancers are treated by surgical removal and/ or localized radiation therapy, with widely ranging degrees of success depending on the number of tumors, their size, and their specific location. In advanced disease, standard treatment may be preceded by systemic chemotherapy to improve treatability, or followed by systemic chemotherapy to address remaining cancer cells, most often with a combination of agents. The five-year survival rate for head and neck cancer patients, if treated, varied from more than 90 percent for localized, accessible disease to less than 5 percent for widespread, inoperable malignancies.

Vical is developing its second gene-based product candidate, LEUVECTIN, which, like ALLOVECTIN-7, also is intended for direct injection into tumor lesions of cancer patients. LEUVECTIN contains a gene that encodes the potent immunostimulator, IL-2 and a lipid material to facilitate gene uptake. Recombinant IL-2 protein is an FDA-approved anti-cancer agent for the treatment of advanced renal cell carcinoma and melanoma. It has been investigated widely as a cancer immunotherapeutic agent, but is frequently associated with serious side effects. The Company expects that LEUVECTIN, when injected into tumors, will cause the malignant cells to produce and secrete IL-2 in the vicinity of the tumor, stimulating the patient's immune system to attack and destroy tumor cells. Because LEUVECTIN is designed to deliver IL-2 only at the site of tumor lesions, the Company believes that it may provide similar efficacy with fewer side effects than systemic IL-2 therapy.

Upon completion of Phase I/II clinical trials designed primarily to test the safety of LEUVECTIN at varying dosage levels and to assess IL-2 gene transfer and expression, the Company initiated additional multi-center Phase I/II clinical testing of higher doses of LEUVECTIN in approximately 45 patients with advanced melanoma, renal cell carcinoma, and soft-tissue sarcoma. Of the 11 renal cell carcinoma patients initially evaluable in the LEUVECTIN trials, 2 achieved objective clinical partial responses persisting for more than six and nine months, respectively, and 2 achieved stable disease. Responses appear to be dose-related, and no serious treatment-related adverse events were reported.

In June 1997, the Company initiated a Phase I/II clinical trial with LEUVECTIN in approximately 18 prostate cancer patients. Prostate cancer is the most frequently diagnosed type of cancer, and the second leading cause of cancer fatalities among men in the United States. African Americans are at significantly greater risk than Caucasians, and men over age 65 account for over 80 percent of all diagnoses. In the United States more than 334,000 new cases are diagnosed annually. The disease caused an estimated 41,000 deaths in 1997.

Early detection, either by digital rectal exam or by prostate-specific antigen (PSA) blood test, has been increasing the number of annual diagnoses and improving overall survival rates. Most patients are diagnosed while the disease is confined to the prostate gland, with a five-year survival rate of 99 percent. If the disease is discovered after it spreads to connective tissue, lymph nodes, or other internal organs, survival rates decline. Treatment options include "watchful waiting" for older patients with no symptoms or with other more serious illnesses, radiation therapy, and surgical removal of the prostate gland and/or affected lymph nodes. Symptoms may also be relieved by hormone therapy or surgery.

In collaboration with Dr. Ronald Levy of Stanford University Medical Center, the Company is developing a naked DNA anti-idiotype vaccine, VAXID, against low-grade non-Hodgkin's B-cell lymphoma. This type of lymphoma is characterized by a slow growth rate and excellent initial response to chemotherapy or radiotherapy; however, a regular pattern of relapse to a diffuse aggressive lymphoma occurs for which no curative therapy has been identified. Clinical studies involving administration of either monoclonal anti-idiotype antibodies or patient-specific B-cell lymphoma idiotype protein have resulted in prolonged remissions; however, these therapies are limited by the time and effort required to produce the drug product.

VAXID is a DNA plasmid that encodes the patient-specific idiotype of the B-cell tumor immunoglobulin. In preclinical studies, Dr. Levy showed that the injection into mice of a murine B-cell lymphoma idiotype plasmid resulted in strong anti-idiotype immune responses and significant protection against tumor challenge. Based on these preclinical studies and additional studies conducted at Vical, the Company believes that immunization of post-chemotherapy patients with VAXID could result in the elimination of residual disease and the prevention of the relapse of disease. In October 1997, a Phase I/II clinical trial of VAXID began at the Stanford University Medical Center under the direction of Dr. Levy.

In February 1998, Vical entered into a license agreement allowing Centocor, Inc. to use Vical's naked DNA technology to develop and market certain gene-based vaccines for the potential treatment of certain types of cancer.

INFECTIOUS DISEASE VACCINES

Vical's naked DNA technology may address two deficiencies of traditional preventive vaccine approaches: (i) the inability to predict the random changes in the strains of various infectious agents and (ii) the need for safe formulations (adjuvants) that accentuate a humoral response or that elicit sufficient cell-mediated responses. The Company's scientists have shown in animal experiments that the intramuscular injection of a plasmid encoding a protein common to all strains of the influenza virus stimulates both humoral and cell-mediated responses against the virus itself and the virus-infected cells. The immune response is potent, specific and requires no adjuvant formulation. For over a year following vaccination, treated animals demonstrated higher survival rates than untreated control animals when challenged with various strains of inhaled influenza virus. This observed cross-strain protection, if reproducible in humans, will offer a key advantage compared with conventional influenza vaccines, which must be specifically designed and manufactured to combat a particular strain of a prevalent influenza virus. Thus, Vical's direct gene transfer technology may be universal, not requiring frequent re-design or product modification for each new viral strain.

Additional studies by Vical and its collaborators have extended these findings to other models of infectious diseases for which there are no currently approved vaccines, such as human papilloma virus, herpes and malaria. Malaria is a severe infectious disease characterized by fever, headache and joint pain, which if untreated can lead to death. Infection normally occurs when the parasite enters a victim's bloodstream during a mosquito bite. An estimated 300 million people are affected by malaria worldwide, with more than 1 million deaths each year. Some 80 percent of malaria cases occur in Africa, with the remainder generally confined to regions of Asia and Latin America.

The Company believes Vical's potential vaccine products should be simpler to manufacture, using conventional bacterial fermentation, than vaccines that are made using cumbersome and labor-intensive techniques involving difficult tissue culture procedures and live viruses. Merck holds exclusive licenses to use Vical's naked DNA technology for development of vaccines directed against seven human infectious disease targets: influenza, human immunodeficiency virus (HIV), herpes, hepatitis B virus (HBV), hepatitis C, human papilloma virus (HPV) and tuberculosis and to develop therapeutic vaccines against HPV, HIV and HBV. Merck initiated a Phase I clinical trial with a preventive DNA vaccine candidate for influenza in April 1996. In September 1994, the Company entered into a commercial collaborative agreement with PMC covering the use of Vical's proprietary naked DNA technology for developing vaccine products directed against cytomegalovirus, respiratory syncytial virus, Lyme disease, helicobacter pylori and malaria. In 1996, PMC added herpes zoster as a sixth target indication. In July 1997, the Company and PMC began a Phase I trial of an experimental vaccine against the parasite that causes malaria. As of December 31, 1997, PMC held licenses for four of the indications and options for the remaining two. See "--Collaboration and Licensing Agreements--Corporate Partners--Merck & Co., Inc." and "--Pasteur Merieux Connaught."

THERAPEUTIC PROTEINS FOR METABOLIC DISORDERS

Vical's direct gene transfer technology may permit the development of alternatives to therapeutic protein administration for certain metabolic diseases. The major shortcomings of some therapeutic proteins are their short duration of action and the potential side effects associated with high levels of circulating protein after intravenous administration. The Company believes that direct injection of genes that code for the protein of interest into muscles may enable the muscle to act as a protein factory causing a sustained-release of low levels of the therapeutic proteins and reducing side effects and the need for repeated dosing. Vical's technology may be the most suitable for the delivery of proteins that are required in small amounts over prolonged periods of time to produce therapeutic effects. Examples of such proteins include: (i) CFTR, the protein that is defective in cystic fibrosis patients, (ii) growth factors that stimulate the production of new blood vessels in poorly vascularized tissues, and (iii) neuro-active proteins that maintain nerve cell function and may be useful in treating certain neurodegenerative diseases, such as Alzheimer's, Parkinson's, Huntington's, Creutzfeldt-Jakob and Lou Gehrig's diseases. These neurodegenerative diseases are all characterized by the gradual loss of various nerve cell functions. Any gene-based treatments of these new degenerative diseases would be expected to involve administration of specific genes into tissue where nerve cells had begun to deteriorate. Administration of the genes may increase local production of neurologically active proteins which may slow the loss of nerve cell function.

The Company also believes that its gene transfer technology can be used in the treatment of ischemic diseases such as coronary artery disease and peripheral vascular disease. Over 50 million people in the U.S. have one or more forms of cardiovascular disease (coronary artery or rheumatic heart disease, or high blood pressure). Coronary artery disease is caused by narrowing of the coronary arteries due to deposits of plaque on the walls of the arteries. Over time, the narrowed coronary arteries deliver less blood to the muscles of the heart, thus severely impacting the ability of the heart to function. Coronary artery disease is likely to produce angina pectoris (chest pain), heart attack or both. Coronary artery disease is the single largest cause of death in the U.S. Annually, in the U.S. an estimated 1.1 million people will have a new or recurrent coronary attack, which is fatal about one-third of the time. Approximately 14 million people in the U.S. have a history of heart attack, angina pectoris or both.

Peripheral vascular disease affects the blood vessels outside of the heart or the lymph vessels. It is often a narrowing of the blood vessels of the lower extremities and is frequently associated with diabetes. Any potential treatment using the Company's technology would involve administration of specific genes into tissues where disease had restricted blood flow. Administration of the genes may increase local production of certain growth factors which may stimulate the growth of new blood vessels. The newly formed blood vessels may restore blood flow to the affected areas. This treatment may be applicable in diseases such as coronary artery and peripheral vascular ischemias.

In 1993, Vical entered into a collaborative research and option agreement with Genzyme to evaluate the use of, and which granted an option to license, Vical's cytofectins as non-viral vectors in gene therapy for the treatment of cystic fibrosis. In 1996, Genzyme exercised the option. In April 1997, the Company entered into a sublicense agreement with Cardiogene Therapeutics, Inc. with respect to certain cardiovascular application of Vical's technology. In September 1997, the Company and Merck entered into an option and license agreement granting Merck certain rights to use Vical's technology to deliver certain growth factors that may be useful in treating particular cardiovascular diseases. In October 1997, the Company and Rhone-Poulenc Rorer, the pharmaceutical subsidiary of Rhone-Poulenc, signed an agreement for an exclusive worldwide license to use Vical's technology to deliver certain neurologically active proteins for potential treatment of neurodegenerative diseases. See "--Collaboration and Licensing Agreements--Corporate Partners--Genzyme Corporation", "--Merck & Co., Inc." and "--Rhone-Poulenc Rorer."

COLLABORATION AND LICENSING AGREEMENTS

The Company's strategy for the research, development and commercialization of its potential products requires entering into various arrangements with corporate, academic and government collaborators, licensors, licensees and others, and is dependent upon the subsequent success of these outside parties in performing their responsibilities. Although the Company believes parties to any such arrangements would have an economic motivation to succeed in performing their contractual responsibilities, the amount and timing of resources to be devoted to these activities may not be within the control of the Company. The parties may not perform their obligations as expected and the Company may not derive any revenue from such arrangements. In addition, the collaborators may pursue alternative technologies as a means for developing treatments for the diseases targeted by these collaborative programs.

The Company has entered into, and expects to enter into, additional research collaborations, licensing agreements and corporate collaborations. In addition to the agreements summarized below, Vical has entered into or is currently conducting on going negotiations with potential corporate partners. However, the Company may not be able to negotiate acceptable collaborative agreements, and its existing collaborative agreements may not be successful.

CORPORATE PARTNERS

MERCK & CO., INC. In May 1991, the Company entered into a research collaboration and license agreement with Merck (the "1991 Agreement") to develop vaccines to prevent infection and/or disease in humans utilizing Vical's intramuscular delivery technology. In connection with the 1991 Agreement, Vical granted Merck a worldwide exclusive license to preventive vaccines using Vical's technology against seven human infectious diseases:
influenza, HIV, herpes simplex, HBV, hepatitis C, human papilloma virus (HPV) and tuberculosis. In April 1996, Merck initiated a Phase I clinical trial with a preventive DNA vaccine candidate for influenza.

In addition, Merck has certain rights to therapeutic uses of preventive vaccines developed under the 1991 Agreement. In December 1995 and November 1997, the Company and Merck amended the 1991 Agreement and Merck acquired certain rights to develop and market therapeutic vaccines against HPV, HIV and HBV.

Pursuant to the November 1997 amendment, Merck made an investment of $5.0 million for approximately 262,000 shares of the Company's common stock. The price per share reflected a 25 percent premium over the trading price of the common stock. In connection with this 1991 Agreement, Merck has paid the Company $17.1 million as of December 31, 1997.

In September 1997, the Company also entered into an option and license agreement granting Merck the rights to use the Company's naked DNA technology to deliver certain growth factors as potential treatments for a range of applications including revascularization. The agreement resulted in an initial payment to the Company of $2.0 million.

Merck is obligated to pay additional fees upon successful completion of certain research milestones with respect to the products developed under the various Merck agreements and royalties on net sales by Merck of such products, if any such products are developed and marketed.

PASTEUR MERIEUX CONNAUGHT. In September 1994, the Company entered into a collaborative agreement with the vaccine manufacturer PMC (the "PMC Agreement") covering the use of Vical's proprietary naked DNA and cytofectin technologies for developing vaccine products. The following vaccine targets are included: cytomegalovirus (CMV), respiratory syncytial virus (RSV), Lyme disease, helicobacter pylori and malaria. In April 1996, a sixth option target, herpes zoster, was added. The PMC Agreement includes a research collaboration and options for PMC to take exclusive licenses to Vical's naked DNA vaccine and cytofectin technologies for each of the six vaccine targets. To maintain the options, PMC was required to pay Vical annual research payments through 1997. For licensed options, PMC will have to make milestone and royalty payments to Vical. PMC has exercised four such options at December 31, 1997, and extended an option. In July 1997, PMC paid the Company $1.0 million as a milestone payment under the agreement when the Company and PMC began a Phase I trial of an experimental vaccine against the parasite that causes malaria. Through December 31, 1997, Vical had received $7.4 million under this agreement.

GENZYME CORPORATION. In October 1993, Vical entered into a collaborative research and option agreement with Genzyme to evaluate the use of Vical's proprietary cytofectins as non-viral vectors in gene therapy for the treatment of cystic fibrosis. The agreement includes a multi-year research collaboration and an option for Genzyme to take an exclusive worldwide license for the use of Vical's cytofectins in the field of cystic fibrosis treatment. Vical also granted Genzyme a four-year right of first offer to use Vical's cytofectin technology in other lung disorders. In 1996, Genzyme exercised the option. Through December 31, 1997, Vical had received $2.3 million from Genzyme under this agreement. The license agreement includes provisions for research, milestone and royalty payments to Vical.

MERIAL. The Company entered into a corporate alliance in March 1995 relating to DNA vaccines in the animal health area with Merial (previously known as Rhone Merieux), a leading manufacturer and marketer of animal health products worldwide. The agreement includes options for Merial to take exclusive licenses to Vical's direct injection technology and the cytofectin technology to develop and commercialize certain gene-based products for use in the prevention of infectious diseases in domesticated animals. If Merial exercises its license options, cash payments and royalties on net sales would be due to the Company.

RHONE-POULENC RORER PHARMACEUTICALS, INC. In October 1997, the Company and Rhone-Poulenc Rorer Pharmaceuticals, Inc. ("RPR") entered into an agreement granting RPR an exclusive worldwide license to use the Company's naked DNA gene delivery technology to deliver certain neurologically active proteins for potential treatment of neurodegenerative diseases. Under the terms of the agreement, the Company received $1.0 million in 1997. This agreement provides for the Company to receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

CENTOCOR, INC. In February 1998, Vical entered into a license agreement allowing Centocor, Inc. to use Vical's naked DNA technology to develop and market certain gene-based vaccines for the potential treatment of certain types of cancer. Under the terms of the agreement, the Company received an initial payment of $2.0 million and may receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

Under the Merck, PMC, Merial, RPR and Centocor agreements, if Vical were to receive milestone or royalty payments, Vical would be required to pay 10 percent of certain payments to Wisconsin Alumni Research Foundation. See "--Research Institutions--Wisconsin Alumni Research Foundation."

RESEARCH INSTITUTIONS

THE UNIVERSITY OF MICHIGAN. In October 1992, Vical entered into a license agreement with the University of Michigan pursuant to which the Company obtained the exclusive license (subject to Michigan's retaining the right to grant non-exclusive, non-royalty bearing licenses to the United States government and the Howard Hughes Medical Institute) to products for the prevention and treatment of disease utilizing certain technology relating to the introduction of recombinant nucleic acid products into cancer cells and cells of the vasculature by catheterization in return for certain license fees and royalty payments. In April 1997, the Company entered into a sublicense agreement with Cardiogene Therapeutics, Inc. with respect to certain cardiovascular applications of this technology.

WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF). Under a research agreement entered into in 1989, scientists at the University of Wisconsin, Madison, and at Vical co-invented a core technology related to intramuscular naked DNA administration. Effective January 1, 1991, Vical entered into a license agreement with WARF whereby WARF granted to the Company the exclusive license to its interest in that technology (except as to the U.S. government which may hold non-exclusive licenses to certain technology developed with government funds). As consideration for the license grant, Vical paid WARF, (the designated patent and licensing organization for the University of Wisconsin), an initial license fee upon execution of the agreement and has committed to pay WARF a royalty on sales of the products incorporating the licensed technology and a percentage of up-front license payments from third parties.

ACCESS TO PROPRIETARY GENES AND PROTEINS

A number of the genetic sequences or proteins encoded by certain of those sequences that the Company expects to use or is currently investigating in its clinical trials or may use in its other gene-based products are, or may become, patented by others. As a result, the Company may be required to obtain licenses under such patents in order to conduct certain research, to manufacture or to market products that contain proprietary genetic sequences. Licenses may not be available on commercially reasonable terms, or at all.

PATENTS AND PROPRIETARY RIGHTS

Patents and other proprietary rights are important to the Company's business. The Company's policy is to file patent applications to protect technology, inventions and improvements to its inventions that are considered important to the development of its business.

The Company also relies upon trade secrets, know-how, continuing technological innovations and licensing opportunities to develop and maintain its competitive position. To date, the Company has filed or participated as licensee in the filing of more than 275 patent applications in the United States and in foreign countries relating to the Company's technology. The Company has filed a series of patent applications seeking to cover naked DNA gene transfer for immunization and for delivering therapeutic proteins to patients, specific gene sequences and formulations comprising the Company's gene-based product candidates, methods for producing pharmaceutical grade DNA and the composition of matter of several families of cytofectin molecules and their uses in gene delivery. Certain of these patents have been issued by the U.S. Patent and Trademark Office ("PTO"). Several other such applications are still pending in the United States, and corresponding foreign applications have been filed. No assurance can be given that the claims will issue in their present form, if at all, nor that such patents, if issued, will not be challenged, invalidated or circumvented and the rights granted thereunder may not provide proprietary protection or commercial advantage to the Company. See "Risk Factors--Patents and Proprietary Rights; Access to Proprietary Genes and Proteins."

In 1997, the Company was issued three U.S. patents - No. 5,703,055, No. 5,693,622 and No. 5,641,665. As of December 31, 1997, the Company or its exclusive licensors had received ten U.S. patents covering various aspects of its proprietary technology. These patents are summarized below:

U.S. Patent	Technology Covered
5,703,055	Direct administration of lipid-complexed DNA for immunization
5,693,622	Method to deliver a protein by injecting DNA into cardiac muscle
5,641,665	Plasmids expressing IL-2
5,589,466	Direct administration of naked DNA for immunization
5,580,859	Direct administration of naked DNA for protein expression
5,576,196	Process to reduce RNA during DNA production
5,561,064	Process to manufacture pharmaceutical-grade DNA
5,459,127	Use of cationic lipids to deliver genes IN VIVO
5,328,470	Catheter to facilitate intravascular gene transfer
5,264,618	Cationic lipid compositions to facilitate gene transfer IN VIVO

In January 1998, the Company was granted U.S. Patent No. 5,707,812 covering improved purification of DNA using polyethylene glycol (PEG).

The patent positions of pharmaceutical and biotechnology firms, including the Company, are uncertain and involve complex legal and factual questions for which important legal principles are largely unresolved. In addition, the coverage claimed in a patent application can be significantly reduced before a patent is issued. Consequently, the Company does not know whether any patent applications will result in the issuance of patents or, if any patents are issued, whether those patents will provide significant proprietary protection or will be circumvented or invalidated. Since patent applications in the United States are maintained in secrecy until patents issue or foreign counterparts, if any, publish, and, since publication of discoveries in the scientific or patent literature often lag behind actual discoveries, the Company cannot be certain that it or any licensor was the first creator of inventions covered by pending patent applications or that it or such licensor was the first to file patent applications for such inventions. Moreover, the Company might have to participate in interference proceedings declared by the PTO to determine priority of invention, which could result in substantial cost to the Company, even if the eventual outcome were favorable to the Company. The Company's patents, if issued, may not be held to be valid or enforceable by a court or a competitor's technology or product may be found to not infringe such patents.

A number of pharmaceutical and biotechnology companies, and research and academic institutions have developed technologies, filed patent applications or received patents on various technologies that may be related to the Company's business. Some of these technologies, applications or patents may conflict with the Company's technologies or patent applications. Such conflict could limit the scope of the patents, if any, that the Company may be able to obtain or result in the denial of the Company's patent applications. In addition, if patents that cover the Company's activities are issued to other companies, there can be no assurance that the Company would be able to obtain licenses to these patents at a reasonable cost or be able to develop or obtain alternative technology.

In addition to patent protection, the Company also relies upon trade secret protection for its confidential and proprietary information. There can be no assurance that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to the Company's trade secrets or disclose such technology or that the Company can meaningfully protect its trade secrets.

It is the Company's policy to require its employees, consultants, and parties to collaborative agreements to execute confidentiality agreements upon the commencement of employment or consulting relationships or a collaboration with the Company. These agreements provide that all confidential information developed or made known during the course of the relationship with the Company is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions resulting from work performed for the Company, utilizing property of the Company or relating to the Company's business and conceived or completed by the individual during employment, shall be the exclusive property of the Company to the extent permitted by applicable law. There can be no assurance, however, that these agreements will provide meaningful protection of the Company's trade secrets or adequate remedies in the event of unauthorized use or disclosure of such information. See "Risk Factors--Patents and Proprietary Rights."

COMMERCIALIZATION AND MANUFACTURING

Because of the broad potential applications of its technology, Vical intends to develop and commercialize products both on its own and through corporate partners. The Company intends to develop and market products to well-defined specialty markets, such as oncology, infectious diseases and metabolic disorders. Where appropriate, the Company intends to rely on strategic marketing and distribution partners for manufacturing and marketing products addressing diseases treated by primary care physicians. There can be no assurance that the Company will be able to reach satisfactory arrangements with such distribution partners or that any such arrangements will be successful.

The Company believes its DNA plasmids can be produced in commercial quantities in bacterial cells through traditional fermentation and purification techniques. The separation and purification of plasmid DNA is a relatively straightforward procedure because of the inherent biochemical differences between plasmid DNA and the majority of other bacterial components. In addition, the Company's cytofectin formulations consist of lipid components that are synthesized chemically using traditional, readily scaleable, organic synthesis procedures.

Vical currently produces supplies of product for Phase I/II and Phase II clinical trials and intends to produce sufficient supplies for additional clinical investigations. The Company may also choose to rely in part on outside organizations to manufacture its product candidates for expanded clinical trials under close supervision and utilizing the Company's proprietary processes. There can be no assurance that the Company will be able to contract for manufacturing capabilities on acceptable terms.

COMPETITION

The field of gene-based drug development is new and rapidly evolving, and it is expected to continue to undergo significant and rapid technological change. Rapid technological development could result in the Company's potential products or technologies becoming obsolete before the Company recovers a significant portion of its related research, development and capital expenditures. The Company may experience competition both from other companies in the field and from companies which have other forms of treatment for the diseases targeted by the Company. The Company is aware of several development stage and established enterprises, including major pharmaceutical and biotechnology firms, which are exploring gene-based drugs or are actively engaged in research and development in areas including both viral gene transfer and other methods of gene insertion. The Company may also experience competition from companies that have acquired or may acquire technology from companies, universities and other research institutions. As these companies develop their technologies, they may develop proprietary positions which may materially and adversely affect Vical. See "--Patents and Proprietary Rights."

Certain competitors and potential competitors of the Company have substantially greater product development capabilities and financial, scientific, marketing and human resources than the Company. Other companies may succeed in developing products earlier than the Company, obtaining FDA approvals for such products more rapidly than the Company, or developing products that are more effective than those proposed to be developed by the Company. While the Company will seek to expand its technological capabilities to remain competitive, there can be no assurance that research and development by others will not render the Company's technology or products obsolete or noncompetitive or result in treatments or cures superior to any therapy developed by the Company, or that any therapy developed by the Company will be preferred to any existing or newly developed technologies.

The Company's competitive position will be affected by the disease indications addressed by the Company's and its competitors' potential products, the timing of market introduction for such potential products and the stage of development of other technologies under development to address such disease indications. Accordingly, the Company's and its competitors' proprietary positions, their ability to complete clinical trials of their potential products on a timely basis and their ability to obtain timely regulatory approvals to market such potential products are likely to be significant competitive factors for the Company. Other important competitive factors will include the efficacy, safety, reliability, availability and price of the Company's and its competitors' potential products and the ability of the Company and its competitors to secure sufficient capital resources for the often substantial period between technological conception and commercial sales. See "Risk Factors--Competition and Technological Change."

GOVERNMENT REGULATION

Any products developed by the Company will require regulatory clearances prior to clinical trials and additional regulatory clearances prior to commercialization. New human gene therapy products are expected to be subject to extensive regulation by the United States Food and Drug Administration ("FDA") and comparable agencies in other countries. The precise regulatory requirements with which the Company will have to comply are uncertain at this time due to the novelty of the human gene products and therapies currently under development. The Company believes that its potential products will be regulated either as biological products or as new drugs. New drugs are subject to regulation under the Federal Food, Drug and Cosmetic Act, and biological products, in addition to being subject to certain provisions of that Act, are regulated under the Public Health Service Act. Both statutes and the regulations promulgated thereunder govern, among other things, the testing, manufacturing, safety, efficacy, labeling, storage, record keeping, advertising and other promotional practices involving biologics or new drugs, as the case may be. FDA approval or other clearances must be obtained before clinical testing, and before manufacturing and marketing, of biologics or new drugs. At the FDA, the Center for Biological Evaluation and Research ("CBER") is responsible for the regulation of new biologics and the Center for Drug Evaluation and Research ("CDER") is responsible for the regulation of new drugs.

Obtaining FDA approval has historically been a costly and time-consuming process. Generally, in order to gain FDA premarket approval, preclinical studies must be conducted in the laboratory and in animal model systems to gain preliminary information on an agent's efficacy and to identify any major safety concerns. The results of these studies are submitted as a part of an application for an investigational new drug ("IND"), which the FDA must review and allow before human clinical trials of an investigational drug can start. The IND includes a detailed description of the clinical investigations to be undertaken.

In order to commercialize any products, the Company must sponsor and file an IND for each proposed product and will be responsible for initiating and overseeing the clinical studies to demonstrate the safety, efficacy and potency that are necessary to obtain FDA approval of any such products. Clinical trials are normally done in three phases. In Phase I, trials are conducted with a small number of healthy volunteers to determine the safety profile, the pattern of drug distribution and metabolism.

In Phase II, trials are conducted with a larger group of patients afflicted with a target disease in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In Phase III, large-scale, multi-center, comparative trials are conducted with patients afflicted with a target disease in order to provide enough data for the statistical proof of safety and efficacy required by the FDA and other regulatory authorities. In the case of products for life-threatening diseases, the initial human testing is generally done in patients rather than in healthy volunteers. Since these patients are already afflicted with the target disease, it is possible that such studies may provide results traditionally obtained in Phase II clinical trials. Such trials are frequently referred to as "Phase I/II" clinical trials.

The FDA receives reports on the progress of each phase of clinical testing, and it may require the modification, suspension, or termination of clinical trials if an unwarranted risk is presented to patients. Human gene therapy products are a new category of therapeutics, and there can be no assurance as to the length of the clinical trial period or the number of patients the FDA will require to be enrolled in the clinical trials in order to establish to its satisfaction the safety, efficacy and potency of human gene therapy products.

After completion of clinical trials of a new product, FDA marketing approval must be obtained. If the product is regulated as a biologic, CBER will require the submission and approval of a Biologic License Application ("BLA") or a Product License Application ("PLA"), and an Establishment License Application ("ELA") before commercial marketing of the biologic is permitted. If the product is classified as a new drug, the Company must file a New Drug Application ("NDA") with CDER and receive approval before commercial marketing of the drug. The NDA, BLA, or PLA/ELA must include results of product development activities, preclinical studies and clinical trials in addition to detailed manufacturing information.

The review and approval processes require substantial time and effort and there can be no assurance that any approval will be granted on a timely basis, if at all. NDAs and BLA/ELAs submitted to the FDA can take, on average, two to five years to receive approval after filing. If questions arise during the FDA review process, approval can take more than five years. Notwithstanding the submission of relevant data, the FDA may ultimately decide that the NDA, BLA, or PLA/ELA does not satisfy its regulatory criteria for approval and require additional preclinical or clinical studies. Even if FDA regulatory clearances are obtained, a marketed product is subject to continual review, and later discovery of previously unknown problems or failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions. In addition, after marketing clearance is secured, the manufacturing facility for the Company's products will be subject to periodic inspections for Good Manufacturing Practices compliance by FDA inspectors and, if the facility is located in California, by inspectors from the Food and Drug Branch of the California Department of Health Services.

In addition to the FDA requirements, the National Institutes of Health ("the NIH") have established guidelines for research involving recombinant DNA molecules, which are utilized by the Company and certain of its collaborators in their research. These guidelines apply to all recombinant DNA research which is conducted at or supported by the NIH. Under current guidelines, proposals to conduct clinical research involving gene therapy which is conducted at institutions supported by the NIH must be reviewed and allowed by the NIH. The NIH review is a public process and usually involves review and approval by the Recombinant DNA Advisory Committee ("RAC") of the NIH.

In both domestic and foreign markets, sales of the Company's products, if any, will be dependent in part on the availability of reimbursements from third party payors, such as government and private insurance plans. Third party payors are increasingly challenging the prices charged for medical products and services. If the Company succeeds in bringing one or more products to market, there can be no assurance that these products will be considered cost-effective, that reimbursement will be available, or if available, that the payor's reimbursement policies will not adversely affect the Company's ability to sell its products on a profitable basis.

The Company is also subject to various federal, state and local laws, regulations and recommendations relating to safe working conditions, laboratory and manufacturing practices, the experimental use of animals and the use and disposal of hazardous or potentially hazardous substances, including radioactive compounds and infectious disease agents, used in connection with the Company's research work. The extent of government regulation which might result from any future legislation or administrative action cannot be accurately predicted.

HUMAN RESOURCES

As of March 2, 1998, Vical had 89 full-time employees, 19 of whom hold degrees at the doctorate level. Of these employees, 64 are engaged in, or directly support, research and development activities, and 25 are in administrative and business development positions. A significant number of the Company's management and professional employees have prior experience with pharmaceutical and biotechnology companies. None of the Company's employees is covered by collective bargaining agreements, and management considers relations with its employees to be good.

PRODUCT LIABILITY EXPOSURE

The use of any products produced by the Company could expose the Company to product liability claims. The Company currently carries insurance against such claims for clinical trials only. There can be no assurance that the Company has sufficient coverage, or that sufficient coverage can be acquired at a reasonable cost.

An inability to obtain product liability insurance at acceptable cost or to otherwise protect against potential product liability claims could prevent or inhibit the commercialization of products developed by the Company. A product liability claim or recall could have a material adverse effect on the business or financial condition of the Company.

RISK FACTORS

The following factors, among others, could cause actual results to differ materially from those contained in forward-looking statements made in this report and presented elsewhere by management from time to time.

UNCERTAINTY OF PRODUCT DEVELOPMENT AND TECHNOLOGICAL UNCERTAINTY

Existing preclinical and clinical data on the safety and efficacy of gene therapy are limited. Further, the results of preclinical studies do not necessarily predict safety or efficacy in humans. All of Vical's potential products are in research, development or early stage clinical trials. The potential products currently under development by the Company will require significant additional research and development efforts prior to regulatory approval and commercial use. There can be no assurance that the Company's research and development efforts will be successful, that any of the Company's potential products will prove to be safe and effective in clinical trials or that any commercially successful products utilizing the Company's technology will ultimately be developed by the Company or its collaborators. Even if developed, these potential products may not receive regulatory approval or be successfully commercialized.

LOSS HISTORY; FUTURE CAPITAL NEEDS; UNCERTAINTY OF ADDITIONAL FUNDING

Through December 31, 1997, the Company had incurred cumulative losses of approximately $30.3 million. The Company may never generate sufficient product revenue to become profitable at all or on a sustained basis. The Company expects to have quarter-to-quarter fluctuations in revenues, expenses and losses, some of which could be significant.

The Company has generated no revenues from product sales, nor are any product revenues expected for at least the next several years. The negative cash flow and losses from operations are expected to continue and to increase for the foreseeable future.

ADDITIONAL FINANCING REQUIREMENTS AND ACCESS TO CAPITAL

The Company will need to raise substantial additional funds to conduct research and development, preclinical studies and clinical trials necessary to bring its potential products to market and to establish manufacturing and marketing capabilities. The Company's future capital requirements will depend on many factors, including continued scientific progress in its research and development programs, the scope and results of preclinical testing and clinical trials, the time and costs involved in obtaining regulatory approvals, the costs involved in filing, prosecuting and enforcing patent claims, competing technological and market developments, the cost of manufacturing scale-up, effective commercialization activities and arrangements and other factors not within the Company's control. The Company intends to seek additional funding through public or private financings, arrangements with corporate collaborators or other sources. Adequate funds may not be available when needed or on terms acceptable to the Company. Insufficient funds may require the Company to scale back or eliminate some or all of its research and development programs or to license third parties to commercialize products or technologies that the Company would otherwise seek to develop itself. See "Management's Discussion and Analysis of Financial Condition and Results of Operations--Liquidity and Capital Resources."

LENGTHY APPROVAL PROCESS; UNCERTAINTY OF GOVERNMENT REGULATORY

REQUIREMENTS

Given that gene therapy is a new technology and has not been extensively tested in patients, the regulatory requirements governing gene therapy products and related clinical procedures are uncertain and are subject to substantial review by various governmental regulatory authorities. This regulatory review may result in extensive delay in the regulatory approval process. Regulatory requirements ultimately imposed could adversely affect the Company's ability to clinically test, manufacture or market products. The Company believes that the commercial uses of any of its products will be regulated by the FDA and comparable foreign regulatory bodies as either biologics or new drugs. Each product containing a particular gene will likely be regulated as either a separate biologic or drug depending on its intended use and evolving FDA policy.

The regulatory process for new therapeutic and preventive products, including the required preclinical and clinical testing, is lengthy and expensive and there can be no assurance that FDA clearances will be obtained in a timely manner, if at all. There can be no assurance as to the length of the clinical trial period or the number of patients the FDA will require to be enrolled in the clinical trials in order to establish the safety, efficacy and potency of human gene therapy products. The Company may encounter significant delays or excessive costs in its efforts to secure necessary approvals or licenses particularly because gene therapy is novel and regulatory requirements are evolving and uncertain. Future U.S. or foreign legislative or administrative acts could also prevent or delay regulatory approval of the Company's products. There can be no assurance that the Company will be able to obtain the necessary approvals for clinical trials or for the manufacturing or marketing of any products. Even if regulatory clearances are obtained, a marketed product is subject to continual review. Later discovery of previously unknown problems or failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market, as well as possible civil or criminal sanctions. In addition, many academic institutions and companies doing research in the gene therapy field are using a variety of approaches and technologies. Any adverse results obtained by such researchers in preclinical or clinical studies could adversely affect the regulatory environment for gene therapy products in general, possibly leading to delays in the approval process for the Company's potential products.

In order to commercialize any products, the Company must sponsor and file an IND for each proposed product and will be responsible for initiating and overseeing the clinical studies to demonstrate the safety, efficacy and potency that are necessary to obtain FDA approval of any such products. In addition to the FDA requirements, NIH has established guidelines for research involving recombinant DNA molecules, which are utilized by the Company and certain of its collaborators in their research. These guidelines apply to all recombinant DNA research which is conducted at or supported by the NIH. Under current guidelines, proposals to conduct clinical research involving gene therapy which is conducted at institutions supported by the NIH must be approved by RAC and the NIH. See "Business--Government Regulation."

PATENTS AND PROPRIETARY RIGHTS; ACCESS TO PROPRIETARY GENES AND PROTEINS

To date, the Company has filed or participated as licensee in the filing of a number of patent applications in the United States relating to the Company's technology, as well as foreign counterparts of certain of these applications in many countries. The Company intends to file applications as appropriate for patents covering both its products and processes. There can be no assurance that patents will issue from any of these applications or, if patents do issue, that claims allowed will be sufficient to protect the Company's technology. The Company's success will depend in part on its ability to obtain patent protection for its products and processes both in the United States and other countries. The patent positions of biotechnology and pharmaceutical companies can be highly uncertain and involve complex legal and factual questions, and therefore, the breadth of claims allowed in biotechnology and pharmaceutical patents cannot be predicted. In addition, any patents issued to the Company or to licensors of the Company's technology may be challenged, invalidated, or circumvented and the rights granted thereunder may not provide proprietary protection or commercial advantage to the Company.

The commercial success of the Company will also depend in part on the Company not infringing patents issued to competitors and not breaching the technology licenses that might cover technology used in the Company's products. It is uncertain whether any third-party patents will require the Company to alter its products or processes, obtain licenses, or cease certain activities. A number of the genetic sequences or proteins encoded by certain of those sequences that the Company is currently investigating in its clinical trials or may use in other of its gene-based products are, or may become, patented by others.

As a result, the Company may be required to obtain licenses under such patents in order to test, use or market products that contain proprietary genetic sequences or encode proprietary proteins. There can be no assurance that the Company will be able to obtain any such license on commercially favorable terms, if at all. Failure by the Company to obtain a license to any technology that it may require to commercialize its products may have a material adverse impact on the Company. Litigation, which could result in substantial cost to the Company, may also be necessary to enforce any patents issued to the Company or to determine the scope and validity of third-party proprietary rights. Should any of its competitors have prepared and filed patent applications in the United States which claim technology also invented by the Company, the Company may have to participate in interference proceedings declared by the PTO in order to determine priority of invention and, thus, the right to a patent for the technology in the United States, all of which could result in substantial cost to the Company to determine its rights. The Company also relies on protecting its proprietary technology in part through confidentiality agreements with its corporate collaborators, employees, consultants and certain contractors. These agreements may be breached, the Company may not have adequate remedies for any breach, and the Company's trade secrets may otherwise become known or be independently discovered by its competitors. See "Business--Collaboration and Licensing Agreements--Access to Proprietary Genes and Proteins" and "--Patents and Proprietary Rights."

DEPENDENCE ON THIRD PARTIES

The Company's strategy for the research, development and commercialization of its products requires entering into various arrangements with corporate collaborators, licensors, licensees and others, and is dependent upon the subsequent success of these outside parties in performing their responsibilities. Although the Company believes parties to any such arrangements would have an economic motivation to succeed in performing their contractual responsibilities, the amount and timing of resources to be devoted to these activities may not be within the control of the Company.

There can be no assurance that such parties will perform their obligations as expected or that the Company will derive any revenue from such arrangements. In addition, certain of the Company's collaborators are pursuing alternative competing technologies as a means for developing treatments for the diseases targeted by these collaborative programs. The Company has collaborative agreements with several pharmaceutical companies. However, there can be no assurance that these companies will successfully develop and market any products under their respective agreements. Vical intends to seek additional collaborative arrangements to develop and commercialize certain of its products. The Company may not be able to negotiate acceptable collaborative arrangements in the future and its current or future collaborative arrangements may not be successful.

COMPETITION AND TECHNOLOGICAL CHANGE

The gene therapy field is new and rapidly evolving, and it is expected to continue to undergo significant and rapid technological change. Rapid technological development could result in the Company's potential products or technologies becoming obsolete before the Company recovers a significant portion of its related research, development and capital expenditures. The Company may experience competition both from other companies in the field of gene therapy and from companies which have other forms of treatment or prevention for the diseases targeted by the Company. The Company is aware of several development stage and established entities, including major pharmaceutical and biotechnology firms, which are exploring the field of human gene therapy or are actively engaged in research and development in areas related to gene therapy. The Company may also experience competition from companies that have acquired or may acquire technology from universities and other research institutions. As these companies develop their technologies, they may develop proprietary positions in certain aspects of gene therapy which may materially and adversely affect Vical.

Certain competitors and potential competitors of the Company have substantially greater product development capabilities and financial, scientific, marketing and human resources than the Company. Other companies may succeed in developing products earlier than the Company, obtaining FDA approvals for such products more rapidly than the Company, or developing products that are more effective than those proposed to be developed by the Company. While the Company will seek to expand its technological capabilities in order to remain competitive, there can be no assurance that research and development by others will not render the Company's technology or products obsolete or noncompetitive or result in treatments or cures superior to any therapy developed by the Company, or that any therapy developed by the Company will be preferred to any existing or newly developed technologies. See "Business--Competition."

LACK OF COMMERCIAL SCALE MANUFACTURING OR MARKETING CAPABILITIES

The Company does not currently have the resources or capability to manufacture or market any of its proposed products by itself on a commercial scale, and large scale manufacturing of such products has not been demonstrated. Initially, the Company may be dependent on corporate partners, licensees or other entities for commercial scale manufacturing and marketing of its products. Should the Company decide to establish a commercial scale manufacturing facility, the Company will require substantial additional funds and personnel and will be required to comply with extensive regulations applicable to such a facility. The Company may not be able to enter into any arrangements for the manufacturing or marketing of its products or to obtain additional capital to conduct such activities independently.

UNCERTAINTY OF PRODUCT PRICING, REIMBURSEMENT AND RELATED MATTERS

The Company's ability to earn sufficient returns on its products may depend in part on the extent to which reimbursement for the costs of such products and related treatments will be available from government health administration authorities, private health coverage insurers, managed care organizations and other organizations. If purchasers or users of the Company's products are not entitled to adequate reimbursement for the cost of using such products, they may forego or reduce such use. Significant uncertainty exists as to the reimbursement status of newly approved health care products, and there can be no assurance that adequate third-party coverage will be available.

HAZARDOUS MATERIALS; ENVIRONMENTAL MATTERS

Although the Company does not manufacture commercial quantities of its product candidates, it produces limited quantities of such products for its clinical trials. The Company's research and development processes involve the controlled storage, use and disposal of hazardous materials, biological hazardous materials and radioactive compounds. The Company is subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of such materials and certain waste products. Although the Company believes that its safety procedures for handling and disposing of such materials comply with the standards prescribed by such laws and regulations, the risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, the Company could be held liable for any damages that result, and any such liability could exceed the resources of the Company. There can be no assurance that the Company will not be required to incur significant costs to comply with current or future environmental laws and regulations nor that the operations, business or assets of the Company will not be materially or adversely affected by current or future environmental laws or regulations.

VOLATILITY OF STOCK PRICE AND ABSENCE OF DIVIDENDS

The market price of shares of common stock, like that of the common stock of many other life sciences companies, has been and is likely to be highly volatile. Factors such as the results of preclinical studies and clinical trials by Vical and/or its collaborators or its competitors, other evidence of the safety or efficacy of products of Vical or its competitors, announcements of technological innovations or new products by the Company or its competitors, governmental regulatory actions, developments with the Company's collaborators, developments concerning patent or other proprietary rights of the Company or its competitors (including litigation), concern as to the safety of the Company's products, period to period fluctuations in the Company's operating results, market conditions for life science stocks in general and other factors not within the control of the Company could have a significant adverse impact on the market price of the common stock. The Company has never paid cash dividends on its common stock and does not anticipate paying any cash dividends in the foreseeable future. See "Price Range of Common Stock and Dividend Policy."

YEAR 2000 ISSUES

The Company is currently developing a plan to insure that its systems and software infrastructure are Year 2000 compliant. Key financial, information and operational systems will be assessed and plans will be developed to address required systems modifications.

Given the relatively small size of the Company's systems and the predominantly new hardware, software and operating systems, management does not anticipate any significant delays in becoming Year 2000 compliant. However, the Company is unable to control whether its current and future strategic partners' systems are Year 2000 compliant. To the extent that strategic partners would be unable to procure clinical materials or services provided by the Company, or otherwise manage their clinical trials and research and development activities, or to pay invoices owed to the Company, or to the extent that suppliers are unable to manufacture and ship materials or provide requested contract services, the Company's operations could be affected. However, at this time management has no reason to believe that Year 2000 changes will have a material impact on the Company's business, financial condition or results of operations.

EXECUTIVE OFFICERS

The executive officers of the Company are as follows:

NAME	AGE	POSITION
Alain B. Schreiber, M.D.	42	President, Chief Executive Officer and Director
Deirdre Y. Gillespie, M.D.	41	Executive Vice President and Chief Business Officer
Martha J. Demski	45	Vice President, Chief Financial Officer, Treasurer and Secretary
George J. Gray	51	Vice President, Operations
Jon A. Norman, Ph.D.	49	Vice President, Research
Robert H. Zaugg, Ph.D.	48	Vice President, Business Development

ALAIN B. SCHREIBER, M.D., has been President, Chief Executive Officer and a director of the Company since May 1992. Prior to joining the Company, Dr. Schreiber held various executive level positions at Rhone-Poulenc Rorer Inc., a pharmaceutical company, from July 1985 to April 1992, lastly as Senior Vice President of Discovery Research. From October 1982 to June 1985, Dr. Schreiber served as Biochemistry Department Head at Syntex Corp., a pharmaceutical company. He received his undergraduate degree and M.D. from the Free University of Brussels, after which he was awarded a fellowship in immunology at the Weizmann Institute.

DEIRDRE Y. GILLESPIE, M.D., joined the Company as Executive Vice President and Chief Business Officer in March 1998. From 1986 to 1990, Dr. Gillespie directed clinical research activities for Sandoz Pharma AG in Basel, Switzerland, and London, England. From 1991 to 1996, she held various management positions with the Dupont Merck Pharmaceutical Co. in London, England, and Wilmington, Delaware, including Vice President of Global Marketing and Vice President of Worldwide Product Planning. Most recently, Dr. Gillespie served as Vice President of Business Development for 3-Dimensional Pharmaceuticals, Inc. in Exton, Pennsylvania. Dr. Gillespie received a B.Sc. in Pharmacology and Therapeutics (equivalent to a masters degree in the U.S.) in 1976 and an M.D. in 1980 from London University. She received MRCP certification (equivalent to internal medicine boards in the U.S.) in 1985. She served on the Executive Committee of the British Association of Pharmaceutical Physicians from 1988-1990 and is a member of the Faculty of Pharmaceutical Medicine (UK). Dr. Gillespie received her M.B.A. in 1990 from the London Business School with a specialization in marketing and international management.

MARTHA J. DEMSKI joined the Company as Chief Financial Officer in December 1988 and currently serves as Vice President, Chief Financial Officer, Treasurer and Secretary. From August 1977 until joining Vical, Ms. Demski held various positions with Bank of America, lastly as Vice President/Section Head of the Technology Section. She also served as an adviser to Bank of America on a statewide basis regarding the biotechnology industry in California. Ms. Demski received a B.A. from Michigan State University and an M.B.A. in Finance and Accounting from The University of Chicago Graduate School of Business.

JON A. NORMAN, PH.D., joined the Company in January 1993 as Vice President, Research. From 1986 until joining the Company, Dr. Norman was the Group Leader/Section Head for the Departments of Pharmacology and Biochemistry at Bristol-Myers Squibb Corporation, a pharmaceutical company. He was a Senior Research Scientist at Ciba-Geigy Corporation, a pharmaceutical company, from 1981 to 1986. Dr. Norman received his B.A. and M.A. from the University of California at Santa Barbara and his Ph.D. in Biochemistry from the University of Calgary, after which he was awarded a fellowship at the Friederich Miescher Institute in Basel, Switzerland.

GEORGE J. GRAY joined the Company in October 1992 as Vice President, Operations. Prior to that time he was at Rhone-Poulenc Rorer Inc. where he held various positions since 1975, lastly as Director, Discovery Research Ventures, US/UK from January 1990 to October 1992, and prior to that as Director, Project Management from January 1988 to December 1989. Mr. Gray received a B.A. from George Washington University.

ROBERT H. ZAUGG, PH.D., joined the Company in July 1991 as the Senior Director, Business Development and has served as the Vice President of Business Development since January 1994. Prior to joining the Company, Dr. Zaugg served as Director of Business Development & Licensing for Triton Biosciences from 1988 to 1991 and in various business development positions with Sandoz Pharmaceuticals Corporation from 1982 to 1988. He holds a B.A. from the University of California at Los Angeles, a Ph.D. in Biochemistry from Northwestern University and an M.B.A. from New York University. He was awarded a post-doctoral fellowship in immunology at the Massachusetts Institute of Technology.

The executive officers are elected annually by the Board of Directors.

ITEM 2. PROPERTIES

The Company currently leases approximately 38,000 square feet of laboratory and office space in San Diego, California at three sites and with three leases. The leases terminate in 1999 and 2001 and contain varying renewal options. Total current monthly rental on the facilities, including common area maintenance costs, is approximately $93,000.

ITEM 3. LEGAL PROCEEDINGS

Not applicable.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

The Company's common stock is traded on the Nasdaq National Market under the symbol "VICL." The following table presents quarterly information on the price range of high and low sales prices for the Common Stock on the Nasdaq National Market for the periods indicated since January 1, 1996.

1996	HIGH	LOW
First Quarter	$20.00	$11.50
Second Quarter	22.00	13.00
Third Quarter	16.625	10.375
Fourth Quarter	21.25	12.75
1997		
First Quarter	18.25	14.00
Second Quarter	15.75	9.25
Third Quarter	15.00	10.625
Fourth Quarter	17.25	11.00

As of March 2, 1998, there were approximately 544 stockholders of record of the Company's common stock with 15,749,307 shares outstanding. The Company has never declared or paid any dividends and does not expect to pay any dividends in the foreseeable future.

In November 1997, the Company and Merck amended their 1991 agreement and granted Merck certain rights to develop and market certain vaccines. Under the amended agreement, Merck made an investment of $5.0 million for approximately 262,000 shares of the Company's common stock. For this sale of stock, the Company relied on the exemption from registration under Section 4(2) of the Securities Act of 1933.

ITEM 6. SELECTED FINANCIAL DATA

	YEAR ENDED DECEMBER 31,				
	1997	1996	1995	1994	1993
	(in thousands, except per share and share amounts)				
STATEMENT OF OPERATIONS DATA:					
Revenues:					
Contract revenue	$ 1,326	$ 1,061	$ 900	$ 1,005	$ 1,206
License/royalty revenue	6,477	5,679	5,402	4,509	1,623
Sale of technology (1)	--	--	--	--	3,148
	7,803	6,740	6,302	5,514	5,977
Expenses:					
Research and development	11,936	11,318	8,997	8,336	6,163
General and administrative	3,733	3,168	2,902	2,615	1,989
Loss from operations	(7,866)	(7,746)	(5,597)	(5,437)	(2,175)
Interest income	2,447	2,773	1,687	1,159	873
Interest expense	192	108	73	80	63
Net loss	$ (5,611)	$ (5,081)	$ (3,983)	$ (4,358)	$ (1,365)
Net loss per share (basic and diluted) (2)	$ (.36)	$ (.33)	$ (.29)	$ (.34)	$ (.14)
Shares used in per share calculation	15,484,952	15,382,848	13,504,790	12,831,585	9,876,062

	AS OF DECEMBER 31,				
	1997	1996	1995	1994	1993
	(in thousands)				
BALANCE SHEET DATA:					
Cash, cash equivalents and marketable securities	$ 45,555	$ 46,846	$ 52,528	$ 27,339	$ 32,538
Working capital	44,856	46,315	51,541	25,956	30,920
Total assets	50,691	52,440	55,118	30,324	35,123
Long-term obligations	1,232	1,617	339	527	447
Stockholders' equity	47,194	48,365	53,264	27,852	32,446

(1) This amount represents the proceeds from a one-time assignment of certain lipid technology in January 1993.

(2) The 1993 net loss per share has been restated pursuant to Statement of Financial Accounting Standards No. 128 "Earnings per Share" to include the common shares issued upon conversion of the preferred stock into common stock from the date of actual conversion.

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

OVERVIEW

Vical was incorporated in April 1987 and since that time has devoted substantially all of its resources to its research and development programs. The Company is focusing its resources on the development of its direct gene transfer and related technologies. To date, the Company has not received revenues from the sale of products. No assurance can be given that the Company will be able to generate sufficient product revenue to become profitable at all or on a sustained basis. As of December 31, 1997, the Company's accumulated deficit was approximately $30.3 million.

Vical expects to incur substantial operating losses for at least the next several years due to significant increases in research and development expenses. The increases are expected to result from costs of preclinical studies and clinical trials for the Company's product candidates, increased patent and regulatory costs, and associated increases in personnel, laboratory supplies and contract services. Losses may fluctuate from quarter to quarter as a result of differences in the timing of expenses incurred and the revenues received from collaborative agreements. Such fluctuations may be significant.

When used in this discussion, the words "expects," "anticipated" and similar expressions are intended to identify forward-looking statements. Such statements are subject to certain risks and uncertainties which could cause actual results to differ materially from those projected. Readers are cautioned not to place undue reliance on these forward-looking statements which speak only as of the date hereof. The Company undertakes no obligation to publicly release the result of any revisions to these forward-looking statements which may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

RESULTS OF OPERATIONS

The Company had revenues of $7.8 million for the year ended December 31, 1997, compared with $6.7 million in 1996 and $6.3 million in 1995. Revenues in 1997 were composed of research and license revenue from a 1997 Merck agreement covering certain growth factors ($2.0 million); the equity premium on the investment Merck made in 1997 in Vical common stock under an amendment to the 1991 collaborative agreement ($1.0 million); the PMC collaboration ($2.4 million); a 1997 collaborative agreement with Rhone-Poulenc Rorer for neurodegenerative disease targets ($1.0 million); and other agreements which totaled $1.4 million. In November 1997, the Company and Merck amended the 1991 agreement and granted Merck certain rights to develop and market therapeutic vaccines against the human immunodeficiency virus (HIV) and hepatitis B virus (HBV). Pursuant to the November 1997 amendment, Merck made an investment of $5.0 million for approximately 262,000 shares of the Company's common stock. The price per share reflected a twenty-five percent premium over the trading price of the common stock. The premium on the investment was reflected in revenue in 1997. The PMC revenue represented contract revenue of $1.1 million as payment for certain clinical and preclinical work and license revenue of $1.3 million, of which $1.0 million was for a milestone payment for the start of the malaria clinical trial and the remaining balance was the amortization of deferred license fees. Revenues in 1996 resulted from research and license revenue from: the PMC collaboration in the amount of $2.7 million, the 1991 Merck Agreement in the amount of $1.5 million, the Genzyme collaboration in the amount of $1.3 million, and several other agreements in the amount of $1.2 million. Revenue from the PMC agreement in 1996 was primarily the result of PMC's payment of licensing and option fees, and the addition of a new option, as well as the payment of fees for the Company's performance of certain clinical and preclinical work. The Merck revenue resulted from milestone payments due under the 1991 Merck Agreement. The Genzyme collaboration income was the result of Genzyme exercising its option to license the Company's technology for the treatment of cystic fibrosis as well as payments for the Company's performance of certain research and preclinical work. Revenues in 1995 resulted from research and license income from the 1991 Merck Agreement in the amount of $3.6 million, from the PMC collaboration in the amount of $1.3 million and under several other agreements in the amount of $1.4 million. Revenue in 1995 from the 1991 Merck Agreement resulted primarily from the exercise by Merck of remaining options to license Vical's technology to develop preventive vaccines against certain human disease targets and the recognition of revenue from previously received payments. PMC renewed its options to acquire rights to use Vical's technology against certain disease targets and exercised one such option in 1995.

Research and development expense increased to $11.9 million in 1997 from $11.3 million in 1996 and $9.0 million in 1995. This increase in research and development expense was generally due to expansion of the Company's research and development activities. The increased activities included increased clinical and preclinical efforts which resulted in increases to staffing, increased facilities related costs and increased expenditures on laboratory supplies. Clinical trials expense increased to $1.6 million during 1997 from $1.2 million in 1996 primarily due to the commencement of the malaria clinical trial and increased clinical trials activity on LEUVECTIN. During 1996, the Company incurred expenses of approximately $1.2 million with the commencement and progression of the multi-center Phase I/II and Phase II clinical trials of LEUVECTIN and ALLOVECTIN-7 respectively. Such costs are expected to continue to increase in 1998 and thereafter as the Company's preclinical and clinical trial activities increase.

General and administrative expense increased to $3.7 million in 1997 from $3.2 million in 1996 and $2.9 million in 1995. These increases were due primarily to additional staffing and related expenses. General and administrative expenses are expected to continue to increase as research and development activities expand.

Prior to its initial public offering in March 1993, the Company recorded deferred compensation for the difference between the price of stock sold and options granted and the deemed fair market value of the common stock at the time of sale or grant. Deferred compensation and related amortization expense as of and for the year ended December 31, 1996, amounted to approximately $1.0 million and $.2 million, respectively. Deferred compensation was fully amortized at December 31, 1996.

Interest income decreased from $2.8 million in 1996 to $2.4 million in 1997 due to lower investment balances as the Company redeemed investments to fund current operating expenses. Interest income increased to $2.8 million in 1996 compared with $1.7 million in 1995. This increase was primarily due to changes in cash balances as a result of the completion of a follow-on offering of common stock in September 1995, increases in payments received under collaborative agreements and changes in the overall interest rates earned on cash balances. Interest expense increased in 1997 and in 1996 compared to the previous year due to increased capital lease obligations to finance equipment needs and the addition of a debt instrument in 1996.

YEAR 2000 ISSUES

The Company is currently developing a plan to insure that its systems and software infrastructure are Year 2000 compliant. Key financial, information and operational systems will be assessed and plans will be developed to address required systems modifications. Given the relatively small size of the Company's systems and the predominantly new hardware, software and operating systems, management does not anticipate any significant delays in becoming Year 2000 compliant. However, the Company is unable to control whether its current and future strategic partners' systems are Year 2000 compliant. To the extent that strategic partners would be unable to procure clinical materials or services provided by the Company, or otherwise manage their clinical trials and research and development activities, or to pay invoices owed to the Company, or to the extent that suppliers are unable to manufacture and ship materials or provide requested contract services, the Company's operations could be affected. However, at this time management has no reason to believe that Year 2000 changes will have a material impact on the Company's business, financial condition or results of operations.

LIQUIDITY AND CAPITAL RESOURCES

Since its inception, Vical has financed its operations primarily through private placements of preferred stock, three public offerings of common stock, revenues from collaborative agreements and the investment by Merck for shares of Vical common stock. As of December 31, 1997, the Company had working capital of approximately $44.9 million compared with $46.3 million at December 31, 1996. Cash and marketable securities totaled approximately $45.6 million at December 31, 1997, compared with $46.8 million at December 31, 1996.

The Company expects to incur substantial additional research and development expense including continued increases in personnel and costs related to preclinical testing and clinical trials. The Company's future capital requirements will depend on many factors, including the rate of scientific progress in its research and development programs, the scope and results of preclinical testing and clinical trials, the time and costs involved in obtaining regulatory approvals, the costs involved in filing, prosecuting and enforcing patent claims, competing technological and market developments, the cost of manufacturing scale-up, commercialization activities and arrangements and other factors not within the Company's control. The Company intends to seek additional funding through research and development relationships with suitable potential corporate collaborators and/or through public or private financings. There can be no assurance that additional financing will be available on favorable terms, if at all.

If additional financing is not available, Vical anticipates that its available cash and existing sources of funding will be adequate to satisfy its operating needs through 1999.

ITEM 7.A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The consolidated financial statements and supplementary data of the Company required by this item are set forth at the pages indicated in Item 14(a)(1).

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

Not applicable.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS

DIRECTORS

The directors of the Company are as follows:

NAME	AFFILIATION
Alain B. Schreiber, M.D.	Vical Incorporated
Robert C. Bellas, Jr.	Morgenthaler Ventures
M. Blake Ingle	Canji, Inc. (retired)
Patrick F. Latterell	Venrock Associates
Fred A. Middleton	Sanderling Venture Partners, Inc.
Dale A. Smith	Baxter International Inc. (retired)
Philip M. Young	U.S. Venture Partners
Gary A. Lyons	Neurocrine Biosciences, Inc.

The information required by this item (with respect to Directors) is incorporated by reference from the information under the caption "Election of Directors" contained in the Company's Proxy Statement to be filed with the Securities and Exchange Commission in connection with the solicitation of proxies for the Company's 1998 Annual Meeting of Stockholders to be held on May 28, 1998 ("Proxy Statement").

The required information concerning Executive Officers of the Company is contained in Part I of this Form 10-K.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference from the information under the caption "Executive Compensation" contained in the Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The information required by this item is incorporated by reference from the information under the caption "Security Ownership of Certain Beneficial Owners and Management" contained in the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information required by this item is incorporated by reference from the information contained under the caption "Certain Transactions" contained in the Proxy Statement.

PART IV

ITEM 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K

(a) (1) FINANCIAL STATEMENTS

The financial statements required by this item are submitted in a separate section beginning on page F-1 of this report.

(2) FINANCIAL STATEMENT SCHEDULES

Schedules have been omitted because of the absence of conditions under which they are required or because the required information is included in the financial statements or the notes thereto.

(3) Exhibits with each management contract or compensatory plan or arrangement required to be filed are identified. See paragraph (c) below.

(b) REPORTS ON FORM 8-K

No reports on Form 8-K were filed during the quarter ended December 31, 1997.

(c) EXHIBITS

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
3.1(i)(11)	Restated Certificate of Incorporation.
3.1(ii)(11)	Amended and Restated Bylaws of the Company.
3.2(i)(2)	Certificate of Designation, Rights and Preferences of Series A Participating Preferred Stock of Vical Incorporated.
4.1(11)	Specimen Common Stock Certificate.
4.2(2)	Rights Agreement dated as of March 20, 1995, between the Company and First Interstate Bank of California.
4.3	Stock Purchase Agreement dated November 3, 1997, between the Company and Merck & Co., Inc.
10.1(4)#	1992 Stock Plan of Vical Incorporated.
10.2(5)#	1992 Directors' Stock Option Plan of Vical Incorporated.
10.3(3)	Form of Indemnity Agreement between the Company and its directors and officers.
10.5(3)#	Employment Agreement dated August 20, 1992, between the Company and Mr. George J. Gray.
10.6(3)#	Employment Agreement dated November 2, 1992, between the Company and Dr. Jon A. Norman.
10.7(3)	Stock Purchase Agreement dated February 20, 1992.
10.8(3)	Lease dated December 4, 1987, between the Company and Nexus/GADCo.-UTC, a California Joint Venture, as amended.
10.9(6)*	Research Collaboration and License Agreement dated May 31, 1991, between the Company and Merck & Co., Inc.
10.12(1)*	License Agreement dated January 1, 1991, between the Company and Wisconsin Alumni Research Foundation.
10.14(1)*	License Agreement dated October 23, 1992, between the Company and the Regents of University of Michigan.
10.16(7)	Research, Option and License Agreement dated September 29, 1994, between the Company and Pasteur Merieux Serums & Vaccins.
10.17(8)	Amendment dated April 27, 1994, to Research Collaboration and License Agreement dated May 31, 1991, between the Company and Merck & Co., Inc.
10.18(9)*	Agreement between Merck & Co., Inc. and the Company dated September 12, 1997.
10.19*	Amendment dated November 3, 1997, to Research Collaboration and License Agreement dated May 31, 1991, between the Company and Merck & Co., Inc.
23.1	Consent of Arthur Andersen LLP.
24	Power of Attorney (see page 36).
27	Financial Data Schedule

(1) Incorporated by reference to the Company's Registration Statement on Form S-1 (No. 33-56830) filed on January 7, 1993.

(2) Incorporated by reference to the exhibit of the same number to the Company's Report on Form 10-K for the Fiscal Year ended December 31, 1994 (No. 0-21088).

(3) Incorporated by reference to the Exhibits of the same number filed with the Company's Registration Statement on Form S-1 (No. 33-56830) filed on January 7, 1993.

(4) Incorporated by reference to Exhibit 10.1 filed with the Company's Registration Statement on Form S-8 (No. 33-81602) filed on July 15, 1994.

(5) Incorporated by reference to Exhibit 10.1 filed with the Company's Registration Statement on Form S-8 (No. 33-87972) filed on December 29, 1994.

(6) Incorporated by reference to Exhibit 10.9 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 1994 (No. 0-21088).

(7) Incorporated by reference to Exhibit A of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 1994.

(8) Incorporated by reference to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1994 (No. 0-21088).

(9) Incorporated by reference to the exhibit of the same number to the Company's Quarterly Report on the Form 10-Q for the quarter ended September 30, 1997, as amended by Form 10-Q/A filed January 30, 1998.

(10) Incorporated by reference to the exhibit of the same number filed with the Company's Registration Statement on Form S-3 (No. 33-95812) filed on August 15, 1995.

* The Company has received confidential treatment of certain portions of these agreements. # Indicates management contract or compensatory plan or arrangement.

(d) FINANCIAL STATEMENT SCHEDULES

The financial statement schedules of Vical Incorporated required by this item are set forth at the pages indicated in Item 14(a)(2).

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 on March 30, 1998.

VICAL INCORPORATED

By: /s/ ALAIN B. SCHREIBER, M.D.
Alain B. Schreiber, M.D.
President and Chief Executive Officer

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

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Alain B. Schreiber and Martha J. Demski, and each of them, his or her attorneys-in-fact, each with full power of substitution, for him or her in any and all capacities, to sign any amendments to this Report and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each said attorneys-in-fact, or substitute or substitutes, may do or cause to be done by virtue hereof.

/s/ ALAIN B. SCHREIBER, M.D. Alain B. Schreiber, M.D.	President, Chief Executive Officer and Director	March 30, 1998
/s/ MARTHA J. DEMSKI Martha J. Demski	Vice President, Finance Chief Financial Officer Secretary and Treasurer	March 30, 1998
/s/ ROBERT C. BELLAS, JR. Robert C. Bellas, Jr.	Director	March 30, 1998
/s/ FRED A. MIDDLETON Fred A. Middleton	Director	March 30, 1998
/s/ PHILIP M. YOUNG Philip M. Young	Director	March 30, 1998
/s/ PATRICK F. LATTERELL Patrick F. Latterell	Director	March 30, 1998
/s/ DALE A. SMITH Dale A. Smith	Director	March 30, 1998
/s/ M. BLAKE INGLE M. Blake Ingle	Director	March 30, 1998
/s/ GARY A. LYONS Gary A. Lyons	Director	March 30, 1998

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

To Vical Incorporated:

We have audited the accompanying balance sheets of Vical Incorporated, a Delaware corporation, as of December 31, 1997 and 1996, and the related statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 1997. 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 generally accepted auditing standards. 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 Vical Incorporated as of December 31, 1997 and 1996, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 1997, in conformity with generally accepted accounting principles.

ARTHUR ANDERSEN LLP

San Diego, California
February 10, 1998

VICAL INCORPORATED
BALANCE SHEETS

	December 31, 1997	December 31, 1996
ASSETS		
Current Assets:		
Cash and cash equivalents (Note 2)	$ 12,157,149	$ 12,609,277
Marketable securities - available-for-sale (Note 2)	33,397,482	34,237,314
Receivables and other	1,566,532	1,925,995
Total current assets	47,121,163	48,772,586
Property and Equipment (Note 5):		
Equipment	4,966,955	4,635,432
Leasehold improvements	1,587,554	1,235,199
	6,554,509	5,870,631
Less--accumulated depreciation and amortization	(4,334,224)	(3,607,724)
	2,220,285	2,262,907
Patent costs, net of accumulated amortization of $74,063 and $29,652 (Note 1)	1,247,059	1,091,687
Other assets	102,500	312,900
	$ 50,691,007	$ 52,440,080
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts payable and accrued expenses (Note 4)	$ 1,424,603	$ 810,384
Current portion of capital lease obligations (Note 5)	448,261	455,681
Current portion of notes payable (Note 5)	213,773	-
Deferred revenue (Note 3)	178,261	1,191,304
Total current liabilities	2,264,898	2,457,369
Long-Term Obligations:		
Long-term obligations under capital leases (Note 5)	911,794	976,164
Notes payable (Note 5)	320,660	641,320
Total long-term obligations	1,232,454	1,617,484
Commitments (Note 5)		
Stockholders' Equity (Note 6):		
Preferred stock, $.01 par value--5,000,000 shares authorized--none outstanding	--	--
Common stock, $.01 par value--40,000,000 shares authorized--15,731,316 and 15,396,582 shares issued and outstanding in 1997 and 1996, respectively	157,313	153,966
Additional paid-in capital	77,267,971	72,904,472
Unrealized gain (loss) on marketable securities (Note 2)	24,028	(48,785)
Accumulated deficit	(30,255,657)	(24,644,426)
Total stockholders' equity	47,193,655	48,365,227
	$ 50,691,007	$ 52,440,080

See accompanying notes.

VICAL INCORPORATED
STATEMENTS OF OPERATIONS

	Year ended December 31,		
	1997	1996	1995
Revenues (Note 3):			
Contract revenue	$ 1,325,925	$ 1,060,557	$ 899,547
License/Royalty revenue	6,477,244	5,679,542	5,402,018
	7,803,169	6,740,099	6,301,565
Expenses:			
Research and development	11,936,068	11,317,908	8,997,001
General and administrative	3,733,290	3,168,331	2,902,176
	15,669,358	14,486,239	11,899,177
Loss from operations	(7,866,189)	(7,746,140)	(5,597,612)
Other income (expense):			
Interest income	2,447,139	2,772,845	1,687,380
Interest expense	(192,181)	(107,296)	(73,219)
Net loss	$(5,611,231)	$(5,080,591)	$ (3,983,451)
Net loss per share (basic and diluted--Note 1)	$ (0.36)	$ (0.33)	$ (0.29)
Shares used in per share calculation	15,484,952	15,382,848	13,504,790

See accompanying notes.

VICAL INCORPORATED
STATEMENTS OF STOCKHOLDERS' EQUITY
FOR THE THREE YEARS ENDED DECEMBER 31, 1997

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Deferred Compensation
BALANCE, December 31, 1994	12,845,714	$128,457	$44,183,634	$(406,801)
Issuance of common stock at $12.25 per share	2,500,000	25,000	28,524,733	-
Repurchase of common stock at $.16 per share	(449)	(4)	(123)	43
Stock option exercises	19,000	190	20,240	-
Deferred compensation	-	-	-	248,331
Unrealized gain (loss) on marketable securities	-	-	-	-
Net loss	-	-	-	-
BALANCE, December 31, 1995	15,364,265	153,643	72,728,484	(158,427)
Stock option exercises	32,317	323	175,988	-
Deferred compensation	-	-	-	158,427
Unrealized gain (loss) on marketable securities	-	-	-	-
Net loss	-	-	-	-
BALANCE, December 31, 1996	15,396,582	153,966	72,904,472	-
Issuance of common stock at $15.28 per share (Note 3)	261,812	2,618	3,992,143	-
Stock option exercises	72,922	729	371,356	-
Unrealized gain (loss) on marketable securities	-	-	-	-
Net loss	-	-	-	-
BALANCE, December 31, 1997	15,731,316	$157,313	$77,267,971	$ -

	Unrealized Gain (Loss) on Marketable Securities	Accumulated Deficit	Total Stockholders' Equity
BALANCE, December 31, 1994	$(472,708)	$(15,580,384)	$27,852,198
Issuance of common stock at $12.25 per share	-	-	28,549,733
Repurchase of common stock at $.16 per share	-	-	(84)
Stock option exercises	-	-	20,430
Deferred compensation	-	-	248,331
Unrealized gain (loss) on marketable securities	576,884	-	576,884
Net loss	-	(3,983,451)	(3,983,451)
BALANCE, December 31, 1995	104,176	(19,563,835)	53,264,041
Stock option exercises	-	-	176,311
Deferred compensation	-	-	158,427
Unrealized gain (loss) on marketable securities	(152,961)	-	(152,961)
Net loss	-	(5,080,591)	(5,080,591)
BALANCE, December 31, 1996	(48,785)	(24,644,426)	48,365,227
Issuance of common stock at $15.28 per share (Note 3)	-	-	3,994,761
Stock option exercises	-	-	372,085
Unrealized gain (loss) on marketable securities	72,813	-	72,813
Net loss	-	(5,611,231)	(5,611,231)
BALANCE, December 31, 1997	$ 24,028	$(30,255,657)	$47,193,655

See accompanying notes.

VICAL INCORPORATED
STATEMENTS OF CASH FLOWS

	Year ended December 31, 1997	1996	1995
OPERATING ACTIVITIES:			
Net loss	$(5,611,231)	$(5,080,591)	$(3,983,451)
Adjustments to reconcile net loss to net cash provided from (used in) operating activities:			
Depreciation and amortization	939,956	620,033	509,375
Compensation expense related to stock purchases	-	158,427	248,331
Write-off of abandoned patent application costs	80,994	3,247	220,440
Changes in operating assets and liabilities:			
Receivables and other	359,463	(1,397,906)	33,902
Accounts payable and accrued expenses	614,219	282,087	(24,400)
Deferred revenue	(1,013,043)	512,137	(350,000)
Net cash used in operating activities	(4,629,642)	(4,902,566)	(3,345,803)
INVESTING ACTIVITIES:			
Marketable securities	912,645	10,963,363	(19,701,751)
Capital expenditures	(418,507)	(980,709)	(40,322)
Other assets	210,400	221,288	171,888
Patent expenditures	(280,778)	(269,682)	(356,135)
Net cash provided from (used in) investing activities	423,760	9,934,260	(19,926,320)
FINANCING ACTIVITIES:			
Principal payments under capital lease obligations	(506,205)	(414,176)	(387,958)
Proceeds from (payments on) notes payable	(106,887)	641,320	-
Issuance of common stock, net	4,366,846	176,311	28,570,079
Net cash provided from financing activities	3,753,754	403,455	28,182,121
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(452,128)	5,435,149	4,909,998
CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD	12,609,277	7,174,128	2,264,130
CASH AND CASH EQUIVALENTS AT END OF PERIOD	$12,157,149	$12,609,277	$ 7,174,128
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:			
Interest Paid	$ 184,191	$ 107,296	$ 73,219
NONCASH INVESTING AND FINANCING ACTIVITIES:			
Equipment acquired under capital leases	$ 434,416	$ 1,200,022	$ 144,355

See accompanying notes.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

ORGANIZATION AND BUSINESS ACTIVITY

Vical Incorporated (the "Company"), a Delaware corporation, was incorporated in 1987 and has devoted substantially all of its resources since that time to its research and development programs. The Company is focusing its resources on the development of its direct gene transfer and related technologies.

All of the Company's potential products are in research and development. No revenues have been generated from the sale of any of such products, nor are any such revenues expected for at least the next several years. The products currently under development by the Company will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval, prior to commercial use. There can be no assurance that the Company's research and development efforts will be successful and that any of the Company's potential products will prove to be safe and effective in clinical trials. Even if developed, these products may not receive regulatory approval or be successfully introduced and marketed at prices that would permit the Company to operate profitably. The Company expects to continue to incur substantial losses for at least the next several years. No assurance can be given that the Company can generate sufficient product revenue to become profitable at all or on a sustained basis.

USE OF ESTIMATES

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

PROPERTY AND EQUIPMENT

Equipment is stated at cost and depreciated over the estimated useful lives of the assets (3-5 years) using the straight-line method. Leasehold improvements are stated at cost and amortized over the shorter of the life of the lease or the remaining useful life of the asset using the straight-line method.

PATENT COSTS

The Company capitalizes certain costs related to patent applications. Accumulated costs are amortized over the estimated economic lives of the patents using the straight-line method, commencing at the time the patents are issued. Costs related to patent applications are written off to expense at the time such costs are deemed to have no continuing value.

RESEARCH AND DEVELOPMENT COSTS

All research and development costs are expensed as incurred.

REVENUE UNDER COLLABORATIVE AGREEMENTS

Revenue under collaborative agreements is generally recognized over the term of the agreement or on the achievement of certain milestones. Advance payments received in excess of amounts earned are classified as deferred revenue.

NET LOSS PER SHARE

Basic and diluted net loss per share for each of the three years in the period ended December 31, 1997, has been computed using the weighted average number of shares of common stock outstanding during the periods pursuant to Statement of Financial Accounting Standards No. 128, "Earnings Per Share." Diluted loss per share does not include any stock options as the effect would be antidilutive. See Note 6 for information on the number of options outstanding and the weighted average exercise price at December 31, 1997, 1996 and 1995.

INCOME TAXES

The Company accounts for income taxes in accordance with Statement of Financial Accounting Standards No. 109 ("SFAS 109"), "Accounting for Income Taxes."

NEW ACCOUNTING STANDARDS

In June 1997, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 130 ("SFAS 130"), "Reporting Comprehensive Income." This statement is effective for fiscal years beginning after December 15, 1997. This statement requires that all items that are required to be recognized under accounting standards as components of comprehensive income be reported in a financial statement that is displayed with the same prominence as other financial statements. Accordingly, in addition to reporting net income (loss) under the current rules the Company would be required to display the impact of any unrealized gain or loss on marketable securities as a component of comprehensive income and to display an amount representing total comprehensive income for each period presented. Reclassification of financial statements for earlier periods provided for comparative purposes is required. The Company will adopt SFAS 130 in the first quarter of 1998. There will be no impact of this adoption on results of operations or financial position.

2. CASH EQUIVALENTS AND MARKETABLE SECURITIES

The Company invests its excess cash in debt instruments of financial institutions, corporations with strong credit ratings, and in U.S. government obligations. The Company has established guidelines relative to diversification and maturities that maintain safety and liquidity. These guidelines are periodically reviewed and modified to take advantage of trends in yields and interest rates. Cash equivalents are short-term, highly liquid investments with original maturities of less than three months. Cash equivalents at December 31, 1997 and 1996, consist primarily of $12,080,473 and $12,560,988, respectively, in commercial paper and money market funds.

The Company has adopted Statement of Financial Accounting Standards No. 115 ("SFAS 115"), "Accounting for Certain Investments in Debt and Equity Securities," which requires that the Company's marketable securities be classified as available-for-sale and that unrealized holding gains or losses are recorded as a separate component of stockholders' equity. Realized gains or losses, calculated based on the specific identification method, were not material for the years ended December 31, 1997, 1996 and 1995.

At December 31, 1997, marketable securities consisted of the following:

	Amortized Cost	Market Value	Unrealized Gain
U.S. Government Obligations	$12,978,062	$12,982,090	$ 4,028
Commercial Paper	20,395,392	20,415,392	20,000
Total Marketable Securities	$33,373,454	$33,397,482	$24,028

Approximately 65% of these securities mature within one year of December 31, 1997, and the remaining 35% mature within two years of December 31, 1997.

At December 31, 1996, marketable securities consisted of the following:

	Amortized Cost	Market Value	Unrealized Loss
U.S. Government Obligations	$25,421,815	$25,395,811	$(26,004)
Commercial Paper	8,864,284	8,841,503	(22,781)
Total Marketable Securities	$34,286,099	$34,237,314	$(48,785)

3. SIGNIFICANT CONTRACTS AND LICENSE AGREEMENTS

MERCK & CO., INC.

In May 1991, the Company entered into a collaborative research, development, and commercialization agreement with Merck & Co., Inc. ("Merck"), which provides Merck with certain exclusive rights to develop and commercialize certain preventive human infectious disease vaccines incorporating the Company's "naked" DNA vaccine technology. A second collaborative agreement was signed in May 1992 granting Merck exclusive rights to develop and commercialize the Company's naked DNA vaccine technology for an animal disease application. In 1993, Merck exercised its right under the 1991 agreement to extend its option to vaccines developed against five specific infectious disease targets in return for the payment to Vical of $1,250,000. In 1994, Merck acquired the option to an exclusive license to use the Company's naked DNA vaccine technology for the development of a tuberculosis vaccine. In 1994, Merck also exercised its options to license the Company's technology for use with two vaccine targets and extended its option to vaccines developed against two other specific diseases. For these 1994 transactions, the Company received $2,300,000. In 1995, Merck exercised its remaining options. The Company received approximately $2,950,000 for these transactions in 1995. In 1996, the Company received a $1,000,000

payment from Merck upon the initiation of a Phase I clinical trial of an experimental DNA vaccine against influenza virus, one of the seven infectious disease targets covered by the agreement. Also in 1996, Vical accrued a $500,000 payment from Merck in conjunction with the issuance of the patent technology covering the agreement. The payment was subsequently received in 1997. In November 1997, the Company and Merck amended the 1991 agreement and granted Merck certain rights to develop and market therapeutic vaccines against the human immunodeficiency virus (HIV) and hepatitis B virus (HBV). Under the amended agreement, Merck made an investment of $5,000,000 for approximately 262,000 shares of the Company's common stock. The price per share reflected a twenty-five percent premium over the average per share closing price for the twenty trading days prior to the date of the agreement.
The premium of $1,000,000 on the investment was reflected in revenue in 1997 and the balance of the investment, net of costs to issue the shares of stock, was reflected in common stock and additional paid-in capital.

In September 1997, the Company also entered into an agreement granting Merck the rights to use the Company's naked DNA technology to deliver certain growth factors as potential treatments for a range of applications including revascularization. The agreement resulted in an initial payment to the Company of $2,000,000. Through December 31, 1997, the Company had received a total of $19,130,000 (including the payment for the investment for common stock) under these agreements of which $3,000,000, $1,500,000 and $3,562,500 was recognized as revenue in 1997, 1996, and 1995, respectively. All three agreements provide for the Company to receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

PASTEUR MERIEUX CONNAUGHT

In September 1994, the Company entered into an agreement with Pasteur MErieux Connaught ("PMC") that includes a research collaboration and options for PMC to take exclusive licenses to Vical's naked DNA vaccine technology for each of five vaccine targets. In order to maintain the options, PMC will be required to pay Vical option fees as specified in the agreement. In addition, Vical shall be paid an annual research fee through September 1997 by PMC for expenses incurred in performing certain preclinical work as defined in the agreement. PMC renewed options and exercised an option in 1995. In 1996, PMC exercised three options, extended one option, and added a new option. In 1997, PMC paid the Company $1,000,000 as a milestone payment under the agreement because the Company and PMC began a Phase I clinical trial of an experimental vaccine against the parasite that causes malaria. The Company and PMC are sponsoring the trial which is being conducted by the U.S. Naval Medical Research Institute and the U.S. Army Medical Research Institute of Infectious Diseases. Through December 31, 1997, Vical has received $7,425,000 of which $2,399,000, $2,746,000, and $1,287,500 was recognized as revenue in 1997, 1996, and 1995, respectively. The agreement provides for the Company to receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

RHONE-POULENC RORER PHARMACEUTICALS, INC.

In October 1997, the Company and RhOne-Poulenc Rorer Pharmaceuticals. Inc. ("RPR") entered into an agreement granting RPR an exclusive worldwide license to use the Company's naked DNA gene delivery technology to develop certain gene therapy products for potential treatment of neurodegenerative diseases. Under the terms of the agreement, the Company received $1,000,000 which was recognized as revenue in 1997. This agreement provides for the Company to receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

GENZYME CORPORATION

In October 1993, the Company entered into an option agreement with Genzyme Corporation ("Genzyme"). The Company granted Genzyme a three year option to obtain exclusive worldwide license rights related to the use of the Company's cytofectin technology in the treatment of cystic fibrosis. Vical also granted Genzyme a right of first offer to use the Company's cytofectin technology in other lung disorders. In 1996, Genzyme exercised the option, resulting in a $1,000,000 payment to Vical. Through December 31, 1997, Vical received $2,300,000 from Genzyme of which $1,300,000 and $400,000 has been recognized as revenue in 1996 and 1995, respectively. No revenue was recognized under this agreement in 1997. The agreement also provides for the Company to receive additional payments based upon achievement of certain defined milestones and royalty payments based on net product sales.

BAXTER INTERNATIONAL INC.

In December 1993, the Company entered into a collaborative research and renewable option agreement with Baxter Healthcare Corporation (subsequently renamed Baxter International Inc.--"Baxter"). The Company granted Baxter an option to obtain an exclusive worldwide license to the Company's direct DNA injection technology for use in the treatment of hemophilia. Baxter renewed the option agreement in 1995. Through the termination of this agreement in December 1996, the Company had received $1,100,000 from Baxter of which $91,667 and $300,000 was recognized as revenue in 1996 and 1995, respectively.

OTHER RESEARCH AND LICENSING AGREEMENTS

The Company also received revenue under research and licensing agreements with other entities including the U.S. government of which approximately $1,404,000, $1,102,000 and $752,000, was recognized as revenue during the years ended December 31, 1997, 1996, and 1995, respectively. Included in these amounts is revenue recognized for a corporate alliance entered into in March 1995 relating to DNA vaccines in the animal health area with Merial (previously known as RhOne MErieux), a leading manufacturer and marketer of animal health products worldwide. The agreement includes options for Merial to take exclusive licenses to Vical's naked DNA vaccine technology and the cytofectin technology to develop and commercialize certain gene-based products for use in the prevention of infectious diseases in domesticated animals. In 1996, the agreement was extended to March 1998. In 1997, a patent milestone payment was made to the Company pursuant to the agreement. If Merial exercises its license options, cash payments and royalties on net sales would be due to the Company.

Under a U.S. government agreement that commenced in the first quarter of 1996 and ended June 30, 1997, the Company and the Naval Medical Research Institute were awarded a grant that provided $1,000,000 to support further development of a malaria vaccine based on Vical's naked DNA vaccine technology.

Under a separate agreement, the Company is obligated to pay a third party 10 percent of certain payments received by the Company under the Merck, PMC, RPR, Merial and Centocor, Inc. (see "Note 10 - Subsequent Event") agreements.

4. OTHER FINANCIAL DATA

Accounts payable and accrued expenses consisted of the following at December 31, 1997 and 1996:

	1997	1996
Employee compensation	$678,588	$556,224
Accounts payable	327,617	148,062
Accrued clinical trials costs	310,891	4,000
Other accrued liabilities	107,507	102,098
	$1,424,603	$810,384

5. COMMITMENTS

LEASES

The Company leases its office and research facilities and certain equipment under operating and capital leases. The minimum annual rents on the office and research facilities are subject to increases based on changes in the Consumer Price Index subject to certain minimum and maximum annual increases. The Company is also required to pay taxes, insurance and operating costs under the facilities leases. The equipment capital leases are secured by substantially all equipment of the Company. The carrying amounts of the capital lease obligations approximate their fair value.

	Operating Leases	Capital Leases
Years ended December 31,		
1998	$ 981,997	$ 559,418
1999	962,681	473,830
2000	429,984	446,298
2001	108,540	94,597
2002	-	-
Total minimum lease payments	$2,483,202	1,574,143
Less amount representing interest		(214,088)
Present value of capital lease payments		1,360,055
Less current portion		(448,261)
Long-term obligations under capital leases		$ 911,794

Rent expense for the years ended December 31, 1997, 1996, and 1995, was $969,899, $807,713, and $517,446, respectively.

Cost and accumulated depreciation of equipment under capital leases were as follows:

	Cost	Accumulated Depreciation	Net
December 31, 1997	$2,312,876	1,066,488	1,246,388
December 31, 1996	$2,186,648	807,897	1,378,751

NOTES PAYABLE

In June 1996, the Company entered into a loan and security agreement with a bank which provided for borrowings of up to $2,500,000 which was secured by substantially all assets of the Company. In March 1997, the outstanding borrowings converted to a term loan bearing interest at the bank's prime rate (8.5% at December 31, 1997) plus .5%, or the Company may alternatively choose to have its borrowings bear interest at the LIBOR rate plus 3.25%. The term loan is secured by any Company deposits at the bank, however, the Company is not required to, and does not, maintain any deposits at the bank. The term loan has a three year amortization period. At December 31, 1997, the loan balance was $534,000, including approximately $214,000 reflected in current liabilities.

RESEARCH AND LICENSE AGREEMENTS

In 1997 and 1996, the Company continued research and exclusive license agreements with various universities for continuing research and license rights to technology related to gene therapy. The agreements generally grant the Company the right to commercialize any product derived from specified technology. Fees paid and future obligations on these agreements are not significant.

6. STOCKHOLDERS' EQUITY

PREFERRED STOCK

The Company's certificate of incorporation, as amended, authorizes the issuance of up to 5,000,000 preferred shares. No shares of preferred stock were outstanding at December 31, 1997 or 1996.

COMMON STOCK

The Company's certificate of incorporation, as amended, authorizes the issuance of up to 40,000,000 common shares. Common stock shares totaling 15,731,316 and 15,396,582 were outstanding at December 31, 1997 and 1996, respectively.

DEFERRED COMPENSATION

Prior to its initial public offering the Company recorded approximately $1,018,000 of deferred compensation for the difference between the price of stock sold and options granted and the deemed fair value of the Company's common stock. Such deferred compensation was amortized to expense over the various vesting periods and is fully amortized at December 31, 1996. Amortization expense amounted to $158,427 and $248,331 for the years ended December 31, 1996 and 1995, respectively.

STOCK PLAN AND DIRECTORS OPTION PLAN

The Company has a stock plan ("1992 Stock Plan") under which 1,700,000 shares of common stock are reserved for issuance to employees, non-employee directors and consultants of the Company. The plan provides for the grant of incentive and nonstatutory stock options and the direct award or sale of shares. The exercise price of incentive stock options must equal at least the fair market value on the date of grant. The exercise price of nonstatutory stock options and direct awards or sales of shares may be no less than 85 percent of the fair market value on the date of grant. The maximum term of options granted under the plan is ten years. The options generally vest 25% on the first anniversary of the date of grant, with the balance vesting quarterly over the remaining three years. The plan has also limited the number of options that may be granted to any plan participant in a single calendar year to 300,000 shares. In December 1997, the Company's Board of Directors adopted an amendment to increase the number of shares of common stock reserved for issuance under this plan by 750,000 shares. The amendment is subject to the approval of the stockholders at the 1998 annual meeting.

The Company also has a directors stock option plan ("Directors Plan") that provides for the issuance to non-employee directors of up to 210,000 shares of the Company's common stock, of which options for 202,500 shares have been granted. The initial grant to a director of options under this plan generally vests 25% on the first anniversary of the date of grant, with the balance vesting quarterly over the remaining three years. Subsequent annual grants fully vest on the date of the regular annual meeting of stockholders following the date of grant. In 1997, the stockholders approved an amendment to the 1992 Stock Plan allowing non-employee directors to receive grants under that plan and, accordingly, it is not anticipated that there will be any future grants under the Directors Plan.

The following table summarizes stock option transactions for the 1992 Stock Plan and Directors Plan for the years ended December 31, 1997, 1996 and 1995:

	Shares	Weighted Ave. Exercise Price	Weighted Ave. Fair Value of Grants
Outstanding, December 31, 1994	655,850	$7.23	
Granted	174,650	$9.06	$6.76
Exercised	(19,000)	$1.08	
Forfeited	(61,588)	$9.84	
Outstanding, December 31, 1995	749,912	$7.60	
Granted	456,350	$15.99	$11.95
Exercised	(32,317)	$5.48	
Forfeited	(14,264)	$10.97	
Outstanding, December 31, 1996	1,159,681	$10.92	
Granted	403,845	$14.14	$10.17
Exercised	(72,922)	$5.10	
Forfeited	(48,106)	$13.25	
Outstanding, December 31, 1997	1,442,498	$12.04	

The following table summarizes information about stock options outstanding under the Company's stock option plans at December 31, 1997:

Options Outstanding				Options Exercisable		
Range of Exercise Prices	Number Outstanding As of 12/31/97	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number Exercisable As of 12/31/97	Weighted Average Exercise Price
$0.1600 - $9.3750	426,202	6.50	$5.84	345,107	$5.16
$9.4375 - $14.1563	587,033	8.58	$13.37	186,013	$12.55
$14.3125 - $18.0000	369,163	8.80	$15.72	111,311	$15.83
$18.1250 - $20.5000	60,100	8.45	$20.31	45,695	$20.42
$0.1600 - $20.5000	1,442,498	8.02	$12.04	688,126	$9.90

The number of shares and weighted average price of options exercisable at December 31, 1997, 1996 and 1995 were 688,126 shares at $9.90, 487,750 shares at $6.82, and 310,033 shares at $6.36, respectively.

The Company has adopted the disclosure-only provisions of SFAS 123. Accordingly, no compensation cost has been recognized for the stock option plans. Had compensation cost for the Company's stock option plans been determined consistent with the provisions of SFAS 123, the Company's net loss and loss per share would have increased to the pro forma amounts indicated below:

	1997	1996	1995
Net loss - as reported	$5,611,231	$5,080,591	$3,983,451
Net loss - pro forma	$8,878,712	$6,497,447	$4,143,062
Net loss per share - as reported	$.36	$.33	$.29
Net loss per share - pro forma	$.57	$.42	$.31

The fair value of each option grant was estimated on the date of grant using the Black-Scholes option-pricing model with the following weighted average assumptions used for grants: risk free interest rates of 5.99% (1997) and 6.57% (1996 and 1995) and, expected volatility of 70% (1997) and 74% (1996 and 1995). An expected option life of 5 years and a dividend rate of zero is assumed for all years presented.

Because SFAS 123 has not been applied to options granted prior to January 1, 1995, the resulting pro forma compensation cost may not be representative of that to be expected in future years.

7. RELATED PARTIES

Included in other assets at December 31, 1997 and 1996, is the long-term portion of notes receivable, representing amounts due from certain officers and employees of the Company. Imputed interest is applied at the applicable federal rate. The loan agreements allow for the notes to be forgiven under certain circumstances over the next two years. The long-term portion is $25,000 and $50,000 at December 31, 1997 and 1996, respectively. The current portion, included in receivables and other, is $25,000 at December 31, 1997 and 1996.

8. INCOME TAXES

As of December 31, 1997, the Company has available net operating loss carryforwards of approximately $29,100,000 and research and development credit carryforwards of approximately $1,300,000 to reduce future federal income taxes, if any. These carryforwards expire through 2012 and are subject to review and possible adjustment by the Internal Revenue Service.

The Tax Reform Act of 1986 limits a company's ability to utilize certain net operating loss and tax carryforwards in the event of cumulative change in ownership in excess of 50%, as defined. The Company has completed numerous financings that have resulted in a change in ownership in excess of 50%, as defined. The utilization of net operating loss and tax credit carryforwards may be limited due to these ownership changes.

The Company has a deferred tax asset of approximately $13,900,000 related primarily to its net operating loss and tax credit carryforwards. A valuation allowance has been recognized to offset the entire amount of the deferred tax asset as realization of such asset is uncertain.

9. EMPLOYEE BENEFIT PLANS

The Company has a defined contribution savings plan under section 401(k) of the Internal Revenue Code. The plan covers substantially all employees. The Company matches employee contributions made to the plan according to a specified formula. The Company's matching contributions totaled approximately $94,000, $78,000, and $71,000 in 1997, 1996, and 1995, respectively.

10. SUBSEQUENT EVENT

In February 1998, the Company signed an agreement allowing Centocor, Inc. to use Vical's naked DNA technology to develop and market gene-based vaccines for the potential treatment of certain types of cancer. The agreement will result in an initial payment to Vical of $2,000,000, and may result in further payments plus royalties if Centocor successfully develops products using the Vical technology. The new agreement grants to Centocor exclusive worldwide licenses and options to license Vical's naked DNA technology to deliver certain antigens to induce immune responses against the associated cancer cells.

11. SUMMARY OF UNAUDITED QUARTERLY FINANCIAL INFORMATION

The following is a summary of the unaudited quarterly results of operations for the years ended December 31, 1997 and 1996 (in thousands, except per share amounts):

	Quarter Ended			
1997	March 31	June 30	September 30	December 31
Revenues	$ 1,126	$ 867	$ 3,480	$ 2,330
Research and development costs	2,794	2,797	3,319	3,026
Total operating costs and expenses	3,691	3,678	4,247	4,054
Net loss	(2,002)	(2,267)	(225)	(1,117)
Net loss per common share (basic and diluted)	(.13)	(.15)	(.01)	(.07)
Shares used in per share calculation	15,423	15,448	15,458	15,609

1996	March 31	June 30	September 30	December 31
Revenues	$ 520	$ 3,555	$ 541	$ 2,124
Research and development costs	2,380	3,133	2,628	3,177
Total operating costs and expenses	3,110	3,872	3,378	4,126
Net income (loss)	(1,905)	350	(2,190)	(1,336)
Net earnings (loss) per common share (basic and diluted)	(.12)	.02	(.14)	(.09)
Shares used in per share calculation	15,373	15,791	15,385	15,392

EXHIBIT 4.3

STOCK PURCHASE AGREEMENT

THIS STOCK PURCHASE AGREEMENT (the "Agreement") is made as of the 3rd day of November, 1997 by and between VICAL INCORPORATED, a Delaware corporation (the "Company"), and MERCK HOLDINGS, INC., a Delaware corporation ("Investor").

THE PARTIES HEREBY AGREE AS FOLLOWS:

1. PURCHASE AND SALE OF STOCK.

1.1 SALE AND ISSUANCE OF COMMON STOCK. Subject to the terms and conditions of this Agreement, Investor hereby purchases and the Company hereby sells and issues to Investor 261,812 shares (the "Shares") of the Company's Common Stock for the purchase price of the greater of $16.00 per share or 125% of the average Nasdaq closing price per share during the 20-day consecutive trading period prior to, but not including, the Effective Date of the Amended License Agreement (as defined herein) between the Company and Investor (such average Nasdaq closing price is hereinafter referred to as the "Base Price" and such per share purchase price is hereinafter referred to as the "Per Share Purchase Price") for an aggregate of $5,000,000 (the "Purchase Price").

1.2 CLOSING. The purchase and sale of the Common Stock shall take place at the offices of the Company, 9373 Towne Centre Drive, San Diego, California, at 10 A.M., on the date which is ten days following the date of this Agreement, or at such other times and places as the Company and Investor mutually agree upon, verbally or in writing (which times and places are designated as the "Closing"). At the Closing the Company shall deliver to Investor a certificate representing the Common Stock which such Investor is purchasing against delivery to the Company by such Investor of a bank wire in same day funds in the amount of the Purchase Price therefor payable to the Company's order.

1.3 DEFINITIONS.

(a) The following terms, as used herein, have the following meanings:

"Closing Date" means the date of the Closing.

"Common Stock" means the Common Stock, par value $0.01 per share of the Company, together with the associated preferred stock purchase rights established pursuant to the Rights Agreement dated March 20, 1995 between the Company and ChaseMellon Shareholder Services L.L.C. as rights agent (the "Rights").

"Material Adverse Effect" means a material adverse effect on the condition (financial or otherwise), business, assets, results of operations of a corporation and its subsidiaries taken as a whole.

"1934 Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

"1933 Act" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

"Person" shall mean an individual, corporation, partnership, trust, business trust, association, joint stock company, joint venture, pool, syndicate, sole proprietorship, unincorporated organization, governmental authority or any other form of entity not specifically listed herein.

2. REPRESENTATIONS AND WARRANTIES OF THE COMPANY. The Company hereby represents and warrants to Investor that:

2.1 ORGANIZATION, GOOD STANDING AND QUALIFICATION. The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware and has all requisite corporate power and authority to carry on its business as now conducted. The Company is duly qualified to transact business and is in good standing in each jurisdiction in which the failure so to qualify would have a Material Adverse Effect.

2.2 CAPITALIZATION. The authorized capital of the Company consists of:

(i) PREFERRED STOCK. 5,000,000 shares of Preferred Stock, of which 40,000 shares have been designated Series A Participating Preferred Stock, par value $.01 per share (the "Participating Preferred Stock"). There are no shares of Participating Preferred Stock issued and outstanding.

(ii) COMMON STOCK. 40,000,000 shares of Common Stock, of which 15,460,802 shares were issued and outstanding on August 15, 1997.

2.3 AUTHORIZATION. All corporate action on the part of the Company, its officers, directors and stockholders necessary for (i) the authorization, execution and delivery of this Agreement, (ii) the performance of all obligations of the Company hereunder and (iii) the authorization, issuance (or reservation for issuance) and delivery of the Common Stock being sold hereunder, to the extent that the foregoing requires performance on or prior to the Closing, has been taken and this Agreement constitutes the valid and legally binding obligation of the Company, enforceable against the Company in accordance with its terms.

2.4 VALID ISSUANCE OF COMMON STOCK. The Common Stock purchased by the Investor hereunder has been duly and validly issued and is fully paid and nonassessable and, based in part upon the representations of the Investor in this Agreement, was issued in compliance with all applicable federal and state securities laws.

2.5 SEC FILINGS. The Company has registered its Common Stock pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Common Stock is listed and trades on the NASDAQ National Market System. The Company has filed all forms, reports and documents required to be filed pursuant to the federal securities laws and the rules and regulations promulgated thereunder for a period of at least twelve (12) months immediately preceding the offer or sale of the Shares (or for such shorter period that the Company has been required to file such material). The Company's filings with the SEC complied as of their respective filing dates, or in the case of registration statements, their respective effective dates, in all material respects with all applicable requirements of the Securities Act of 1933 (the "Securities Act") and the Exchange Act and the rules and regulations promulgated thereunder. None of such filings, including, without limitation, any exhibits, financial statements or schedules included therein, at the time filed, or in the case of registration statements, at their respective filing dates, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

2.6 LITIGATION. Except as disclosed in the Company's filings with the SEC, there is no action, suit or proceeding before or by any court or governmental agency or body, domestic or foreign, now pending or, to the knowledge of the Company, threatened, against or affecting the Company, or any of its properties, which might result in any material adverse change in the condition (financial or otherwise) or in the earnings, business affairs or business prospects of the Company, or which might materially and adversely affect the properties or assets thereof.

2.7 NO DEFAULT. Except as disclosed in the Company's filings with the SEC, the Company is not in default in the performance or observance of any material obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust or other material agreement or INSTRUMENT to which it is a party or by which it or its property may be bound, except for defaults that have not had and would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

2.8 SUBSEQUENT EVENTS. Since December 31, 1996, (i) the Company has incurred no liability or obligation, contingent or otherwise, that taken as a whole, is material in the aggregate to the Company, except in the ordinary course of

business, and (ii) there has been no material adverse change in the condition or results of operations, financial or otherwise, of the Company, taken as a whole.

2.9 CONSENTS AND APPROVALS. No consent, approval, qualification, order or authorization of, or filing with, any local, state or federal governmental authority or any third party is required on the part of the Company in connection with the Company's valid execution, delivery or performance of this Agreement, or the offer, sale or issuance of the Shares by the Company, other than the filings that have been made prior to the Closing, except that any notices of sale required to be filed by the Company with the SEC under Regulation D of the Securities Act, or such post-closing filings as may be required under applicable state securities laws, which will be timely filed within the applicable periods therefor.

2.10 COMPLIANCE WITH LAWS AND COURT ORDERS. The Company is not in violation of any applicable law, rule, regulation, judgment, injunction, order or decree except for violations that have not had and would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

3. REPRESENTATIONS AND WARRANTIES OF INVESTOR. This Agreement is made with Investor in reliance upon the Investor's representation and warranties to the Company, which by such Investor's execution of this Agreement the Investor hereby confirms, that:

3.1 ORGANIZATION AND EXISTENCE. Investor is a corporation duly incorporated, validly existing and in good standing under the laws of Delaware and has all corporate powers and all material governmental licenses, authorizations, permits, consents and approvals required to carry on its business as now conducted, except for those licenses, authorizations, permits, consents and approvals the absence of which would not, individually or in the aggregate, have a Material Adverse Effect.

3.2 CORPORATE AUTHORIZATION. This execution, delivery and performance by Investor of this Agreement are within the corporate powers of Investor and have been duly authorized by all necessary corporate action on the part of Investor. This Agreement constitutes its valid and legally binding obligation, enforceable in accordance with its terms.

3.3 PURCHASE ENTIRELY FOR OWN ACCOUNT. The Common Stock to be received by Investor will be acquired for investment for Investor's own account, not as a nominee or agent, and not with a view to the resale or distribution of any part thereof, and that Investor has no present intention of selling, granting any participation in, or otherwise distributing the same. By executing this Agreement, Investor further represents that Investor does not have any contract, undertaking, agreement or

arrangement with any person to sell, transfer or grant participation to such person or to any third person, with respect to any of the Common Stock.

3.4 CONFIDENTIALITY. Investor hereby represents, warrants and covenants that it shall maintain as confidential all information provided to it by the Company hereunder in accordance with and under the same terms as Article VI of the Amended License Agreement.

3.5 RESTRICTED SECURITIES. Investor understands that the shares of Common Stock it is purchasing are characterized as "restricted securities" under the federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering and that under such laws and applicable regulations such securities may be resold without registration under the 1933 Act, only in certain limited circumstances. In this connection Investor represents that it is familiar with Securities and Exchange Commission ("SEC") Rule 144, as presently in effect, and understands the resale limitations imposed thereby and by the 1933 Act.

3.6 LEGENDS. It is understood that the certificates evidencing the Common Stock may bear one or all of the following legends:

(a) "These securities have not been registered under the Securities Act of 1933. They may not be sold, offered for sale, pledged or hypothecated in the absence of a registration statement in effect with respect to the securities under such Act or an opinion of counsel satisfactory to the Company that such registration is not required or unless sold pursuant to Rule 144 of such Act."

(b) If required by the authorities of any state in connection with the issuance or sale of the Common Stock the legend required by such state authority.

4. ADDITIONAL DELIVERIES TO INVESTOR AT CLOSING. The obligations of Investor under Subsection of this Agreement are subject to the fulfillment on or before the Closing of each of the following conditions, the waiver of which shall not be effective if such Investor does not consent in writing thereto:

4.1 COMPLIANCE CERTIFICATE. The President or a Vice President of the Company shall deliver to Investor at the Closing a certificate stating that there has been no material adverse change in the business, affairs, prospects, operations, properties, assets or condition of the Company since June 30, 1997 other than because of operating losses and changes in the ordinary course of business.

4.2 SECRETARY'S CERTIFICATE. The Secretary of the Company shall deliver to Investor at the Closing a certificate certifying that attached thereto are true and complete copies of each of the following documents:

(a) Restated Certificate of Incorporation as in effect on the Closing Date, of the Company;

(b) Bylaws, as amended as in effect on the Closing Date, of the Company; and

(c) Copies of the resolutions of the Company's Board of Directors authorizing execution and delivery of this Agreement and to the Third Amendment to Research Collaboration and License Agreement, dated May 31, 1991, amended as of the date hereof, between the Company and Investor (the "Amended License Agreement") and performance of the transactions contemplated herein and therein.

4.3 HSR ACT. If applicable, the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, including any extensions of said waiting period, shall have expired and any investigations relating to the transactions contemplated herein and in the Amended License Agreement that may have been opened by either the Department of Justice or the Federal Trade Commission (by means of a request for additional information or otherwise) shall have been terminated.

5. REGISTRATION RIGHTS. The Company covenants and agrees as follows:

5.1 CERTAIN ADDITIONAL DEFINITIONS.

As used in this Agreement, the following capitalized terms shall have the following meanings:

"PROSPECTUS" shall mean the prospectus included in any Registration Statement, as amended or supplemented by any prospectus supplement with respect to the terms of the offering of any portion of the Registrable Securities covered by such Registration Statement and by all other amendments and supplements to the prospectus, including post-effective amendments and all material incorporated by reference in such prospectus.

"REGISTER," "REGISTERED" and "REGISTRATION" refer to a registration effected by preparing and filing a registration

statement or similar document in compliance with the 1933 Act, and such registration statement or document becoming effective under the 1933 Act.

"REGISTRABLE SECURITIES" shall mean (i) the Common Stock of the Company purchased by the Investor pursuant to this Agreement; and (ii) any Common Stock of the Company issued as (or issuable upon the conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, such Common Stock.

"REGISTRATION STATEMENT" shall mean any registration statement of the Company that covers any of the Registrable Securities pursuant to the provisions of this Agreement, including the Prospectus, amendments and supplements to such Registration Statement, including post-effective amendments, all exhibits and all material incorporated by reference in such Registration Statement.

5.2 REGISTRATION. The Company will use its reasonable best efforts to effect a registration to permit the sale of the Registrable Securities as described below, and pursuant thereto the Company will:

(a) prepare and file within one year from the date hereof, and use its reasonable best efforts to thereafter have declared effective by the SEC, a Registration Statement on Form S-3 relating to resale of all of the shares of the Registrable Securities and use its reasonable best efforts to cause such Registration Statement to remain continuously effective for a period which will terminate when all Registrable Securities covered by such Registration Statements, as amended from time to time, have been sold or when the Registrable Securities may be sold under Rule 144 (k) under the 1933 Act.

(b) prepare and file with the SEC such amendments and post-effective amendments to the Registration Statement and the Prospectus as may be necessary to keep such Registration Statement effective for the period specified in Section 5.2(a) and to comply with the provisions of the 1933 Act and the 1934 Act with respect to the distribution of all Registrable Securities;

(c) notify Investor promptly, and confirm such notice in writing, (i) when the Prospectus or any supplement or post-effective amendment has been filed, and, with respect to the Registration Statement or any post-effective amendment, when the same has become effective, (ii) of any request by the SEC for amendments or supplements to the Registration Statement or Prospectus or for additional information, (iii) of the issuance by the SEC of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose, and (iv) of the receipt by the Company of any notification with respect to the suspension of the qualification of the Registrable Securities for sale in any jurisdiction or

the initiation or threatening of any proceeding for such purpose;

(d) make every reasonable effort to obtain the withdrawal of any order suspending the effectiveness of the Registration Statement at the earliest possible moment;

(e) furnish to the Investor, without charge, at least one copy of the Registration Statement and any post-effective amendment thereto, including financial statements and schedules, all, upon a Investor's request, documents incorporated therein by reference and all exhibits thereto (including those incorporated by reference);

(f) deliver to the Investor, without charge, as many copies of the Prospectus (including each preliminary prospectus) and any amendment or supplement thereto as it may reasonably request in order to facilitate the disposition of the Registrable Securities;

(g) cause all Registrable Securities covered by the Registration Statement to be listed on each securities exchange or market on which similar securities issued by the Company are then listed, and if the securities are not so listed to use its reasonable best efforts promptly to cause all such securities to be listed on either the New York Stock Exchange, the American Stock Exchange or the Nasdaq Stock Market;

(h) use reasonable best efforts to qualify or register the Registrable Securities for sale under (or obtain exemptions from the application of) the Blue Sky laws of such jurisdictions as are applicable. The Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any such jurisdiction where it is not presently qualified or where it would be subject to general service of process or taxation as a foreign corporation in any jurisdiction where it is not now so subject.

(i) otherwise use its reasonable best efforts to comply with all applicable rules and regulations of the SEC under the 1933 Act and the 1934 Act and take such other actions as may be reasonably necessary to facilitate the registration of the Registrable Securities hereunder.

Investor shall furnish to the Company such information regarding the distribution of such securities as the Company may from time to time reasonably request in writing.

If at any time, the Company delivers a certificate in writing to the Investor, to the effect that a delay in the sale of Registrable Securities by the Investor under the Registration Statement is necessary because a sale pursuant to such Registration Statement in its then current form would reasonably be expected to constitute a violation of the federal securities laws the Investor shall agree not to sell or otherwise transfer such Registrable Securities for the period of time specified by the Company in its certificate. In no event shall such delay exceed ten (10) business days; PROVIDED, HOWEVER, that if, prior to the expiration of such ten (10) business day period, the Company delivers a certificate in writing to the Investor to the effect that a further delay in such sale beyond such ten (10) business day period is necessary because a sale pursuant to such Registration Statement in its then current form would reasonably be expected to constitute a violation of the federal securities laws, the Company may refuse to permit the Investor to resell any Registrable Securities pursuant to such Registration Statement for an additional period not to exceed five (5) business days.

5.3 REGISTRATION EXPENSES. All expenses incident to the Company's performance of or compliance with this Agreement, including without limitation all registration and filing fees, fees with respect to the filings required to be made with the National Association of Securities Dealers, Inc., fees and expenses of compliance with the securities or blue sky laws, printing expenses, messenger, telephone and delivery expenses, fees and disbursements of counsel for the Company, fees and disbursements of all independent certified public accountants of the Company, fees and expenses incurred in connection with the listing of the securities, rating agency fees and the fees and expenses of any person, including special experts, retained by the Company, will be borne by the Company, regardless of whether the Registration Statement becomes effective; provided, however, that the Company will not be required to pay discounts, commissions or fees of underwriters, selling brokers, dealer managers or similar securities industry professionals relating to the distribution of the Registrable Securities or fees or disbursements of any other counsel to the Investor.

5.4 RULE 144.

The Company covenants that it will file the reports required to be filed by it under the 1933 Act and the 1934 Act and the rules and regulations thereunder, and it will take such further action as the Investor may reasonably request, all to the extent required to enable Investor to sell Registrable Securities without registration under the 1933 Act in reliance on the exemption provided by Rule 144 or Rule 144A under the 1933 Act or any successor or similar rules or statues. Upon the request of the Investor, the Company will deliver to the Investor a written statement as to whether the Company has complied with such information and requirements.

MISCELLANEOUS.

6.1 SUCCESSORS AND ASSIGNS. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective permitted successors and assigns of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

6.2 GOVERNING LAW. This Agreement shall be governed by and construed under the laws of the State of California (irrespective of its choice of law principles).

6.3 COUNTERPARTS. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

6.4 TITLES AND SUBTITLES. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 NOTICES. Unless otherwise provided, any notice required or permitted under this Agreement shall be given in writing and shall be deemed effectively given upon personal delivery to the party to be notified, or if sent by telex or telecopier, upon receipt of the correct answerback, or upon deposit with the United States Post Office, by registered or certified mail, or upon deposit with an overnight air courier, in each case postage prepaid and addressed to the party to be notified at the address as follows, or at such other address as such party may designate by ten days' advance written notice to the other party:

If to the Company:

Vical Incorporated
9373 Towne Centre Drive
Suite 100
San Diego, CA 92121
Attn: Secretary
Fax: (619) 646-1150

with a copy to:

Pillsbury Madison & Sutro LLP P.O. Box 7880
San Francisco, CA 94104
Attn: Thomas E. Sparks, Jr.
Fax: (415) 983-1200

If to the Investor:

Merck Holdings, Inc.
c/o Merck & Co., Inc.
One Merck Drive
P.O. Box 100, WS2A-10
Whitehouse Station, NJ 08889-0100 Attn: Senior Director, Corporate Licensing Fax: 908-423-7321

6.6 FINDERS' FEE. Each party represents that it neither is nor will be obligated for any finders' fee or commission in connection with this transaction. Investor agrees to indemnify and hold harmless the Company from any liability for any commission or compensation in the nature of a finders' fee (and the costs and expenses of defending against such liability or asserted liability) for which the Investor or any of its officers, partners, employees or representatives is responsible.

The Company agrees to indemnify and hold harmless Investor from any liability for any commission or compensation in the nature of a finders' fee (and the costs and expenses of defending against such liability or asserted liability) for which the Company or any of its officers, employees or representatives is responsible.

6.7 EXPENSES. The Company and the Investor shall pay their respective costs and expenses incurred with respect to the negotiation, execution, delivery and performance of this Agreement.

6.8 AMENDMENTS AND WAIVERS. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of the Company and the Investor. Any amendment or waiver effected in accordance with this paragraph shall be binding upon each holder of any securities purchased under this Agreement at the time outstanding, each future holder of all such securities, and the Company.

6.9 SEVERABILITY. If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision shall be excluded from this Agreement and the balance of this Agreement shall be interpreted as if such provision were so excluded and shall be enforceable in accordance with its terms.

6.10 ENTIRE AGREEMENT. This Agreement and the Amended License Agreement constitute the entire agreement between the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, both oral and written, between the parties with respect to the subject matter hereof and thereof. No representation, inducement, promise, understanding, condition or warranty not set forth herein or therein has been made or relied upon by either party hereto. Neither this Agreement nor any provision hereof is intended to confer upon any Person other

than the parties hereto any rights or remedies hereunder.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

VICAL INCORPORATED

By /s/ Alain B. Schreiber

Title President & C.E.O.

MERCK HOLDINGS, INC.

By /s/ Peter Nugent

Title President

EXHIBIT 10.19

Confidential Treatment requested. Confidential portions of this document have been redacted and separately filed with the Securities and Exchange Commission.

THIRD AMENDMENT TO RESEARCH COLLABORATION AND LICENSE AGREEMENT DATED MAY 31, 1991

This Third Amendment dated this 3rd day of November, 1997 between Merck & Co., Inc. ("Merck") and Vical Incorporated ("Vical").

WHEREAS on May 31, 1991 Merck and Vical entered into a Research Collaboration and License Agreement, as amended on April 27, 1994 and December 13, 1995 (the "Agreement") under which Merck obtained an exclusive license under VICAL PATENT RIGHTS and VICAL KNOW-HOW to develop, make, have made, use and sell LICENSED PRODUCTS in the TERRITORY (all as defined therein) upon the terms and conditions set forth therein; and

WHEREAS the parties wish to further amend the Agreement to provide that Merck shall have rights to vaccine products for the treatment of patients infected with Human Immunodeficiency Virus and Hepatitis B Virus upon the terns and conditions of the Agreement as amended hereby;

NOW, THEREFORE, in consideration of the premises and covenants set forth herein, the parties hereto agree as follows:

1. This Third Amendment shall be effective as of the date set forth above.

2. Article 1.3 of the Agreement is amended by adding at the end thereof the following sentence:

"LICENSED PRODUCT shall also mean TREATMENT VACCINE(S)."

3. The Agreement is amended by adding to Article 1 a new section as follows:

1.14 TREATMENT VACCINE(S) shall mean a bulk or finished vaccine for the treatment of (i) Human Immunodeficiency Virus (HIV-1) and/or diseases caused by infection with HIV-1 in humans and (ii) Hepatitis B Virus ("HBV") and/or diseases caused by infection with HBV in humans, which utilizes the Technology or technology which is developed by VICAL during and as a result of the RESEARCH COLLABORATION PROGRAM.

4. The Agreement is amended by adding Article 8.3(g) as follows:

8.3(g)	Merck shall make the non-refundable research milestone payments provided for in Schedule E to the Third Amendment for the first TREATMENT VACCINE for HIV-1 and/or diseases caused by infection with HIV-1 in humans and the first TREATMENT VACCINE for HBV and/or diseases caused by infection with HBV in humans.

5. Article 8.4 is hereby amended to be replaced in its entirely as follows:

8.4(a)	Except as set forth in Article 8.4(b) with respect to royalties for TREATMENT VACCINE(S), in consideration of the license granted in Article 3, MERCK shall pay royalties to VICAL in each calendar year in the amount of ( ) of NET SALES by MERCK, its AFFILIATES or permitted sublicensees of each LICENSED PRODUCT which is covered by VALID PATENT RIGHTS.
8.4(b)	In consideration of the license granted in Article 3 for TREATMENT VACCINE(S), royalties shall be payable to VICAL in each calendar year as follows:

8.4(b)(i) for sales outside the United States, its territories and possessions by MERCK, its AFFILIATES or permitted sublicensees for each TREATMENT VACCINE:

(A) the sale of which is covered by VALID PATENT RIGHTS in the country of sale, for the term of the relevant VALID PATENT RIGHTS in the following amounts:

For annual NET SALES less than or equal to ( ) ( ) of NET SALES

For annual NET SALES greater than ( ), for ( ) of NET SALES that portion of NET SALES greater than ( )

(B) the sale of which is not covered by VALID PATENT RIGHTS in the country of sale, in the amount of ( ) of NET SALES for a period of five (5) years from the date of first commercial sale in such country. MERCK shall pay royalties to VICAL pursuant to this section 8.4(b)(i)(B) and such royalties shall be in lieu of patent royalties and shall not be additive where patents later issue in a country.

8.4(b)(ii)For sales in the United States, its territories and possessions, whether or not covered by a claim of VALID PATENT RIGHTS:

For annual NET SALES less than or equal to ( ) ( ) of NET SALES

For annual NET SALES greater than ( ) and less than or equal to ( ), for that portion ( ) of NET SALES of NET SALES greater than ( )

For annual NET SALES greater than ( ) or equal to ( ), for that portion of ( ) of NET SALES
NET SALES greater than ( )

For annual NET SALES greater than ( ) ( )
of NET SALES

for that portion of NET SALES greater than ( )

(A) In the event the sale of TREATMENT VACCINE is covered by VALID PATENT RIGHTS in the country of sale, the royalty set forth in 8.4(b)(ii) shall be payable for the life of such VALID PATENT RIGHTS.

(B) In the event the sale of TREATMENT VACCINE are not covered by VALID PATENT RIGHTS in the country of sale, royalties shall begin on the date of first commercial sale and shall be payable for a period of five (5) years from first commercial sale. The royalties payable under this section shall be in lieu of patent royalties and shall not be additive where patents later issue in a country.

8.4(c) For purposes of calculating royalties due to Vical under Articles 8.4(b)(i) (A) and 8.4(b)(ii), the sales level tiers set forth therein will be adjusted cumulatively, using the U.S. Pharmaceutical Price Index for sales in the U.S., its territories and possessions and the corresponding European index for sales outside the U.S. Said adjustments will be made based on the change in each such Index from the effective date of this Third Amendment as compared to the dates of the first commercial Ex-U.S. and U.S. sales, respectively, of each TREATMENT VACCINE. Thereafter, the sales level tiers will be adjusted as of each anniversary date of such first commercial sale, based on the change in the weighted average selling price of each TREATMENT VACCINE for, respectively, U.S. and Ex-U.S. sales, based on a comparison of the two prior years weighted average selling price. It is understood that for the first anniversary, the weighted average selling price at launch will be compared to the weighted average selling price over the first year, in each case.

6. Article 8.5 is amended by adding the following at the beginning thereof:

"Other than for TREATMENT VACCINE(S),..."

7. Article 8.8 is hereby amended to be replaced in its entirety as follows:

8.8(a) Except for royalties for TREATMENT VACCINE(S), which is addressed in Article 8.8(b), if MERCK is required to pay cumulative royalties in excess of ( ) of Net Sales for additional licenses required to commercialize a particular LICENSED PRODUCT, the royalties payable to VICAL herewith with respect to such LICENSED PRODUCT shall be reduced by ( ) of the additional royalties beyond such ( ) figure; provided however, that in no event shall the royalties due VICAL hereunder, after taking into account the above reduction, be reduced below ( ).

8.8(b) If MERCK is required to pay cumulative royalties in excess of ( ) for licenses required to commercialize a particular TREATMENT VACCINE (including the royalties set forth under this Agreement), the royalties payable to VICAL with respect to such TREATMENT VACCINE shall be reduced by ( ) of the royalties beyond such ( ) figure; provided, however, that in no event shall the royalties due VICAL with respect to any country, after taking into account the above reduction, be reduced by more than ( ). Unused royalty credits may be carried into subsequent royalty periods.

8. The Agreement is amended by adding Articles 8.10, 8.11 and 8.12 thereto as follows:

8.10 Within thirty (30) days of the date of this Third Amendment, Merck will purchase duly issued and validly authorized unregistered shares of VICAL common stock having an aggregate purchase price of $5,000,000 (five million dollars) on the terms and subject to the conditions of the Stock Purchase Agreement dated of even date herewith, between VICAL and MERCK, at a price per share equal to the greater of $ 16.00 per share or 125% of the average of VICAL's per share closing price for the twenty
(20) trading days prior to, but not including, the Effective Date of the Third Amendment.

8.11 VICAL is hereby granted an option (the "OPTION") to co-promote TREATMENT VACCINE(S) in the United States to a select target audience that will be agreed upon by the parties. With respect to each TREATMENT VACCINE, the OPTION will be exercisable by VICAL at any time prior to MERCK's completion of Phase III clinical trials for such TREATMENT VACCINE. Prior to exercising its OPTION with respect to a TREATMENT VACCINE, VICAL will establish, to MERCK's reasonable satisfaction, that at the estimated time of the first PLA filing in the United States for such TREATMENT VACCINE, VICAL will have a sales force of at least ( ) professional representatives who will be available to make at least 6 detail calls per day on at least 200 days per year with respect to such TREATMENT VACCINE. The parties will enter into a co-promotion agreement for such co-promotion by VICAL within six
(6) months of the exercise of the OPTION. The co-promotion agreement will contain reasonable terms and conditions, consistent with industry standards and the terms of this Agreement. The co-promotion agreement will contain the financial terms set forth on Schedule F of this Third Amendment.

8.12 In the event a TREATMENT VACCINE is also capable of being used for the prevention of the same human infectious disease, in its sole discretion VICAL may choose to have royalty payments made under Article 8.4(a) and Article 8.5 or, alternatively, under Articles 8.4(b) and 8.11 (co-promotion option).

9. The effectiveness of this Third Amendment is subject to the execution and delivery of the Stock Purchase Agreement dated as of even date herewith, between VICAL and MERCK and payment by MERCK of the $5,000,000 (five million dollars) thereunder.

10. Except as amended hereby, all other terms and conditions of the Agreement shall remain unchanged and shall continue in full force and effect. Capitalized terms in this Third Amendment shall have the meaning set forth in the Agreement.

IN WITNESS WHEREOF, the parties hereto have had this Third Amendment executed by their authorized representatives as set forth below.

MERCK & CO., INC. VICAL INCORPORATED

BY: (s) Ray Gilmartin BY: (s) Alain B. Schreiber, M.D.

TITLE: Chairman, President and TITLE: President & C.E.O.
Chief Executive Officer

DATE: November 3, 1997 DATE: October 27, 1997

SCHEDULE E - MILESTONES FOR TREATMENT PRODUCTS

( )* ( )

( )* ( )

( ) ( )

( ) ( )

* If the milestone is paid on the identified date, it will be paid only once and credited against the milestone due when the event is achieved.

"Major Market Country" shall mean the United States, EC countries, Canada, or Japan.

SCHEDULE F - CO-PROMOTION FINANCIAL TERMS

1. All sales made by VICAL under the Co-Promotion Agreement will be booked by Merck.

2. VICAL will, in addition to the royalties set forth in Article 8.4(b), receive the following amounts in consideration for its Co-Promotion efforts:

A. If VICAL provides between 25 and 49 sales representatives for the co-promotion VICAL will receive the following royalty increment on U.S. NET SALES:

For annual U.S. NET SALES less than ( ) ( )

For annual U.S. NET SALES equal to or greater than ( )
( ) and less than or equal to ( )

for that portion of U.S. NET SALES equal to or greater than

( )

For annual U.S. NET SALES greater than ( ) ( ) for that portion of U.S. NET SALES greater than ( )

B. If VICAL provides 50 or more sales representatives for the co-promotion, VICAL will receive the following royalty increment on U.S. NET SALES:

For annual U.S. NET SALES less than ( ) ( )

For annual U.S. NET SALES equal to or greater than ( ) ( )
and less than or equal to ( ) for that portion of
U.S. NET SALES equal to or greater than ( )

For annual U.S. NET SALES greater than ( ) ( )
for that portion of U.S. NET SALES greater than ( )

3. It is understood that with respect to each TREATMENT VACCINE, the size of VICAL's sales force for such TREATMENT VACCINE on the date that VICAL exercises its option will determine permanently the level of incremental royalty that VICAL will receive on U.S. sales of such TREATMENT VACCINE, notwithstanding that VICAL may subsequently increase the size of such sales force.

4. It is understood that all costs related to the VICAL sales force, including training, will be for the account of VICAL.

5. For purposes of calculating the royalty increment described in Paragraph 2, above, the Sales level tiers set forth therein will be adjusted cumulatively, using the U.S. Pharmaceutical Price Index. Said adjustments will be made based on the change in such Index from the effective date of this Third Amendment as compared to the date of the First Commercial sale of each TREATMENT VACCINE in the U.S.. Thereafter, the sales level tiers will be adjusted as of each anniversary date of such first commercial sale based on the change in the weighted average selling price of each TREATMENT VACCINE, based on a comparison of the two prior years weighted average selling price. It is understood that for the first anniversary, the weighted

average selling price at launch will be compared to the weighted

average selling price over the first year in each case.

EXHIBIT 23.1

CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation of our report included in this Form 10-K into Vical Incorporated's previously filed Registration Statements Files No. 33-60826, No. 33-60824, No. 33-81602, No. 33-81600, No. 33-87972 and 333-30181.

ARTHUR ANDERSEN LLP

San Diego, California

March 27, 1998

ARTICLE 5

THIS SCHEDULE CONTAINS SUMMARY FINANCIAL INFORMATION EXTRACTED FROM THE BALANCE SHEETS AND STATEMENTS OF OPERATIONS OF THE COMPANY'S FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 1997, AND IS QUALIFIED IN ITS ENTIRETY BY REFERENCE TO SUCH FINANCIAL STATEMENTS.

MULTIPLIER: 1,000

PERIOD TYPE	YEAR
FISCAL YEAR END	DEC 31 1997
PERIOD START	JAN 01 1997
PERIOD END	DEC 31 1997
CASH	12,157
SECURITIES	33,397
RECEIVABLES	1,567
ALLOWANCES	0
INVENTORY	0
CURRENT ASSETS	47,121
PP&E	6,555
DEPRECIATION	4,334
TOTAL ASSETS	50,691
CURRENT LIABILITIES	2,265
BONDS	1,232
PREFERRED MANDATORY	0
PREFERRED	0
COMMON	157
OTHER SE	47,037
TOTAL LIABILITY AND EQUITY	50,691
SALES	0
TOTAL REVENUES	7,803
CGS	0
TOTAL COSTS	11,936
OTHER EXPENSES	0
LOSS PROVISION	0
INTEREST EXPENSE	192
INCOME PRETAX	(5,611)
INCOME TAX	0
INCOME CONTINUING	(5,611)
DISCONTINUED	0
EXTRAORDINARY	0
CHANGES	0
NET INCOME	(5,611)
EPS PRIMARY	(.36)
EPS DILUTED	(.36)