

## SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

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FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF

THE SECURITIES EXCHANGE ACT OF 1934

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2000 COMMISSION FILE NUMBER: 000-29089

ANTIGENICS INC.

(exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction of incorporation or organization)

06-1562417 (I.R.S. Employer Identification No.)

630 FIFTH AVENUE, NEW YORK, NEW YORK 10111 (Address of principal executive offices including zip code)

REGISTRANT'S TELEPHONE NUMBER, INCLUDING AREA CODE: (212) 332-4774

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

NONE

NONE

(Title of each Class)

(Name of each exchange on which registered)

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT: COMMON STOCK, \$.01 PAR VALUE

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 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. [ ]

The aggregate market value of voting stock held by non-affiliates of the registrant as of March 19, 2001 was: \$216,767,781.

There were 27,448,353 shares of the registrant's Common Stock outstanding as of March 19, 2001.

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3 PART I

ITEM 1. BUSINESS

## OUR BUSINESS

## OVERVIEW

We are developing treatments for cancers, serious infectious diseases, autoimmune disorders and degenerative disorders using our proprietary technologies to program the immune system and improve quality of life. These products include immunotherapeutics based on a specific class of proteins known as heat shock proteins, also referred to as HSPs, which activate powerful cellular immune responses, and Stimulon(R) based products, including QS-21, which activate superior antibody responses. We are evaluating our lead HSP-based immunotherapeutic, Oncophage(R), in an international multi-center Phase III clinical trial in kidney cancer and in five additional cancer indications in Phase II or Phase I/II trials. Through our internal programs and partnerships with GlaxoSmithKline, Aventis Pasteur, Wyeth-Lederle, Bristol-Myers Squibb, VaxGen and Elan Pharmaceuticals, we are testing our Stimulon-based products in 11 Phase III and Phase II clinical trials for cancer, several infectious diseases and degenerative disorders. Based upon our scientific and drug development skills, our pioneering technology platforms and our strategic expertise, we plan to establish a leadership position in drug discovery, development and commercialization.

## OUR TECHNOLOGY PLATFORMS

# INTRODUCTION

In individuals who develop cancer, infections, and autoimmune disorders, the immune system fails in its normal function. We designed our products to restore this function and prevent or treat life threatening or chronic disease conditions. We base each product upon one of five technology platforms (see table below). The first two platforms, the heat shock proteins and QS-21 adjuvant, safely program cellular and antibody responses, the two major arms of the immune system which together play a key role in controlling the vast majority (at least 90%) of cancers and infectious diseases. We base our third platform upon a recent discovery that a receptor known as CD91 is at the heart of the pathway through which HSPs activate cellular immune response. We expect that small molecule drugs which interact with CD91 will either downregulate or upregulate the immune system and therefore treat autoimmune diseases, cancers, and infections. The CD1 antigen discovery technology, our fourth platform, represents a newly discovered immunological pathway through which T cells target a variety of infectious diseases, including tuberculosis and chlamydia, through the recognition of carbohydrate antigens. NK T cells, our fifth platform, are a subset of T cells which are present in reduced numbers in cancer patients and lack certain functions in diabetes patients. We expect that restoring the number and function of these cells will be useful in treating these diseases.

# TECHNOLOGY PLATFORM THERAPEUTIC CLASS DEVELOPMENT PHASE

1.	Heat Shock Proteins	Protein therapeutic	Phase III
2.	QS-21	Natural extract	Phase III
3.	CD91	Small molecule drugs	Preclinical
4.	CD1 antigens	Carbohydrate antigens	Preclinical
5.	NK T cells	Cell therapy	Preclinical

# HEAT SHOCK PROTEINS

We are the pioneer in activating T cells using heat shock protein-based therapies. We believe that our HSP-based products will be applicable to the treatment of all cancer types and several types of infectious diseases, such as HIV, tuberculosis and herpes, and autoimmune disorders, such as type 1 diabetes

and multiple sclerosis. Our lead HSP product candidates consist of two components: a variable component, consisting of peptides, which is necessary for the targeting of specific diseases; and a constant component, consisting of a heat shock protein, which is necessary for the activation of a T cell-based immune response to the targeted disease. In the case of cancer, which is a highly variable disease from one patient to another, we purify, from each patient's own tumor tissue, heat shock proteins that are bound,

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or complexed, to peptides. Our cancer products are therefore specific to each patient. In contrast, for each infectious disease which is generally caused by a common pathogen, we use a human heat shock protein bound to peptides derived from the target pathogen. Our therapeutic products for infectious diseases therefore will be disease-specific rather than patient-specific. Our therapeutic product for autoimmune disorders will be generic, meaning it will be intended for the treatment of most disorders that result in T cells attacking healthy

Heat shock proteins are a class of proteins that play a major role in transporting peptides, including antigens, within a cell and are thus often called chaperones. In this capacity, heat shock proteins bind to the broad antigenic repertoire or fingerprint of the cell in which they reside. Heat shock proteins are present in all cells of all organisms from bacteria to mammals, and their structure and function are similar across these diverse life forms.

The ability of heat shock proteins to chaperone peptides is key to our technology platform. When we purify heat shock proteins from tumor cells or pathogen-infected cells according to our manufacturing protocols, the heat shock proteins remain bound to the broad repertoire of peptides produced by the tumor or pathogen. These purified heat shock protein-peptide complexes isolated from diseased cells are our therapeutic products.

When purified heat shock protein-peptide complexes are injected into the skin, they stimulate a powerful T cell-based immune response capable of targeting and killing the cancers and pathogen-infected cells from which these complexes were derived. Doctors or nurses inject our therapeutic products into the skin to take advantage of the high concentration of dendritic cells in this region. These dendritic cells express receptors that recognize heat shock proteins; therefore, dendritic cells efficiently capture and process our therapeutic products. Once inside dendritic cells, heat shock protein-peptide complexes separate, and the dendritic cell displays the peptides on its surface where T cells can recognize the peptides.

Our preclinical studies with heat shock protein based therapeutic products have demonstrated a beneficial effect in preventing or treating 13 types of cancer in three different species to date. The cancer types that we have tested include cancers of the skin, colon, lung, and other tissues. Further, our therapeutic products show therapeutic benefit in animals with metastatic disease, which is cancer that has spread beyond the primary tumor to distant regions of the body. Metastatic disease is often responsible for the relapse and ultimate death of patients with cancer.

# QS-21

tissue.

QS-21 is our lead Stimulon adjuvant. It is a natural product, purified from the bark of a tree called Quillaja saponaria that grows in South America. Up to 10% of the bark from Quillaja is composed of saponins, of which QS-21 is typically one of the more predominant. The bulk bark extract is available in the United States. We believe QS-21 is well suited to pharmaceutical development and formulation because it has good stability as a dried powder (at least 3 years), is water soluble, and when rehydrated, is a clear liquid that mixes easily with other vaccine components. QS-21 is compatible with alum and micro-particles that are used in many experimental product formulations. QS-21 is well characterized with a known molecular structure, thus distinguishing it from competing adjuvant candidates, which are typically emulsions, polymers, or biologicals. Because the FDA currently regulates QS-21 as a "constituent material" used in drug preparation, the FDA does not require specific licensure of facilities used for its manufacture.

The use of Stimulon adjuvants improves the quality of the immune response. Adding QS-21 to antigens generally broadens the type of antibody produced, increases the amount of antibodies produced, and stimulates cell mediated

responses. It is potent and active at microgram doses when used with many types of antigens, including recombinant proteins derived from viruses and bacteria as well as polysaccharide antigens from bacterial pathogens.

We believe that the performance of QS-21 will vary depending upon the nature of the antigen and the target population. Initial human studies conducted by our licensees and collaborators have focused on proving the safety of QS-21 and experimenting with different formulations and dose levels. We and our collaborators have completed 60 studies with over 30 antigens to date. More than 2,500 subjects have received QS-21 in various formulations. These studies have shown that the addition of QS-21 to product formulations improves the immune response to certain antigens, as evidenced by a patient's increased production of antibodies.

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5 CD91

CD91 was recently identified by Dr. Pramod K. Srivastava, our chief scientific officer, as the receptor responsible for the recognition and processing of heat shock protein-peptide complexes by dendritic cells, leading to the display of peptides on the surface of dendritic cells and activation of T cells. The receptor is 99.9% identical in mice and humans. Based on the CD91 discovery, we have initiated a screening program to identify small molecule drugs that modulate HSP-receptor interaction. We expect that resultant compounds, which either block or enhance the interaction, will represent important leads in developing new treatments for several major diseases (see table below). We have filed patents on various applications of the receptor technology.

APPLICATION	DESIRED IMMUNE MODULATION	ACCOMPLISHED BY	DRUG TYPE
Autoimmune disease	Turn T cells off	Blocking HSP-CD91 interaction Enhancing levels of CD91	Small molecule or antibody Small molecule or antibody
Cancers and Infectious Diseases	Activate T cells	antagonists  Enhancing HSP-CD91 interaction  Decreasing levels of CD91 antagonists	Small molecule or antibody Soluble CD91 receptor

CD1

The CD1 antigen presentation system is a new approach to the development of immunological products. Until recently, scientists believed that peptides were the only type of antigen that dendritic cells processed for subsequent presentation to T cells. Recent discoveries have demonstrated that dendritic cells also process antigens with carbohydrate and lipid components for presentation by CD1 molecules on the dendritic cell surface. Lipid containing antigens presented through CD1 stimulate the production of additional cytotoxic T cells that can recognize and kill invading pathogens. We have an exclusive license to a patent covering CD1 technology and are advancing the development of proprietary products to prevent and treat infectious diseases, cancers, and autoimmune disorders.

Since the initial discovery of the CD1 system, a large and growing body of research has further characterized the CD1 pathway, suggesting that modulating the immune system with lipid antigens has therapeutic potential for a broad range of diseases such as tuberculosis, type I diabetes, and cancer. The research has shown that the lipid antigen recognition pathway can be used to activate or enhance antitumor responses. Researchers have determined the crystal structure of mouse CD1 that provides a structural rationale that supports its biological activity.

#### NK T CELLS

NK T cells are a specialized population of T cells which have been shown in animal models and in humans to play an important role in antiviral and anti-tumor immune responses. Defects in some types of NK T cells have been linked to autoimmune diseases and the number of these NK T cells is dramatically reduced in individuals with Type I diabetes, multiple sclerosis and some forms of cancer. Increasing the number of NK T cells and restoring their activity may provide a therapeutic benefit for these patients.

Investigators at Beth Israel Deaconess Medical Center and the Dana Farber Cancer Institute have isolated two antibodies that can be used to specifically isolate NK T cells and stimulate them to grow, divide and secrete specific cytokines. Using blood samples taken from individual patients, NK T cells may be able to be expanded in incubators by treatment with the antibodies before being reinfused back into the same patient.

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We have established a collaborative relationship with the scientists from Beth Israel Deaconess Medical Center and the Dana Farber Cancer Institute and together are working towards initiating clinical studies investigate the benefit of expanded NK T cells in cancer applications.

We are also identifying small molecules that can be used to stimulate NK T cells. Small molecules could potentially be used as therapeutic compounds themselves or as lead compounds for further drug discovery.

OUR INTERNAL PRODUCTS UNDER DEVELOPMENT

#### INTRODUCTION

The chart below summarizes the indications and status for each of our products and development programs. We use "HSPPC" as an abbreviation for "heat shock protein-peptide complex." The number following HSPPC is the molecular weight of the heat shock protein used in the product. For cancer applications, we call HSPPC-96 "Oncophage."

PRODUCTS	INDICATION	STATUS
CANCER		
Oncophage	Renal cell carcinoma	Phase III trial ongoing
	Melanoma	Phase II trial enrollment completed
	Colorectal carcinoma	Phase II trial enrollment completed
	Gastric cancer	Phase I/II trial ongoing
	Pancreatic cancer	Phase I/II trial ongoing
	Low-grade non-Hodgkin's lymphoma	Phase II trial ongoing
	Sarcoma	Phase II trial ongoing
HSPPC-70-C	Various cancers	Research
HSPPC-90-C	Various cancers	Research
HSPPC-56-C	Various cancers	Research
INFECTIOUS DISEASES		
QS-21	Malaria	Phase II
Ouilimmune P	Strep. pneumoniae	Phase I/II
_	A A	
Ag-701	Genital herpes	Phase I
hsppc-96-GH	Genital herpes	Preclinical
hsppc-56-I	Various infectious diseases	Research
hsppc-70-I	Various infectious diseases	Research
TOPP OF T		
AUTOIMMUNE DISORDERS		
gp96	Type 1 diabetes	Research
J1	Multiple sclerosis	Research

# OUR PRODUCTS FOR TREATMENT OF CANCER

Background. The American Cancer Society estimated that doctors would diagnose approximately 1.2 million new cases of cancer in the United States in 2000.

Cancer is the second leading cause of death in the United States and is expected to result in an estimated 552,200 deaths in 2001. The American Cancer Society reports that since 1990 medical professionals have diagnosed nearly 13 million cases of cancer, and cancer has killed nearly 5 million people in the United States.

Cancer results from the uncontrolled proliferation of abnormal cells. Eventually, these cells form a mass referred to as a tumor. As the tumor grows, it pushes outward, often invading adjacent tissues and organs and interfering with their normal function. In addition, small groups of cells may break away from the primary tumor and spread or metastasize. Tumors produced at distant sites are referred to as metastatic tumors.

The uncontrolled proliferation of cancer cells is due to alterations, or mutations, in a cell's DNA. Mutations can take place when a gene is exposed to radiation or particular drugs or chemicals, or when some as yet unexplained internal

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change occurs. The mutations in DNA also lead to production of antigens. Because mutations occur randomly, the antigenic fingerprint of each person's cancer is unique.

Studies in animals have confirmed that a unique repertoire of antigens is associated with each primary tumor. As cancers metastasize, they continue to mutate, potentially producing new antigens not found in the primary tumor of the same patient. However, we believe that a significant overlap exists between the antigenic fingerprint of the metastatic cells and the primary tumor of the same patient.

Current Treatments. Surgery, chemotherapy, and radiotherapy are the three most commonly used methods for treating cancer. Medical professionals often administer a combination of these treatments to a cancer patient, depending upon the type of cancer and the extent of the disease. Surgery is curative only when a doctor detects a tumor at a relatively early stage of growth and is able to completely remove the tumor. Unfortunately, most tumors metastasize when they are very small, ultimately causing relapse and death in many cancer patients. The use of chemotherapy or radiotherapy sometimes improves survival rates; however, these treatments have significant limitations.

High rates of treatment failure and limitations posed by severe side effects and tumor resistance have compelled researchers to focus on alternative strategies of cancer treatment. Technologies that specifically activate the immune system have the ability to target and destroy widely disseminated disease without damaging normal tissue. In addition, immune-based products do not have many of the shortcomings of traditional cancer treatments.

Our Approach. We purify our cancer products from portions of a patient's tumor that a doctor has surgically removed. Our cancer products are patient-specific and therefore incorporate the entire antigenic fingerprint of each patient's own tumor. Because our cancer products contain overlapping antigens present in both the primary and metastatic tumors, we believe we will be effective in treating all the tumor cells that remain in the body that are derived from the primary tumor.

# ONCOPHAGE

Oncophage is our lead cancer product. We are evaluating Oncophage in seven different cancers in ten separate phase III, phase II, or phase I/II clinical trials. Oncophage consists of purified, patient-specific heat shock protein-peptide complexes designed to elicit a T cell-based immune response to a patient's cancer. After a surgeon removes a patient's tumor, the hospital or clinic ships a frozen portion of the tumor tissue by overnight courier to our facility. We purify Oncophage from the tumor tissue using our proprietary manufacturing process in less than ten hours. Depending on the dose, we require a minimum of one to three grams of tumor tissue to yield a sufficient amount of Oncophage for a typical course of treatment.

We formulate Oncophage in sterile saline solution and package it in standard single injection vials in our manufacturing facility. We subject the final product to extensive quality control testing, including sterility testing of each lot. We ship the product frozen via overnight courier back to the hospital.

We have developed sophisticated tracking systems and procedures designed to ensure correct delivery of Oncophage to the appropriate patient.

There are several benefits associated with the production and administration of our autologous product:

- we can sterilize Oncophage through simple filtration; sterility is required for FDA approval of a product that will be injected into humans;
- the scheduling of production at our central facility is flexible because we purify Oncophage from frozen tumor samples;
- doctors can administer Oncophage when the patient is ready to begin treatment because Oncophage is stored frozen and has a current shelf-life of at least six months; and
- Oncophage consists of a purified protein that we can consistently produce from all tumor types tested to date.

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A medical professional initially administers Oncophage to a patient four to six weeks after a doctor surgically removes the patient's primary or metastatic tumor. The typical course of treatment consists of an injection into the skin administered once per week for four to six weeks and every other week thereafter. An oncologist may recommend treating a patient with more than one course of Oncophage.

Although we believe Oncophage will be applicable to the treatment of all cancer types, our initial focus is on cancers that are resistant to available treatment options. Further, we have initially chosen types of cancer and stages of disease that typically yield tumors that doctors can surgically remove. Additionally, in order to complete clinical trials rapidly and file for regulatory approvals, we have selected cancers and stages of disease that allow us to evaluate our immunotherapeutics in clinical trials with near term endpoints.

We filed an IND for Oncophage in November 1996 that the FDA allowed on December 20, 1996. To date, we have treated approximately 260 advanced stage, metastatic cancer patients with Oncophage in our clinical programs. We started enrolling patients in our first clinical trial at Memorial Sloan-Kettering Cancer Center in New York, New York in November 1997.

We believe the collective results from these clinical trials show that Oncophage is generally safe, and patients tolerate it well. These results also demonstrate preliminary indications of clinical benefit in a number of these patients. Moreover, we have shown that Oncophage can generate an anti-tumor immunological response.

The investigators participating in our clinical programs have documented tumor regression using standard response criteria. A complete response means that all tumor tissue has disappeared and the patient appears to be disease free. A partial response means that evaluable tumor tissue has shrunk by at least 50%. A minor response means that the tumor has shrunk by 25-50%. Stable disease means that the tumor has either shrunk or grown by less than 25%. Progressive disease means that the tumor has grown by more than 25%.

The investigators also document survival. Median survival refers to the time at which 50% of patients diagnosed with a particular cancer are alive.

# RENAL CELL CARCINOMA

Background. Renal cell carcinoma is the most common type of kidney cancer. The American Cancer Society estimates that doctors will diagnose about 30,800 new cases of kidney cancer in the United States in 2001 and that the disease will kill approximately 12,100 people during 2001. Of the 30,800 patients expected to be diagnosed with kidney cancer, approximately 85% will have the specific type of kidney cancer known as renal cell carcinoma. By the time renal cell carcinoma is diagnosed in these patients, about one-third of them have developed metastatic disease.

The median survival of patients with metastatic renal cell carcinoma is approximately 12 months. For patients with metastatic disease, the only FDA

approved treatment is intravenous high-dose interleukin-2, a human cytokine. The response rate, which includes partial responses and complete responses, of patients who are treated with high-dose interleukin-2 is approximately 15%. Treatment with high-dose interleukin-2 often causes severe adverse effects. These side effects often can lead to discontinuation of treatment. Although not FDA-approved for the treatment of renal cell carcinoma, a lower-dose of interleukin-2 injected underneath the skin, or subcutaneously, either alone or in combination with other cytokines, has become a treatment option. This treatment regimen has been the subject of a number of small studies with widely varying outcomes. Generally, side effects using the subcutaneous route of administration have been milder than those associated with high-dose, intravenous treatment.

Our Clinical Program. In our phase I/II trial, we enrolled patients with measurable metastatic renal cell carcinoma. We conducted this trial with clinical investigators at the M.D. Anderson Cancer Center in Houston, Texas. These patients did not receive prior or concurrent cancer therapy. After surgical removal of their primary tumors, patients were treated at one of three dose levels of Oncophage: 2.5 micrograms, 25 micrograms, or 100 micrograms. The clinical investigators treated 38 patients, of whom 34 could be evaluated with standard radiology measurements.

Of the 34 evaluable patients, 13 patients responded or had stable disease. Four patients had a partial response, and one patient had a minor response. The other eight patients showed stabilization of their disease. Three of these patients had

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been stable for more than 10 months at the time the trial was concluded. The response rate in this trial, which does not include patients with a minor response or stable disease, was 12% and no adverse events were associated with treatment with Oncophage. The median survival in this trial is 13 months.

While the analysis of immunological results is still ongoing, testing to date shows that in four out of five patients who responded clinically, the number of T cells increased after treatment with Oncophage. Further, in all patients who responded clinically, the number of natural killer cells increased after treatment with Oncophage.

In the phase I/II trial, clinical investigators found that Oncophage is generally safe and well tolerated. Sixty-three percent of our patients received more than one course of treatment with Oncophage.

We were able to prepare Oncophage successfully from approximately 98% of renal cancer carcinoma samples we received at our manufacturing facility for this phase I/II trial. Based on this result, we believe we will be able to manufacture Oncophage for nearly all renal cell carcinoma patients whose tumors a surgeon can remove.

Based on the results from our phase I/II clinical trial, we initiated a 60 patient phase II trial for patients with metastatic renal cell carcinoma at the M.D. Anderson Cancer Center in March 1999. We completed enrollment for this phase II trial in the first quarter of 2000. For this trial, we set the dose of Oncophage at 25 micrograms, and patients received one dose once a week for four weeks, followed by one dose every two weeks. Some patients also received an injection of subcutaneous interleukin-2 if they had not had an adequate response after three months of treatment with Oncophage. In an interim analysis, 35% of the patients treated with Oncophage alone showed an improvement in the course of the disease. This includes complete and partial responses in 10% of the patients and stabilization of disease in an additional 25% of the patients. The addition of IL-2 did not benefit patients. Based on the analysis of the results from the phase I/II and phase II trials, we started a phase III trial for renal cell carcinoma in June of 2000.

# MELANOMA

Background. Melanoma is the most serious form of skin cancer. The American Cancer Society estimates that doctors will diagnose about 51,400 new cases of melanoma in the United States in 2001 and that the disease will kill approximately 7,800 people during 2001. The incidence of melanoma is growing at 5-7% per year, which is substantially faster than the growth in incidence rates of most other cancers. Oncologists treat advanced or metastatic melanoma, also

known as stage III or IV, with surgery, radiation therapy, immunotherapy, or chemotherapy depending on the case. Approximately 20% of all melanoma patients at the time of their first diagnosis have stage III or stage IV disease. Existing treatments have not significantly improved overall survival of patients with melanoma. The median survival of patients with stage III melanoma varies widely according to published literature. At the M.D. Anderson Cancer Center, the median survival of patients with late stage III melanoma is 24 months. According to published literature, patients with stage IV melanoma have a median survival of about seven months. Although oncologists use various treatment options, the only FDA approved drug therapies for patients with metastatic melanoma are high dose intravenous interleukin-2 and alpha interferon, another human cytokine.

Our Clinical Program. We have treated 36 patients in a phase I/II clinical trial, evaluating Oncophage as a treatment for late stage III and early stage IV metastatic melanoma. Eighty-three percent of the patients in our trial were previously treated with chemotherapy, radiotherapy, and alpha interferon. We are conducting the trial with clinical investigators at the M.D. Anderson Cancer Center. After surgery to remove a portion of the tumor, the clinical investigators treated patients with 2.5 micrograms, 25 micrograms, or 100 micrograms of Oncophage.

In this trial, the clinical investigators treated 20 stage III and stage IV patients in the adjuvant setting. This means that these patients had all of their detectable melanoma tissue surgically removed before the clinical investigators treated them with Oncophage. Nineteen out of 20 patients (95%) are alive with a median follow-up of 14 months, and of those, 15 patients (75%) are disease free.

In our melanoma trial, the clinical investigators also treated 16 stage III and stage IV patients with "residual disease." These are patients who have had only part of their disease surgically removed, leaving them with visible disease at the time of Oncophage treatment. Eight of these 16 patients are alive with a median follow-up of 14 months.

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To date, the trial has shown Oncophage to be generally safe and well tolerated by patients. In addition, we have been able to successfully prepare Oncophage from approximately 92% of melanoma samples we received at our manufacturing facility for this phase I/II trial. Based on this result, we believe that we will be able to manufacture our product for nearly all melanoma patients from whom a surgeon can remove an adequate amount of tumor tissue.

In addition to our phase I/II trial at the M.D. Anderson Cancer Center, we have completed enrollment in a planned 40 patient phase II trial for melanoma at the Istituto dei Tumori in Milan, Italy. Clinical investigators have treated patients in this trial with 5 or 50 micrograms of Oncophage. The purpose of this trial is to confirm the route of administration of Oncophage.

# COLORECTAL CANCER

Background. Colorectal cancer is cancer of the colon or rectum. The American Cancer Society estimates that doctors will diagnose about 135,400 new cases of colorectal cancer in the United States in 2001 and that this disease will kill approximately 56,700 people during 2001.

For patients whose disease has not spread to other parts of the body, surgery remains the most common treatment and can be curative in about two thirds of these cases. For patients whose disease has metastasized to other parts of the body, treatment options are limited, and the patients' prognosis is poor. Patients with recurrence of advanced disease may have their metastatic lesions removed by surgery. The median survival for these patients is approximately 12 months. Conventional cancer treatments such as chemotherapy and radiation have shown limited benefit in treating colorectal cancer.

Our Clinical Program. We have completed enrollment of a 30 patient phase II clinical trial evaluating Oncophage as a treatment for metastatic colorectal cancer. We are conducting the trial at the Istituto dei Tumori. The clinical investigators have treated patients with 2.5 micrograms, 25 micrograms or 100 micrograms of Oncophage after a surgeon removes the patients' metastatic tumors.

We are continuing to analyze the results from this trial. To date, the trial has

shown Oncophage to be generally safe and well tolerated by patients. In addition, we have successfully prepared Oncophage from 100% of colorectal cancer samples we received at our manufacturing facility for this trial. Based on this result, we believe we will be able to manufacture our product for nearly all colorectal cancer patients whose tumors a surgeon can remove.

# GASTRIC CANCER

Background. Gastric cancer is cancer of the stomach. The American Cancer Society estimates that doctors will diagnose about 21,700 new cases of gastric cancer in the United States in 2001 and that the disease will kill approximately 12,800 people during 2001. The treatment options for gastric cancer are surgery, chemotherapy, and radiation. Biological therapies are currently in clinical trials. For patients with surgically removable tumors, improvements in surgical techniques have led to increased survival. Despite these advances, as well as the development of multi-drug chemotherapy regimens, the median survival for patients with advanced gastric cancer, according to published research, is approximately seven months.

Our Clinical Program. We are currently enrolling patients in a 30 patient phase I/II clinical trial evaluating Oncophage as a treatment for metastatic gastric cancer. We are conducting this trial with clinical investigators at the Johannes Gutenberg-University Hospital in Mainz, Germany, Technical University of Munich in Germany, and the Russian Oncology Research Center in Moscow, Russia.

After clinical investigators surgically remove a patient's tumor, the clinical investigators treat the patient with 2.5 micrograms or 15 micrograms of Oncophage. Although enrollment is still ongoing, to date, the trial has shown Oncophage to be generally safe and well tolerated by patients. In addition, we have been able to successfully prepare Oncophage from approximately 71% of gastric cancer samples we received at our manufacturing facility for this trial. Based on this result, we believe we will be able to manufacture our product for the majority of gastric cancer patients whose tumors a surgeon can remove.

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# 11 PANCREATIC CANCER

Background. Pancreatic cancer is the fourth leading cause of cancer death in the United States. The American Cancer Society estimates that doctors will diagnose about 29,200 new cases of pancreatic cancer in the United States in 2001 and that the disease will kill approximately 28,900 people during 2001.

The treatment options for pancreatic cancer are surgery and chemotherapy. Doctors at the Memorial Sloan-Kettering Cancer Center report that patients who have had tumors surgically removed have a median survival of 14 months. Doctors treat patients with tumors that cannot be surgically removed, or resected, with chemotherapy. The median survival time for patients with unresectable disease is less than six months.

Our Clinical Program. In early 1999, we completed a pilot phase I clinical trial evaluating Oncophage as a treatment for resectable pancreatic cancer. We conducted the trial with clinical investigators at the Memorial Sloan-Kettering Cancer Center and enrolled 15 patients. The clinical investigators treated five of the 15 patients with five micrograms of Oncophage after doctors had removed the patients' primary tumor.

Two out of five patients generated a T cell response to their tumor after treatment with Oncophage.

One patient is alive and disease free for 33 months since surgery. A second patient is alive with progressive disease 22 months since surgery. The three remaining patients died 8, 17 and 36 months after surgery.

The trial showed Oncophage to be generally safe and well tolerated by patients. We successfully prepared Oncophage from 5 of 15 pancreatic cancer samples we received in our manufacturing facility. We were not able to prepare Oncophage from the remaining tumor samples due to the presence of enzymes in the pancreatic tissue that break down proteins, including heat shock proteins. Based upon our process development advances, we have succeeded in manufacturing Oncophage from three of three tumors received in our facility for a recently expanded pancreatic cancer trial at Sloan-Kettering. This trial is a Phase I/II study in which we will enroll five additional patients. The study will now

include feasibility and survival as the objectives.

## NON-HODGKIN'S LYMPHOMA

Background. Non-Hodgkin's lymphoma is cancer that originates in lymph tissue. The American Cancer Society estimates that doctors would diagnose about 56,200 new cases of non-Hodgkin's lymphoma in the United States in 2001 and that the disease will kill approximately 26,300 people during 2001. Approximately 40% of patients with non-Hodgkin's lymphoma have low grade indolent disease, which is a slow growing, often fatal, lymphoma.

Doctors have traditionally treated patients with non-Hodgkin's lymphoma with chemotherapy. Recently, the FDA approved one new antibody therapy for low grade non-Hodgkin's lymphoma.

Our Clinical Program. We are enrolling patients in a 35 patient phase II clinical trial evaluating Oncophage as a treatment for low grade indolent non-Hodgkin's lymphoma. This trial is being conducted by clinical investigators at the M.D. Anderson Cancer Center. We anticipate that the clinical investigators will treat patients with 25 micrograms of Oncophage after a surgeon removes the patients' tumor tissue.

#### SARCOMA

Background. Soft tissue sarcomas are cancerous tumors that can develop from fat, muscle, nerve, joint, blood vessel, or deep skin tissues. The American Cancer Society estimates that doctors will diagnose about 8,700 new cases of soft tissue sarcomas in the United States in 2001 and that the disease will kill approximately 4,400 people during 2001.

Doctors treat sarcoma with surgery, chemotherapy, or targeted radiotherapy. For resectable disease, doctors perform surgery and administer chemotherapy or targeted radiotherapy as follow up treatments. For unresectable disease, doctors treat patients with a combination of chemotherapy and radiotherapy.

Our Clinical Program. We are conducting a 35 patient phase II clinical trial evaluating Oncophage as a treatment for soft tissue sarcomas at Memorial Sloan-Kettering Cancer Center and may expand it to include other sites. We anticipate

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that the clinical investigators will treat patients with 25 micrograms of Oncophage after a surgeon removes the patients' tumor tissue.

# OTHER PRODUCTS FOR TREATMENT OF CANCER

In addition to Oncophage, we are currently researching several other autologous cancer immunotherapeutics using different heat shock proteins, including HSPPC-70, HSPPC-90, and HSPPC-56. These immunotherapeutics have demonstrated efficacy in animal cancer models.

# OUR PRODUCTS FOR TREATMENT OF INFECTIOUS DISEASES

Background. Infectious diseases are illnesses caused by microorganisms, or pathogens, like viruses, bacteria, and parasites, and include HIV, tuberculosis, hepatitis, genital herpes, and malaria. While doctors use antiviral agents and antibiotics to treat a number of viral and bacterial diseases effectively, medical professionals are concerned about the emergence of new strains of pathogens that have developed resistance to all available drugs.

Our Approach. We designed our products for prevention and treatment of infectious disease to activate antibody and/or cellular immune response, depending on the target disease. Our products that stimulate antibody response consist of QS-21 mixed with one or more antigens produced by the pathogen causing the infection. Our products that stimulate cellular immune response consist of heat shock proteins bound to peptides produced by the pathogen causing the infection. Typically, a specific pathogen causes each infectious disease. Consequently, our infectious disease products will be common to all patients with a particular infection and will not be patient-specific. The following section describes our development programs:

AG-701 FOR THE TREATMENT OF GENITAL HERPES

Background. Genital herpes is a contagious viral infection that affects an estimated 45 million Americans. Doctors estimate that as many as 500,000 new cases may occur each year in the United States. Genital herpes is currently treated with palliative antiviral agents that reduce further replication of the virus. The challenge of antiviral therapy lies not only in treatment of the symptoms during the first and recurrent episodes but also in the long-term suppression of the herpes virus in patients with frequent recurrences. We filed an IND for this indication in December 2000, and the FDA has allowed us to initiate clinical testing of our product, AG-701, in patients diagnosed with genital herpes.

Our Approach. We currently produce Ag-701 by binding specific peptides with heat shock proteins in vitro. We can generate the peptides in microorganisms or produce them synthetically. This manufacturing procedure has enabled us to test Ag-701 in preclinical studies and should enable us to produce sufficient quantities to begin human clinical trials. Another technique to manufacture our HSP vaccines for treatment of infectious diseases like genital herpes involves purifying heat shock protein-peptide complexes from cells infected with the target pathogen.

## QUILVAX-FELV FOR THE PREVENTION OF FELINE LEUKEMIA

We have developed a recombinant subunit vaccine against the feline leukemia virus. The product was approved in 1990 in the United States and in 1991 in Europe. This product represents 100% of our current product sales. We manufacture the product and sell it to Virbac, who markets it in Europe, Australia, and Japan under the trademark Leucogen. Virbac has indicated that it intends to market the product directly in the United States. Feline leukemia is a highly contagious and commonly fatal disease of cats. Our product was the first recombinant vaccine ever developed against a tumor-causing virus in mammals. A patent covering Quilvax-FeLV has been issued in the United States and in a number of other countries. We manufacture bulk formulated product for the Australian markets and supply Virbac with bulk antigen and adjuvant for further manufacture for the European and Japanese markets. The product is the leading feline leukemia vaccine in Europe; and in an independent study conducted by the University of Glasgow, Bearsden, it was found to be the most effective of three leading feline leukemia vaccine products on the market.

# QUILIMMUNE-P FOR THE PREVENTION OF PNEUMOCOCCAL INFECTIONS

Streptococcus pneumoniae infections in the elderly can cause serious disease. There are approximately 35 million people over the age of 65 in the United States and an additional 36 million adults with immune compromising conditions who

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are at risk for developing disease caused by S. pneumoniae. There are over 80 recognized serotypes of pneumococci, each with varying geographic and age group prevalence. We intend for Quilimmune-P to be used to prevent pneumococcal infections in the elderly.

The commercially available vaccines against streptococcus pneumoniae are under-utilized by the elderly. Reports in the medical literature and confirmed in our own studies indicate that only 60-70% of healthy volunteers and 50-60% of the elderly administered the current vaccine respond with a two-fold or greater increase in the level of specific antibody.

We are initiating a phase I clinical trial of Quilimmune-P which contains QS-21 and a more immunogenic form of the bacterial antigens used in the commercial vaccine. We believe that QS-21 will improve immune responses to the pneumococcal antigens and thus provide protection against infection in a larger proportion of patients.

# QUILIMMUNE-M FOR THE CONTROL OF MALARIA

According to estimates in reports published by the World Health Organization, approximately 2 billion people reside in malaria-infected areas. The yearly incidence of malaria is estimated by the WHO at 300 to 500 million cases, with a death toll of 1.5 to 3 million persons. While anti-malarial drugs have been in use for decades, they are expensive and resistant malarial strains are becoming increasingly common. The WHO has identified malaria as a priority vaccine target

in developing countries. We are involved in a number of vaccine programs that combine QS-21 with specific malaria-related antigens. Collaborators include GlaxoSmithKline and investigators at the Center for Disease Control and Prevention, National Institute of Allergy and Infectious Disease and the University of Hawaii.

# OUR PRODUCTS FOR TREATMENT OF AUTOIMMUNE DISORDERS

Background. Autoimmune disorders result from an inappropriate immune response that targets and destroys normal tissue. While researchers have not definitively determined what triggers autoimmune responses, many believe that both genetic and environmental factors are involved in this process. Several autoimmune disorders, including diabetes and multiple sclerosis, result in the proliferation of misdirected T cells that attack normal tissues. We believe that a therapeutic product that can turn off misdirected T cell responses could treat these disorders.

Our Approach. We have demonstrated in animal models that heat shock proteins administered at higher doses than those required for treating cancer and infectious diseases can turn off misguided T cells that destroy healthy tissue in animals with some autoimmune disorders. We are currently researching the application of heat shock proteins to treat autoimmune diseases like diabetes and multiple sclerosis. The source of heat shock proteins we use in our autoimmune disorders immunotherapeutic will be human cells. Our therapeutic vaccine could also be made using recombinant DNA techniques.

#### CORPORATE PARTNER PROGRAMS

In addition to our internal product development programs, we have seven corporate partners that have licensed our stimulon adjuvants for a variety of human diseases: GlaxoSmithKline, P.L.C., Wyeth-Lederle Vaccines and Pediatrics, Aventis Pasteur, Bristol-Myers-Squibb (Progenics Pharmaceuticals, Inc.), Vaxgen, Inc., Elan Corporation, P.L.C. and Korea Green Cross Corporation. In return for rights to use Stimulon adjuvant for specific diseases, the corporate partners have agreed to pay us license fees, milestone payments, and royalties on product sales. We have retained worldwide manufacturing rights for QS-21. In addition to corporate partners, we have developed a number of academic collaborations to test potential product formulations containing QS-21.

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PRODUCTS	INDICATION	STATUS
CANCER		
Leucogen	Feline Leukemia	Marketed
QS-21	Melanoma	Phase III
INFECTIOUS DISEASES		
gp120	HIV	Phase III
QS-21	Hepatitis B	Phase II
	HIV	Phase I/II
	Genital herpes	Phase I/II
	Respiratory virus	Phase I/II
Quilimmune-M	Malaria	Phase I/II
DEGENERATIVE DISORDERS		
QS-21	Alzheimer's disease	Phase I/II

# GLAXOSMITHKLINE

GlaxoSmithKline, P.L.C. has licensed QS-21 for a number of different applications. The world's leading manufacturer of Hepatitis B vaccine, GlaxoSmithKline is aggressively marketing its existing portfolio of vaccines, while developing new and improved products. GlaxoSmithKline has completed a number of clinical trials of potential products containing QS-21 and is also investigating the use of combinations of different adjuvants. GlaxoSmithKline has announced plans to initiate a pediatric study of a malaria vaccine in The Gambia.

GlaxoSmithKline has completed phase II studies of a therapeutic product for treating people chronically infected with hepatitis B and initiated two phase IIb studies in 2000. Phase I clinical studies of a therapeutic vaccine for treating people with herpes infections have been completed.

# WYETH-LEDERLE VACCINES AND PEDIATRICS

Wyeth-Lederle Vaccines and Pediatrics licensed QS-21 in 1992 for use in five vaccines. Wyeth-Lederle has completed a phase I clinical trial using a product formulated with QS-21. Wyeth has since reformulated this product and is planning to initiate studies of the new formulation in 2000.

## AVENTIS PASTEUR

Aventis Pasteur has licensed QS-21 for use in its HIV vaccine programs and has completed a number of clinical trials with different antigens.

# BRISTOL-MYERS SQUIBB

Bristol-Myers Squibb (Progenics Pharmaceuticals, Inc.) has licensed QS-21 for use in certain therapeutic products for cancer including MGV, which contains QS-21 and the gangliosides GD2 and GM1 along with GM2. This product is entering phase II/III trials. Progenics expects that this product will be applicable to a number of cancers, and it plans to initiate several trials to focus on different cancers. We have licensed to Progenics the use of QS-21 in exchange for a license fee, an equity interest in Progenics, and royalties; and we have a supply agreement with Bristol-Myers Squibb.

## VAXGEN, INC.

Vaxgen, Inc. (an early stage company whose major corporate shareholder is Genentech, Inc.) has licensed QS-21 and the HIV protein gp120 for use in its HIV-1 vaccine program. HIV gp120 is the antigen in Vaxgen's preventative AIDSVAX vaccine for HIV, currently in two phase III trials in North America (5,400 volunteers) and Thailand (2,500 volunteers). VaxGen has conducted a number of phase I clinical trials in healthy volunteers with a product formulated with QS-21, under the auspices of the National Institutes of Health. Volunteers received very low doses of gp120 antigen combined with QS-21 and/or alum. These product formulations were well tolerated by patients and gave patients an

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immunogenicity equal to or better than the high dose gp120. A fourth trial based on these product formulations was completed in 1999 that confirmed the early data. Additional studies are being planned.

# ELAN CORPORATION

Elan Corporation, p.l.c., through its wholly owned subsidiary, Neuralab Limited, has licensed QS-21 for use with an antigen in the field of alzheimer's disease. We receive fees and milestone payments plus royalties on future product sales. A phase I clinical trial was initiated in the United States in late 1999 and was completed this year. A second phase I trial was initiated in Europe in early 2000 to evaluate multiple immunizations of the product formulation.

# KOREA GREEN CROSS CORPORATION

Korea Green Cross Corporation sublicensed Wyeth's rotavirus vaccine program that includes rights to use QS-21 for this product. This program is in preclinical development.

# MANUFACTURING

We manufacture our vaccine products and adjuvants in a 30,225 square foot manufacturing and research and development facility located in Woburn, Massachusetts and a 41,000 square foot facility in Framingham, Massachusetts. We are in the process of preparing the Woburn facility for the commercialization of Oncophage.

# ONCOPHAGE

Our process development group is currently working on improving the process by which we manufacture heat shock protein-based therapeutic vaccines, including

Oncophage. Efforts in this area to date have resulted in a 50% reduction in the time required to purify Oncophage from individual patients' tumors and a 40% increase in the quantity of Oncophage we can produce from tumor tissue. These efforts in our cancer program should also benefit preparation of our heat shock protein-based therapeutic vaccines for treatment of infectious diseases.

#### 0S - 21

We currently manufacture QS-21 for commercial animal health use and for use in human clinical trials. We have scaled the critical steps of the process to produce a batch size suitable for large-scale commercial production up to 2,000,000 doses.

As part of each stimulon adjuvant licensing agreement, we have retained the right to be the exclusive supplier of stimulon adjuvants. The license agreements stipulate supply prices, within certain ranges. Pursuant to the license agreements, we also will receive royalties on each licensee's product sales.

The FDA classifies QS-21 as a constituent material used in vaccine preparation. As a result, the FDA does not require licensure of facilities used for the manufacture of QS-21. We believe that this classification affords flexibility in the timing of investment in commercial manufacturing facilities. After the safety and effectiveness of QS-21 has been demonstrated, we expect to be in a position to reasonably project the capital investment required and can adjust the scale of manufacturing as additional products reach the market.

We also currently manufacture FeLV antigen and vaccine, which the USDA licensed for sale in the United States in 1990 and for European sales in the European Community in 1991. We produce commercial quantities at the 400 liter fermentation scale.

## SALES AND MARKETING

To commercially market our products once we obtain the necessary regulatory approvals, we must either develop our own sales and marketing force or enter into arrangements with third parties. Currently, our sales and marketing plans consist of the following:

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  - Commercialize cancer therapeutic vaccines in the United States through our own sales force. Due to the concentration of the United States oncology market, we believe that we can build a United States sales force to market our cancer therapeutic vaccines.
  - Maintain and continue to form collaborations with pharmaceutical companies for commercializing cancer therapeutic vaccines outside the United States. For example, we have entered into an agreement with Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., under which Sigma-Tau has agreed to pay for two clinical trials in return for rights that include an option to enter into an agreement to market Oncophage in Italy, Spain, Portugal, and Switzerland. We have also signed an agreement with Medison Pharma Ltd. for marketing Oncophage in Israel.
  - Maintain and continue to form collaborations with pharmaceutical companies for infectious diseases and autoimmune and degenerative disorders. The number of doctors and health care institutions prescribing treatments for infectious diseases and other immune disorders is large and fragmented, and we will need a large sales force to effectively market our products. We have ongoing partnerships with GlaxoSmithKline, Wyeth, Aventis Pasteur, Bristol Myers Squibb (Progenics Pharmaceuticals), Elan Corporation, VaxGen and Korean Green Cross.

# OUR INTELLECTUAL PROPERTY PORTFOLIO

We devote significant resources to protecting and expanding our intellectual property portfolio. We seek to protect our core technologies through a combination of patents, trade secrets, and know-how. As a result of an exclusive worldwide license with Fordham University and one with Mount Sinai School of Medicine of New York University, we have exclusive rights to 30 issued United States patents, and foreign counterpart patents and patent applications,

relating to our heat shock protein technology. Prior to directing the Center for Immunotherapy of Cancer at the University of Connecticut, Dr. Srivastava, the Chairman of our Scientific Advisory Board, was an assistant professor of immunology at Mount Sinai School of Medicine, and, then, a professor of immunology at Fordham University.

We also have licensed rights to 106 pending United States patent applications, and corresponding foreign counterpart patents and applications, from Mount Sinai School of Medicine of New York University, Fordham University, Duke University, and the University of Miami. Under the license agreements with these institutions, we have exclusive, worldwide rights to inventions using heat shock proteins in the treatment and prevention of cancer, infectious diseases, autoimmune disorders, and other indications. If we commercialize any of the inventions, we will pay the licensors a royalty on sales of the commercialized product. In addition, pursuant to a research agreement with the University of Connecticut Health Center, we will fund the laboratory directed by Dr. Srivastava at the University through December 31, 2002. The agreement calls for payments to the University totaling a minimum of \$5,000,000, payable in quarterly installments of \$250,000. In return, we have an option to obtain an exclusive license to new inventions as that term is defined in the research agreement, with the royalty rates and other terms to be determined by negotiation between the parties. We also have an option to obtain an exclusive license to certain types of "improvement" inventions as that term is defined in the research agreement, at already-determined royalty rates, but with the other terms to be determined by negotiation between the parties. We must exercise these options within 180 days from the date of filing a United States patent application on each such invention.

We also have exclusive rights to 31 issued and 59 pending United States and foreign patents and patent applications, respectively, relating to our Saponin and CD1 technology.

It is worth noting that:

- patent applications in the United States are currently maintained in secrecy until patents are issued;
- patent applications in other countries generally are not published until 18 months after they are first filed in any country;
- publication of technological developments in the scientific or patent literature often lags behind the date of these developments; and

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searches of prior art may not reveal all relevant prior inventions.

Although we have licensed 61 issued United States patents and 165 pending United States patent applications, we cannot be certain that our licensors' inventors were the first to invent the subject matter covered by these patents and patent applications or that they were the first to file patent applications for those inventions or that a court or patent authority will not determine that these patent rights are invalid or unpatentable.

# REGULATORY CONSIDERATIONS

Governmental authorities in the United States and other countries extensively regulate the preclinical and clinical testing, manufacturing, labeling, storage, record keeping, advertising, promotion, export, marketing and distribution, among other things, of our therapeutic vaccines. In the United States, the FDA under the Federal Food, Drug, and Cosmetic Act, the Public Health Service Act and other federal statutes and regulations, subjects pharmaceutical products to rigorous review. If we do not comply with applicable requirements we may be fined, our products may be recalled or seized, our production may be totally or partially suspended, the government may refuse to approve our marketing applications or allow us to distribute our products, and we may be criminally prosecuted. The FDA also has the authority to revoke previously granted marketing authorizations.

In order to obtain approval of a new product from the FDA, we must, among other requirements, submit proof of safety and efficacy as well as detailed information on the manufacture and composition of the product. In most cases, this proof entails extensive preclinical, clinical, and laboratory tests. This

testing, the preparation of necessary applications and the FDA's processing of those applications are expensive and typically take several years to complete. We cannot assure you that the FDA will act quickly or favorably in reviewing these applications, and we may encounter significant difficulties or costs in our efforts to obtain FDA approvals that could delay or preclude us from marketing any products we may develop. The FDA may also require post-marketing testing and surveillance to monitor the effects of approved products or place conditions on any approvals that could restrict the commercial applications of these products. Regulatory authorities may withdraw product approvals if we fail to comply with regulatory standards or if we encounter problems following initial marketing. With respect to patented products or technologies, delays imposed by the governmental approval process may materially reduce the period during which we will have the exclusive right to exploit them.

The first stage of the FDA approval process for a new biologic or drug involves completion of preclinical studies and the submission of the results of these studies to the FDA, together with proposed clinical protocols, manufacturing information, analytical data and other information, in an investigational new drug application, which must become effective before human clinical trials may commence. The investigational new drug application is automatically effective 30 days after receipt by the FDA, unless the FDA before that time requests an extension to review the application, or raises concerns or questions about the conduct of the trials as outlined in the application. In the latter case, the sponsor of the application and the FDA must resolve any outstanding concerns before clinical trials can proceed. We cannot guarantee that submission of an investigational new drug application will result in the FDA's authorizing us to commence clinical trials in any given case.

Preclinical studies involve laboratory evaluation of product characteristics and animal studies to assess the efficacy and safety of the product. The FDA regulates preclinical studies under a series of regulations called the current "Good Laboratory Practices" regulations. If the sponsor violates these regulations, in some cases, the FDA may invalidate the studies and require that the sponsor replicate those studies.

After the investigational new drug application becomes effective, a sponsor may commence human clinical trials. The sponsor typically conducts human clinical trials in three sequential phases, but the phases may overlap. In phase I trials, the sponsor tests the product in a small number of patients or healthy volunteers, primarily for safety at one or more doses. In phase II, in addition to safety, the sponsor evaluates the efficacy of the product in a patient population somewhat larger than phase I trials. Phase III trials typically involve additional testing for safety and clinical efficacy in an expanded population at geographically dispersed test sites. The sponsor must submit to the FDA a clinical plan, or "protocol," accompanied by the approval of the institution participating in the trials, prior to commencement of each clinical trial. The FDA may order the temporary or permanent discontinuation of a clinical trial at any time.

The sponsor must submit to the FDA the results of the preclinical and clinical testing, together with, among other things, detailed information on the manufacture and composition of the product, in the form of a new drug application or, in the

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case of a biologic, a biologics license application. In a process which generally takes several years, the FDA reviews this application and, when and if it decides that adequate data is available to show that the new compound is both safe and effective and that other applicable requirements have been met, approves the drug or biologic for marketing. The amount of time taken for this approval process is a function of a number of variables, including the quality of the submission and studies presented, the potential contribution that the compound will make in improving the treatment of the disease in question, and the workload at the FDA. We cannot guarantee that any of our therapeutic vaccines will successfully proceed through this approval process or that the FDA will approve them in any specific period of time, or at all.

Congress enacted the Food and Drug Administration Modernization Act of 1997 in part to ensure the availability of safe and effective drugs, biologics, and medical devices by expediting the FDA review process for new products. The Modernization Act establishes a statutory program for the approval of fast track products, including biologics. A fast track product is defined as a new drug or

biologic intended for the treatment of a serious or life-threatening condition that demonstrates the potential to address unmet medical needs for this condition. Under the fast track program, the sponsor of a new drug or biologic may request the FDA to designate the drug or biologic as a fast track product at any time during the clinical development of the product.

The Modernization Act specifies that the FDA must determine if the product qualifies for fast track designation within 60 days of receipt of the sponsor's request. The FDA can base approval of a marketing application for a fast track product on an effect on a clinical endpoint or on another endpoint that is reasonably likely to predict clinical benefit. The FDA may subject approval of an application for a fast track product to:

- post-approval studies to validate the surrogate endpoint or confirm the effect on the clinical endpoint; and
- prior review of all promotional materials.

In addition, the FDA may withdraw its approval of a fast track product on a number of grounds, including the sponsor's failure to conduct any required post-approval study with due diligence.

If a preliminary review of the clinical data suggests that a fast track product may be effective, the FDA may initiate review of sections of a marketing application for a fast track product before the sponsor completes the application. This rolling review is available if the applicant provides a schedule for submission of remaining information and pays applicable user fees. However, the time periods specified under the Prescription Drug User Fee Act concerning timing goals to which the FDA has committed in reviewing an application, do not begin until the sponsor submits the application.

We may request fast track designation for our therapeutic vaccines. We cannot predict whether the FDA will grant that designation, nor can we predict the ultimate impact, if any, of the fast track process on the timing or likelihood of FDA approval of our therapeutic vaccines.

The FDA may, during its review of a new drug application or biologics license application, ask for additional test data. If the FDA does ultimately approve the product, it may require post-marketing testing, including potentially expensive phase IV studies, and surveillance to monitor the safety and effectiveness of the drug. In addition, the FDA may in some circumstances impose restrictions on the use of the drug that may be difficult and expensive to administer, and may require prior approval of promotional materials.

Before approving a new drug application or biologics license application, the FDA will inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facilities are in compliance with current Good Manufacturing Practices. In addition, the manufacture, holding, and distribution of a product must be in compliance with current Good Manufacturing Practices. Manufacturers must continue to expend time, money, and effort in the area of production and quality control and record keeping and reporting to ensure full compliance with those requirements. The labeling, advertising, promotion, marketing, and distribution of a drug or biologic product must be in compliance with FDA regulatory requirements. Failure to comply with applicable requirements can lead to the FDA demanding that production and shipment cease, and, in some cases, that the manufacturer recall products, or to enforcement actions that can include seizures, injunctions, and criminal prosecution. These failures can also lead to FDA withdrawal of approval to market the product.

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We are also subject to regulation by the Occupational Safety and Health Administration and the Environmental Protection Agency and to regulation under the Toxic Substances Control Act, the Resource Conservation and Recovery Act and other regulatory statutes, and may in the future be subject to other federal, state or local regulations. Either or both OSHA and/or the EPA may promulgate regulations that may affect our research and development programs. We are unable to predict whether any agency will adopt any regulation which could have a material adverse effect on our operations.

Sales of pharmaceutical products outside the United States are subject to foreign regulatory requirements that vary widely from country to country.

Whether or not we have obtained FDA approval, we must obtain approval of a product by comparable regulatory authorities of foreign countries prior to the commencement of marketing the product in those countries. The time required to obtain this approval may be longer or shorter than that required for FDA approval. The foreign regulatory approval process includes all the risks associated with FDA regulation set forth above as well as country-specific regulations.

## COMPETITION

Competition in the pharmaceutical and biotechnology industries is intense. Many pharmaceutical or biotechnology companies have products on the market and are actively engaged in the research and development of products for the treatment of cancer, infectious diseases, and autoimmune disorders. In addition, many competitors focus on immunotherapy as a treatment for cancer, infectious diseases, and autoimmune disorders. In particular, some of these companies are developing autologous cancer vaccines. Others are focusing on developing heat shock protein products. We compete for funding, access to licenses, personnel, and third-party collaborations. In addition, many competitors have substantially greater financial, manufacturing, marketing, sales, distribution, and technical resources, and more experience in research and development, clinical trials and regulatory matters, than we do. A competing company developing, or acquiring rights to, a more efficacious therapeutic product for the same diseases we targeted, or one which offers significantly lower costs of treatment, could render our products noncompetitive or obsolete.

Academic institutions, governmental agencies, and other public and private research institutions conduct significant amounts of research in biotechnology, medicinal chemistry, and pharmacology. These entities have become increasingly active in seeking patent protection and licensing revenues for their research results. They also compete with us in recruiting and retaining skilled scientific talent.

We are aware of certain programs and products under development by others which may compete with the our programs and products. Several companies, including Cell Genesys Inc., Gilead Sciences Inc., Imclone Systems, Inc., Immunex Corporation, Ligand Pharmaceuticals Incorporated and Vical Inc., have expertise in immunology and/or are developing treatments for cancer based on modulation of the immune system.

Merck Laboratories, Wyeth-Lederle, GlaxoSmithKline, Aventis Pasteur, and others are in human clinical trials with conjugate pneumococcal vaccines and have existing nonadjuvanted products on the market. The existence of products developed by these and other competitors, or other products of which we are not aware or which other companies may develop in the future, may adversely affect the marketability of products we develop.

Certain of our corporate partners are also licensees of Coley, Corixa, and  ${\tt Avant.}$ 

# EMPLOYEES

As of February 15, 2001, we had 162 employees, of whom 23 have Ph.D.s and 2 have M.D.s. Out of the 162 total, 46 are manufacturing and quality control staff, 42 are research and development staff, 16 are clinical affairs staff, 12 are corporate executives, 10 are information technology staff, 10 are administrative staff, 6 are finance staff, 6 are facilities staff, 5 are business and technology development staff, 4 are regulatory affairs staff, 3 are human resources staff, and 2 are project management staff. None of our employees are subject to a collective bargaining agreement. We believe that we have good relations with our employees.

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ITEM 1A. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Set forth below is certain information regarding our executive officers and directors, including their age as of March 19, 2001:

NAME AGE TITLE

Chairman of the Board and Chief Executive Officer Garo H. Armen, Ph.D.... Pramod K. Srivastava, Ph.D..... 46 Director, Chief Scientific Officer and Chairman of Scientific Advisory Board Vice Chairman of the Board, Executive Vice Gamil G. de Chadarevian..... President International Elma Hawkins, Ph.D.... Vice Chairman Russell H. Herndon..... Chief Operating Officer Neal Gordon, Ph.D..... Vice President of Operations Donald Panoz(1)(2).... Director, Honorary Chairman Noubar Afeyan, Ph.D..... Director Tom Dechaene (2) ..... Director Sanford M. Litvack(1)..... Martin Taylor(1)(2)..... Director

- (1) Member of the Compensation Committee
- (2) Member of the Audit Committee

GARO ARMEN, PH.D. co-founded Antigenics in 1994 and has been the Chairman of the board and Chief Executive Officer since inception. Dr. Armen was previously a Senior Vice President of Research for Dean Witter Reynolds, focusing on the chemical and pharmaceutical industries. Dr. Armen has also served as an Associate Professor at the Merchant Marine Academy and as a research associate at the Brookhaven National Laboratory. He currently serves as a director of Elan Corporation, Plc. and Color Kinetics Inc. and is managing general partner of Armen Partner L.P. Dr. Armen received his Ph.D. degree in physical chemistry from the City University of New York in 1979.

PRAMOD SRIVASTAVA, PH.D. co-founded Antigenics in 1994, has served as the Chairman of the scientific advisory board since inception and is our Chief Scientific Officer. Dr. Srivastava is the Director of the Center for Immunotherapy of Cancer and Infectious Diseases at the University of Connecticut. He has held positions at Fordham University and the Mount Sinai School of Medicine. He performed his postdoctoral training at Yale University and the Sloan-Kettering Institute for Cancer Research. Dr. Srivastava serves on the Scientific Advisory Council of the Cancer Research Institute, New York, and was a member of the Experimental Immunology Study Section of the National Institutes of Health of the United States Government from 1994 until 1999. Dr. Srivastava is a past recipient of the First Independent Research Support & Transition Award of the National Institutes of Health (1987), the Irma T. Hirschl Scholar Award (1988), the Investigator Award of the Cancer Research Institute, New York (1991), the Mildred Scheel Lectureship (1994), and the Sigma Tau Foundation Speakership (1996). In 1997, he was inducted into the Roll of Honor of the International Union against Cancer and was listed in the Who's Who in Science and Engineering. He is among the twenty founding members of the Academy of Cancer Immunology. Dr. Srivastava earned his Ph.D. in Biochemistry from the Centre for Cellular and Molecular Biology, Hyderabad, India. Dr. Srivastava is a director of Ikonisys, Inc. and CambriaTech Holding S.A.

GAMIL DE CHADAREVIAN has served as Vice Chairman of the Board since 1995 and as Executive Vice President International since 1998. Until April of 1998, he was Managing Director of Special Projects at Alza International, responsible for creating new business opportunities in Europe. From 1992 to 1993, Mr. de Chadarevian was the Vice President of Corporate Development for Corange London Limited. Prior to 1992, Mr. de Chadarevian held positions at Pasfin Servizi Finanziara SpA, GEA Consulenza and Credit Suisse. He is also co-founder and serves as an advisor to several private health care companies in the United States and Europe. Mr. de Chadarevian is the co-founder and currently the Vice Chairman of Ikonisys, Inc. and CambriaTech Holding S.A., which are privately held companies. He also serves on the Advisory Board of Syntek Capital AG. Mr. de Chadarevian received a Lic. Oec. Publ. Degree from the University of Zurich in Switzerland.

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ELMA HAWKINS, PH.D. has served as our Vice Chairman since January 2001 and as our Senior Vice President from August 1998 until January 2001. From July 1996 through August 1998, Dr. Hawkins served as our Chief Operating Officer. Prior to her employment with us, Dr. Hawkins served in a number of senior positions at Genzyme Corporation, including Director of Corporate Development. Dr. Hawkins has also held positions in preclinical and clinical research at Warner-Lambert/Parke-Davis and at the Center for the Study of Drug Development at Tufts Medical School. Dr. Hawkins holds a Ph.D. in Medicinal Chemistry from the University of Alabama and an M.B.A. from Boston University. Dr. Hawkins is a director of Nalari Computing Corporation.

RUSSELL H. HERNDON has served as our Chief Operating Officer since January 2001.

Mr. Herndon was with Genzyme Corporation from 1989 through 2000, holding various management positions including, most recently, President of the Genzyme Tissue Repair Division and, from 1997 to 1999, Senior Vice President of Genzyme. During his tenure at Genzyme, Mr. Herndon identified and organized major programs to streamline and improve operations, implement cost reductions and flexibly and efficiently expand production capacity. Mr. Herndon received a bachelor's degree in biology from Barton College and attended Harvard Business School for its Program in Management and Development.

NEAL GORDON, PH.D. has served as Vice President of Operations since May 1999. Prior to this position he served as our Vice President Process Development from July 1998. Previously, he was Senior Director of Chromatography R&D at PerSeptive Biosystems, a division of PE Corp., formerly Perkin-Elmer Corporation. Over his ten-year career at PerSeptive, Dr. Gordon was involved in the development and application of innovative technologies for the purification and analysis of biopolymers, most notably the development of the BioCAD Chromatography Workstation. Dr. Gordon received his Ph.D. in biochemical engineering from the Massachusetts Institute of Technology and a bachelors degree in Chemical Engineering from McGill University.

DONALD PANOZ has been a director since 1995 and is the Honorary Chairman of the board of directors. In 1969, Mr. Panoz founded Elan Corporation, Plc., a pharmaceutical research and development company. Mr. Panoz was Chairman and Chief Executive Officer of Elan Corporation from 1969 until his retirement in 1996. Mr. Panoz is currently a Lecturer of Pharmacy at the University of Georgia and he is Chairman of the board of directors of Sicor Inc. In January 1995, Mr. Panoz was named Honorary Irish Consul General to Bermuda. Mr. Panoz attended Pittsburgh University and Duquesne University in Pennsylvania.

NOUBAR AFEYAN, PH.D. has been a director since 1998. Dr. Afeyan is Chairman and CEO of NewcoGen Group, Managing Partner of AGTC Funds, and is a partner at OneLiberty Ventures. Dr. Afeyan was Senior Vice President and Chief Business Officer of Applera Corp. (formerly PE Corp.) until August 1999. Prior to its acquisition by PE Corp., Dr. Afeyan was the Chairman and Chief Executive Officer of PerSeptive Biosystems, a company that he founded in 1987 to develop, manufacture and market instruments and chemical reagents used to purify, analyze and synthesize biomolecules. Dr. Afeyan served as Chairman of the Board of ChemGenics Pharmaceuticals, Inc. during 1996 and 1997. He is also a member of the board of directors of EXACT Science Corp. and several private companies. Dr. Afeyan received his undergraduate degree in Chemical Engineering from McGill University and his Ph.D. in Biochemical Engineering from the Massachusetts Institute of Technology.

TOM DECHAENE has been a director since 1999. Mr. Dechaene is currently the Chief Financial Officer of SurfCast, Inc. He was with Deutsche Bank from 1991 through 1999, most recently as a director in the Principal Investments Group within the Equity Capital Markets division. Mr. Dechaene is a director of Color Kinetics Inc., and Ikonisys, Inc. Mr. Dechaene holds a law degree from Ghent University, Belgium, a degree in Applied Economics from the University of Antwerp and an MBA from INSEAD, France.

SANFORD M. LITVACK has been a director since March 2001. From 1994 until 1999, Mr. Litvack held the position of senior executive vice president and chief of corporate operations of The Walt Disney Company. Mr. Litvak also served on the board of directors of The Walt Disney Company, most recently as vice chairman of the board. Prior to joining Disney, Mr. Litvak was a member of the executive committee and chairman of the litigation department of the law firm of Dewey Ballantine. Mr. Litvack is currently a member of the board of directors of Pacificare Health Systems, Inc. and Compaq Computer Corporation. Mr. Litvack received a bachelor's degree from the University of Connecticut and a law degree from Georgetown Law Center.

MARTIN TAYLOR has been a director since June 1999. From 1993 until 1998, Mr. Taylor held the position of Chief Executive Officer of Barclays Bank PLC. Mr. Taylor was a member of the Council for Science and Technology from 1995 to 2000 and, since November 1999, has been chairman of the W.H. Smith Group PLC. In October 1999, he became an advisor to Goldman Sachs International. He is also a member of the board of directors of Syngenta A.G. and RTL. Mr. Taylor was educated at Balliol College, Oxford University.

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We lease approximately 30,225 square feet of laboratory, office and manufacturing space in Woburn, Massachusetts under a lease agreement that terminates in August 2003. We have an option to renew the lease for an additional five-year period with the landlord's consent. During 2000, we entered into a short-term lease for 4,000 square feet of office space in an adjacent building which expires in November 2001. We also lease approximately 41,000 square feet of laboratory, office and manufacturing space in Framingham, Massachusetts under a lease agreement that terminates in July 2010. We have an option to renew the lease for two additional five year periods. We maintain our executive offices in New York, New York, in an office building in which we lease approximately 10,000 square feet. Our New York lease terminates with respect to 2000 square feet in July 2004 and with respect to 8,000 square feet in December 2006.

# ITEM 3. LEGAL PROCEEDINGS

In 1995, the European Patent Office issued a European patent, with claims directed to the use of heat shock proteins to produce or enhance immune responses to cancer and infectious diseases, to the Whitehead Institute for Biomedical Research and the Medical Research Council. This patent is exclusively licensed to StressGen Biotechnologies Corporation. We have successfully sought to have this patent revoked in its entirety in an opposition proceeding in the European Patent Office. After an oral hearing at the European Patent Office before the Opposition Division, the Opposition Division revoked the patent in its entirety. The holders of the patent have the right to appeal the decision to revoke the patent in its entirety. Even if the decision to revoke the patent were to be reversed on appeal, we should be free to practice its autologous cancer business in Europe. However, the patent owners or their licensee might try to enforce the revoked patent against our infectious disease business in Europe during any appeal.

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

No matters were submitted to stockholders for a vote during the fourth quarter of 2000.

## PART II

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

Our common stock has been traded on The Nasdaq National Market under the symbol "AGEN" since February 4, 2000; prior to that date there was no public trading market for the stock.

The following table sets forth the range of the high and low closing prices for our common stock for the quarterly periods during which the stock has been publicly traded:

	HIGH	LOW
2000		
First Quarter	\$ 71.500	\$ 18.250
Second Quarter	22.500	10.000
Third Quarter	21.750	12.563
Fourth Quarter	16.500	10.250

As of March 19, 2001, there were approximately 1,423 holders of record and approximately 12,812 beneficial holders of our common stock.

On February 3, 2000, the Securities and Exchange Commission declared our registration statement on Form S-1 (File No. 333-91747) effective in connection with the initial public offering of our common stock.

On February 9, 2000, we sold 4,025,000 shares of our common stock (including the underwriters' overallotment option) at \$18 per share to the underwriters. We received net proceeds in the initial public offering of approximately \$66,229,000 reflecting gross proceeds of \$72,450,000 net of underwriter commissions of approximately \$5,071,500 and other offering costs of approximately \$1,149,500.

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We have used the following net offering proceeds as of December 31, 2000: approximately \$2,400,000 for fixed asset additions, \$300,000 for investments, \$749,000 for debt obligations, \$1,210,000 for acquisition costs and \$13,184,000 for operations.

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

#### ITEM 6. SELECTED FINANCIAL DATA

We have derived the selected consolidated balance sheet data set forth below as of December 31, 1999 and 2000, and the consolidated statement of operations data for each of the years in the three-year period ended December 31, 2000, from our audited consolidated financial statements included elsewhere in this filing. We have derived the selected consolidated balance sheet data as of December 31, 1996, 1997, and 1998, and selected consolidated statement of operations data from our audited consolidated financial statements, which are not included in this filing. These consolidated financial statements have been audited by KPMG LLP, independent certified public accountants.

You should read the selected consolidated financial data in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financials statements and the notes to those consolidated financial statements included elsewhere in this filing.

Prior to Antigenics converting to a corporation in February 2000, as a limited liability company, no federal, state or local income taxes were levied on Antigenics. Each member of the limited liability company was individually responsible for reporting his share of our net income or loss on their personal tax returns. As a result, Antigenics will not be able to offset future taxable income, if any, against losses incurred prior to the closing of the conversion to a corporation.

Given our history of incurring operating losses, management believes that it is more likely than not that any deferred tax assets, net of deferred tax liabilities, will not be realized. Therefore, there is no income tax benefit in the financial statements for periods ended after February 2000 because of a loss before income taxes and the need to recognize a valuation allowance on net deferred tax assets.

Increases in cash and cash equivalents, total current assets, total assets and stockholders' equity in the periods presented below include the effects of the receipt of net proceeds from our equity offerings that totaled approximately \$7.6 million, \$18.0 million, \$41.1 million and \$66.8 million in 1997, 1998, 1999 and 2000, respectively.

	1996	1997	1998	1999	2000
		(in thousar	nds, except per	share data)	
STATEMENT OF OPERATIONS DATA:					
Revenue	\$	\$	\$	\$	\$ 443
Operating expenses:					
Cost of goods sold					(363)
Research and development	(2,077)	(2,725)	(5,947)	(11,377)	(17,575)
General and administrative	(1,800)	(1,589)	(3,693)	(7,480)	(9,190)
Acquired in-process research and					
development					(25,800)(1)
Loss from operations	(3,877)	(4,314)	(9,640)	(18,857)	(52,485)
Interest income, net	281	481	736	723	5,756
Non-operating income	250			10	
Net loss(2)	\$ (3,346)	\$ (3,833)	\$ (8,904)	\$(18,124)	\$ (46,729)
		=======	=======	=======	=======
Net loss per share, basic and					
diluted	\$ (0.23)	\$ (0.25)	\$ (0.54)	\$ (1.00)	\$ (1.90)
	======			=======	======
Weighted average number of					
shares outstanding, basic and					
diluted	14,602	15,401	16,459	18,144	24,659
	=======	======	======	======	=======

	1996	1997	1998	1999	2000
			(in thousands)		
BALANCE SHEET DATA:					
Cash, cash equivalents and					
marketable securities	\$ 9,588	\$13,086	\$22,168	\$46,418	\$99,139
Total current assets	9,639	13,246	22,447	47,672	101,593
Total assets	10,041	14,090	26,636	56,004	127,966
Total current liabilities	883	878	2,285	2,171	8,611
Long-term liabilities, less					
current portion			709	2,155	2,651
Stockholders' equity	9,158	13,212	23,641	51,678	116,703

- (1) We recorded a non-recurring charge to operations for the write-off of in-process research and development acquired in our merger with Aquila Biopharmaceutical Inc. in November 2000.
- (2) Prior to our conversion from a limited liability company to a corporation in February 2000, in accordance with federal, state and local income tax regulations which provide that no income taxes are levied on United States limited liability companies, each member of the limited liability company was individually responsible for reporting his share of the company's net income or loss. Accordingly, we have not provided for income taxes in our financial statements for periods before February 2000. Given our history of incurring operating losses, no income tax benefit is recognized in its financial statements for periods after February 2000 because of a loss before income taxes and the need to recognize a valuation allowance on net deferred tax assets.

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

# OVERVIEW

We are currently developing treatments for cancers, serious infectious diseases, and autoimmune and degenerative disorders using our proprietary technologies that program the immune system and improve the quality of life. Since our inception in March 1994, our activities have primarily been associated with the development of our heat shock protein technology and our lead therapeutic vaccine, Oncophage. Our business activities have included, product research and development, intellectual property prosecution, establishing manufacturing capabilities, manufacturing therapeutic vaccines for clinical trials, and regulatory and clinical affairs.

During 2000 we completed our merger with Aquila Biopharmaceuticals, Inc. The stock acquisition, accounted for using the purchase method of accounting, resulted in the issuance of approximately 2.5 million shares of our common stock based on an exchange ratio of 0.2898 shares of our stock for each outstanding share of Aquila stock.

We have incurred significant losses since our inception and have first generated revenues of \$443,000 for the year ended December 31, 2000. As of December 31, 2000, we had an accumulated deficit of approximately \$84,346,000. We expect to continue to incur net losses over the next several years as we complete our Oncophage clinical trials, apply for regulatory approvals, continue development of our technology and expand our operations. We have been dependent on equity and debt financings to fund our business activities. Our financial results may vary depending on many factors, including:

- the progress of Oncophage in the regulatory process;
- the acceleration of other therapeutic vaccine candidates into preclinical and clinical trials;
- our investment in manufacturing process development and in manufacturing capacity for Oncophage and other product candidates;
- development of a sales and marketing staff and initial sales activities if Oncophage or other product candidates are

- the progress of our other research and development efforts.

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25 HISTORICAL RESULTS OF OPERATIONS

YEAR ENDED DECEMBER 31, 2000 COMPARED TO THE YEAR ENDED DECEMBER 31, 1999

Revenue. Total revenues were \$443,000 for the year ended December 31, 2000. We had no revenues for the year ended December 31, 1999. The revenues in 2000 resulted from sales of product for the period from the date of the merger with Aquila (November 16, 2000) to December 31, 2000.

Cost of Sales. Cost of sales was \$363,000 for the year ended December 31, 2000. We had no cost of sales for the year ended December 31, 1999. For the year ended December 31, 2000, cost of sales was 82% of product sales.

Research and Development. Research and development expenses increased 54% to \$17,575,000 for the year ended December 31, 2000 from \$11,377,000 for the year ended 1999. The increase was primarily due to the increase in staff to support the company's expanded research and development activities increasing costs by \$3,717,000. Costs of operating the manufacturing and research facility were \$1,017,000 higher in 2000 than for the year ended December 31, 1999, as were costs associated with our clinical trials, which increased \$621,000 over 1999. The Aquila acquisition increased research costs by \$586,000 for the year ended December 31, 2000. Other increases in our ongoing development activities were \$974,000 higher than in 1999. These increases were partially offset by the decrease in the non-cash charge for options granted and earned by outside advisors, directors and employees from \$1,814,000 for the year ended December 31, 1999 to \$1,097,000 for the year ended December 31, 2000. Research and development expenses consisted primarily of compensation for employees and outside advisors conducting research and development work, funding paid to the University of Connecticut, where we sponsor research, costs associated with the operation of our manufacturing and laboratory facility and funding paid to support Oncophage clinical trials.

General and Administrative. General and administrative expenses increased 23% to \$9,190,000 for the year ended December 31, 2000 from \$7,480,000 for the year ended December 31, 1999. The increase was primarily due to the growth in the number of employees to support our expanded business operations which increased costs by \$771,000, legal expenses related to general corporate and patent activities which were \$662,000 higher for the year ended December 31, 2000 as compared to the same period in 1999 and increased costs related to operating as a public company which were \$436,000 in 2000. The Aquila acquisition increased general and administrative costs by \$463,000 for the year ended December 31, 2000. These increases were partially offset by the decrease in the non-cash charge for options granted and earned by outside advisors, directors and employees to \$1,368,000 for the year ended December 31, 2000 from \$3,213,000 for the year ended December 31, 1999. General and administrative expenses consisted primarily of personnel compensation, office expenses and professional fees.

Acquired in-process Research and Development. Acquired in-process research and development of \$25,800,000 was a non-recurring, non-cash charge related to our merger with Aquila. A component of the total purchase price of the merger (\$44,819,000) was allocated to incomplete technology due to the early stage of the acquired technologies under development but not yet technologically feasible or commercialized and expensed at the acquisition date. The acquired in-process research and development and related accounting is further described in note 3 to our consolidated financial statements included in this report.

Interest Income. Interest income increased 510% to \$6,181,000 for the year ended December 31, 2000 from \$1,014,000 for the year ended December 1999. This increase was principally attributable to a higher average cash and cash equivalents balance during the year ended December 31, 2000 as compared to the year ended December 31, 1999 as a result of the net proceeds of \$38,922,000 from a private equity financing completed in November 1999 and \$66,229,000 from our initial public offering completed in February 2000.

Interest Expense. Interest expense increased 46% to \$425,000 for the year ended December 31, 2000 from \$291,000 for the year ended December 31, 1999 due to the increased borrowings under a credit facility to partially fund the construction

of our manufacturing and laboratory facilities.

YEAR ENDED DECEMBER 31, 1999 COMPARED TO THE YEAR ENDED DECEMBER 31, 1998

Revenue. We generated no revenue during the year ended December 31, 1999 or during the year ended December 31, 1998.

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Research and Development. Research and development expense increased 91% to \$11,377,000 for the year ended December 31, 1999 from \$5,947,000 for the year ended December 31, 1998. This increase was partially attributable to the increase in the non-cash charge for options granted and earned by outside advisors, directors and employees to \$1,814,000 for the year ended December 31, 1999 from \$314,000 for the year ended December 31, 1998. The remainder of the increase was primarily due to the number of later stage Oncophage clinical trials in process that increased costs by \$1,055,000, an increase in staff to support our expanded business activities that increased costs by \$1,342,000, increased depreciation expense of \$619,000 related to our new 30,225 square foot manufacturing and laboratory facility and related equipment, and other ongoing development activities that increased costs by \$914,000.

General and Administrative. General and administrative expenses increased 103% to \$7,480,000 for the year ended December 31, 1999 from \$3,692,000 for the year ended December 31, 1998. This increase was partially due to the increase in the non-cash charge for options granted and earned by outside advisors, directors and employees to \$3,213,000 for the year ended December 31, 1999 from \$795,000 for the year ended December 31, 1998. The remainder of the increase was primarily due to the growth in the number of employees to support our expanded business operations that increased costs by \$595,000.

Interest Income. Interest income increased 37.8% to \$1,014,000 for the year ended December 31, 1999 from \$736,000 for the year ended December 31, 1998. This increase was principally attributable to a higher average cash and cash equivalents balance during the year ended December 31, 1999 as compared to the year ended December 31, 1998 due to a \$28,000,000 private equity financing completed in January 1999 and a \$39,200,000 private equity financing completed in November 1999.

Interest expense. Interest expense was \$291,000 during the year ended December 31, 1999 due to borrowings under a credit facility to fund the construction of our manufacturing and laboratory facility. We incurred no interest expense during the year ended December 31, 1998.

# LIQUIDITY AND CAPITAL RESOURCES

We have incurred annual operating losses since inception, and at December 31, 2000, we have incurred an accumulated deficit of \$84,346,000, inclusive of accumulated non-cash charges of \$12,517,000 related to grants of stock options, warrants and common stock grants and \$25,800,000 of acquired in-process research and development. Since our inception, we have financed our operations primarily through the sale of equity, interest income earned on cash and cash equivalent balances and debt provided through a credit line secured by some of our manufacturing and laboratory assets. Most recently, we completed an initial public offering that raised net proceeds of \$66,229,000. From our inception through December 31, 2000, we raised aggregate net proceeds of \$146,075,000 through the sale of equity and the exercise of stock options and warrants, and borrowed \$3,481,000 under our \$5,000,000 credit facility. We expect that we will fund our capital expenditures and growing operations over the next two years with current working capital. We may, however, raise money in the capital markets. Our future capital requirements include, but are not limited to, supporting our Oncophage clinical trial efforts and continuing our other research and development programs. Satisfying our long-term liquidity needs will require the successful commercialization of Oncophage or other products and may require additional capital.

Our cash, cash equivalents and marketable securities at December 31, 2000 were \$99,139,000, an increase of \$52,722,000 from December 31, 1999. During the year ended December 31, 2000, we used cash primarily to finance operations, including our Oncophage clinical trials.

Net cash used in operating activities for the year ended December 31, 1999 and 2000 was \$13,457,000 and \$15,134,000, respectively. The increase resulted from

the increase in our staff to support operations, our increased activity of Oncophage clinical trials and general expansion of operations.

Net cash used in investing activities for the year ended December 31, 1999 and 2000 was \$4,926,000 and \$1,625,000, respectively. The investments were primarily for the purchase of equipment, furniture and fixtures, and in 1999 the construction of our manufacturing and laboratory facility, which was primarily completed during the second quarter of 1999. During 1999, we partially financed our new manufacturing and laboratory facility in Woburn, Massachusetts through the \$5,000,000 credit facility discussed below and available cash balances. During the second quarter of 2000, for investment and strategic purposes, we invested \$300,000 to become a limited partner in a limited partnership which

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will invest principally in companies that apply genomic technologies and information in their offerings of products and services or that are engaged in research and development and efforts involving genomic technologies with a view to developing such products and services. Our total commitment to this limited partnership is \$3,000,000 with contributions made as authorized by the general partner. During January 2001, we contributed an additional \$225,000 to this limited partnership. These uses of cash are partially offset by the cash acquired in the Aquila merger of \$2,527,000, net of acquisition costs of \$1,210,000.

Net cash provided by financing activities was \$42,633,000 and \$66,484,000 for the year ended December 31, 1999 and 2000, respectively. Since inception, our primary source of financing has been from equity investments. During the year ended December 31, 1999 and 2000, sales of equity and, in 2000, exercises of stock options and warrants, totaled approximately \$41,134,000 and \$67,390,000. At December 31, 2000, we had outstanding \$4,774,000 under our credit facilities, which was used to finance the construction of the company's manufacturing and laboratory facilities and to purchase related equipment. Loans that were drawn down on the credit facilities are secured by specific assets, including leasehold improvements, which they finance.

# OTHER

In June 1998, the Financial Accounting Standards Board (FASB) issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities." This statement establishes accounting and reporting standards for derivative instruments, including certain derivative instruments embedded in other contracts, and for hedging activities. SFAS No. 133, as amended, will be effective for the company's fiscal year beginning January 1, 2001. The adoption of SFAS No. 133 is not expected to have a material effect on our financial position or results of operations.

In March 2000, the FASB issued FASB Interpretation No. 44, "Accounting for Certain Transactions Involving Stock Compensation" (FIN 44). FIN 44 provides guidance on the accounting for stock-based compensation grants to employees and directors. Generally, the Interpretation was applied prospectively beginning July 1, 2000. The adoption of FIN 44 did not have a material effect on our consolidated financial position or results of operations.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In the normal course of business, we are exposed to fluctuations in interest rates as we seek debt financing to make capital expenditures and invest in cash equivalents and marketable debt securities. In addition, our investment in a marketable equity security of a public company is subject to changes in the market price of this stock. Our cash equivalents and other marketable investments are carried at fair value on our consolidated balance sheets. We do not employ specific strategies, such as the use of derivative instruments or hedging to manage our interest rate or other exposures. Further, we do not expect our market risk exposures to change in the near term.

The information below summarizes our market risks associated with debt obligations as of December 31, 2000. Fair values included herein have been estimated taking into consideration the nature and terms of each instrument and the prevailing economic and market conditions at December 31, 2000. The table presents cash flows by year of maturity and related interest rates based on the terms of the debt.

			11	EAR OF MAIURI.	LI
	ESTIMATED FAIR	CARRYING AMOUNT			
	VALUE	DECEMBER 31, 2000	2001	2002	2003
Long-term debt (1)	\$5,265,000	\$4,978,000	\$2.335.000	\$2,449,000	\$194.000

(1) Fixed interest rates from 13.449% to 15.084%

FACTORS AFFECTING FUTURE OPERATING RESULTS

Our future operating results could differ materially from the results described above due to the risks and uncertainties described in exhibit 99.1 to this Annual Report on Form 10-K.

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ITEM 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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# INDEPENDENT AUDITORS' REPORT

The Board of Directors and Stockholders Antigenics Inc.:

We have audited the accompanying consolidated balance sheets of Antigenics Inc. and subsidiary as of December 31, 1999 and 2000, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2000. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. 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 consolidated financial statements referred to above present fairly, in all material respects, the financial position of Antigenics Inc. and subsidiary as of December 31, 1999 and 2000 and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2000, in conformity with accounting principles generally accepted in the United States of America.

/s/ KPMG LLP

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# ANTIGENICS INC. AND SUBSIDIARY

# CONSOLIDATED BALANCE SHEETS DECEMBER 31, 1999 AND 2000

	1999	2000
ACCEPTO		
ASSETS		
Cash and cash equivalents	\$46,417,942	\$96,142,726
Marketable securities		2,996,750
Accounts receivable	581,461	532,896
Inventories		669,618
Prepaid expenses	103,204	619,324
Deferred public offering costs Other assets	559,417 9,673	631,095
Due from related party	240	376
zac 120m 201acoa parej		
Total current assets	47,671,937	101,592,785
Plant and equipment, net	8,034,598	14,640,281
Goodwill, net of accumulated amortization of \$24,895		2,962,472
Core and developed technology, net of accumulated		
amortization of \$51,667		6,148,333
Assembled workforce, net of accumulated amortization of \$14,167		495,833
Other assets	297,646	2,125,996
Total assets	\$56,004,181 ======	\$127,965,700 =======
LIABILITIES AND STOCKHOLDERS' EQUITY		
DIADIBITIES AND STOCKHOUDERS EQUITE		
Accounts payable	\$424,673	\$2,273,631
Accrued liabilities	933,440	4,002,983
Current portion, long-term debt	812,702	2,334,646
Total current liabilities	2,170,815	8,611,260
Long-term debt	2,155,005	2,642,869
Other long-term liabilities		8,090
Commitments and contingencies		
STOCKHOLDERS' EQUITY:		
Preferred stock, par value \$0.01 per share, 1,000,000		
shares authorized; no shares issued and outstanding		
shares authorized; 20,715,942 and 27,316,295 shares issued		
and outstanding at December 31, 1999 and 2000, respectively	207,159	273,162
Additional paid-in capital	89,747,036	202,253,314
Deferred compensation	(659,081)	(1,277,357)
Accumulated other comprehensive loss		(199,711)
Accumulated deficit	(37,616,753)	(84,345,927)
Total stackholders Leguitu	E1 670 261	116 702 401
Total stockholders' equity	51,678,361	116,703,481
Total liabilities and stockholders!it	¢56 004 101	¢107 005 700
Total liabilities and stockholders' equity	\$56,004,181 =======	\$127,965,700

See accompanying notes to consolidated financial statements.

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# ANTIGENICS INC. AND SUBSIDIARY

# CONSOLIDATED STATEMENTS OF OPERATIONS FOR THE YEARS ENDED DECEMBER 31, 1998, 1999 AND 2000

	1998	1999	2000
Revenue	\$	\$	\$ 442,627
Expenses: Cost of Sales			(363,202)
Research and development: Related party Other	(5,947,427)	(33,000) (11,343,856)	(61,066) (17,514,078)
	(5,947,427)	(11,376,856)	(17,575,144)
General and administrative:  Related party Other	(211,152) (3,481,231)	(248,000) (7,232,032)	(207,457) (8,982,150)
	(3,692,383)	(7,480,032)	(9,189,607)
Acquired in-process research and development			(25,800,000)
Total operating loss Other income: Non-operating income Interest income Interest expense	(9,639,810)  735,778 	(18,856,888) 10,000 1,014,008 (291,397)	(52,485,326)  6,180,798 (424,646)
Net loss	\$ (8,904,032)	\$(18,124,277)	\$(46,729,174) =======
Net loss per common share, basic and diluted	\$ (0.54)	\$ (1.00) ======	\$ (1.90) 
Weighted average number of common shares outstanding, basic and diluted	16,458,985	18,143,966 ======	24,658,802

See accompanying notes to consolidated financial statements.

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# ANTIGENICS INC. AND SUBSIDIARY

# CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY FOR THE YEARS ENDED DECEMBER 31, 1998, 1999 AND 2000

	Common Stock Number of		ADDITIONAL PAID-IN	SUBSCR NOT		DEFERRED	
	Shares	Par Value	CAPITAL	RECEI	VABLE	COMPENSATION	
Balance at December 31, 1997	16,060,025	\$160,600	\$ 24,029,244	ş		\$ (389,631)	
Net loss							
Deferred compensation on stock options			493,701			(493,701)	

Grant and recognition of stock options			838,654		269,787
Exercise of stock options	38,535	385	249,615		
Issuance of common stock in private placement from January 1, 1998 to December 31, 1998, \$11.17 per share	1,797,063	17,971	20,059,014	(2,102,000)	
Balance at December 31, 1998	17,895,623	178,956	45,670,228	(2,102,000)	(613,545)
Net loss					
Payment of subscription notes receivable				2,102,000	
Deferred compensation on stock options			354,009		(354,009)
Grant and recognition of stock options			4,718,582		308,473
Exercise of stock options	1,720	17	83		
Issuance of common stock in private placement in January 1999, \$11.17 per share	9,806	98	109,902		
Issuance of common stock and warrants in private placement on November 30, 1999, \$13.96 per share (net of issuance costs of \$293,000)	2,808,793	28,088	38,894,232		
Balance at December 31, 1999		207,159	89,747,036		(659,081)
Comprehensive loss  Net loss  Unrealized loss on marketable securities			 	 	 
Comprehensive loss					
Deferred compensation on stock options			1,148,487		(1,148,487)
$\ensuremath{Grant}$ and recognition of stock options and warrants .			1,935,606		530,211
Exercise of stock options and warrants	66,637	666	499,288		
Issuance of common stock in initial public offering on February 9, 2000, \$18 per share (net of issuance costs of \$6,220,830)	4,025,000	40,250	66,188,911		
Issuance of common stock in merger on November 16, 2000, \$15.98 per share	2,497,934	24,979	42,632,709		
Shares issued under employee stock purchase program	10,782	108	101,277		
Balance at December 31, 2000		\$273,162	\$202,253,314	\$	\$(1,277,357)

	OTHER COMPREHENSIVE LOSS	ACCUMULATED DEFICIT	TOTAL
Balance at December 31, 1997	\$	\$(10,588,444)	\$ 13,211,769
Net loss		(8,904,032)	(8,904,032)
Deferred compensation on stock options			
Grant and recognition of stock options			1,108,441
Exercise of stock options			250,000
Issuance of common stock in private placement from January 1, 1998 to December 31, 1998, \$11.17 per share			17,974,985
,			' '
Balance at December 31, 1998		(19,492,476)	23,641,163
Net loss		(18,124,277)	(18,124,277)
Payment of subscription notes receivable			2,102,000
Deferred compensation on stock options			
Grant and recognition of stock options			5,027,055
Exercise of stock options			100
Issuance of common stock in private placement in January 1999, \$11.17 per share			110,000
Issuance of common stock and warrants in private			

ACCUMULATED

placement on November 30, 1999, \$13.96 per share (net of issuance costs of \$293,000)			38,922,320
Balance at December 31, 1999		(37,616,753)	51,678,361
Comprehensive loss  Net loss  Unrealized loss on marketable securities	 (199,711)	(46,729,174) 	(46,729,174) (199,711)
Comprehensive loss			\$ (46,928,885)
Deferred compensation on stock options			
Grant and recognition of stock options and warrants .			2,465,817
Exercise of stock options and warrants			499,954
Issuance of common stock in initial public offering on February 9, 2000, \$18 per share (net of issuance costs of \$6,220,830)			66,229,161
Issuance of common stock in merger on November 16, 2000, \$15.98 per share			42,657,688
Shares issued under employee stock purchase program			101,385
Balance at December 31, 2000	\$(199,711) ======	\$(84,345,927)	\$ 116,703,481 ========

See accompanying notes to consolidated financial statements.

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# ANTIGENICS INC. AND SUBSIDIARY

# CONSOLIDATED STATEMENTS OF CASH FLOWS FOR THE YEARS ENDED DECEMBER 31, 1998, 1999 AND 2000

	1998	1999	2000
Cash flows from operating activities:			
Net loss	\$ (8,904,032)	\$ (18,124,277)	\$ (46,729,174)
Depreciation and amortization	360,285	1,005,411	1,675,816
Stock options and warrants	1,108,441	5,027,055	2,465,817
Acquired in-process research and development			25,800,000
Changes in operating assets and			
liabilities, excluding the effects of the acquired company:			
Other assets	(28,885)	(212,059)	152,800
Accounts receivable		(581,461)	(10,157)
Inventories			219,562
Prepaid assets	(91,638)	127,428	(284,921)
Accounts payable	1,791,212	(1,612,141)	1,203,848
Accrued liabilities	(522,735)	885,306	372,177
Due to/from related party, net	(89,263)	27,365	(136)
Net cash used in operating activities		(13,457,373)	
Cash flows from investing activities:			
Purchase of plant and equipment	(3,704,168)	(4,925,941)	(2,641,852)
Investment in AGTC			(300,000)
Net cash acquired in merger			1,316,733
Proceeds from the sale of plant and equipment	27,942		
Net cash used in investing activities	(3,676,226)	(4,925,941)	(1,625,119)
-			

Source: AGENUS INC, 10-K, March 28, 2001

Cash flows from financing activities: Net proceeds from sale of equity  Exercise of stock options and warrants Deferred public offering costs  Employee stock purchase plan Payments of long-term debt  Proceeds from long-term debt	17,974,985 250,000   909,503	41,134,320 100 (559,417)  (512,835) 2,571,039	66,788,578 499,954  101,385 (905,646) 
Net cash provided by financing activities:	19,134,488	42,633,207	66,484,271
Net increase in cash and cash equivalents	9,081,647	24,249,893 22,168,049	49,724,784
Cash and cash equivalents at end of period	\$ 22,168,049	\$ 46,417,942	\$ 96,142,726
Supplemental cash flow information: Cash paid for interest	\$	\$ 291,397	\$ 409,001
Non-cash investing and financing activities: Sale of equity financed by notes receivable	\$ 2,102,000	\$ 	\$ =======
Issuance of equity for Aquila Biopharmaceuticals Inc	\$ =======	\$ 	\$ 42,657,688

See accompanying notes to consolidated financial statements.

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# ANTIGENICS INC. AND SUBSIDIARY

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

#### (1) ORGANIZATION AND BUSINESS

The business was formed on March 31, 1994 through the creation of a Delaware corporation (the Predecessor Company). In July 1995, the founders of the Predecessor Company formed Antigenics Inc., formerly, Antigenics L.L.C. (Antigenics or the Company), a Delaware limited liability company, and subsequently transferred to the Company all of the assets, liabilities, properties and rights of the Delaware corporation in exchange for an initial 81.5% equity interest in the Company. The accounting for this recapitalization was recorded at the Predecessor Company's historical cost.

Since the reorganization in 1995, the Predecessor Company has directly or indirectly owned a majority of our common stock. As of December 31, 2000, the Predecessor Company owns approximately 79% of a limited liability company that in turn owns approximately 41% of our outstanding common stock. Certain of our board members and executive officers own significant interests in these related parties.

We are engaged in the discovery, development and commercialization of products to prevent, treat or control cancers, serious infectious diseases, and autoimmune and degenerative disorders using our proprietary technologies. We are primarily engaged in the development of heat shock protein technology and our lead immunotherapeutic product, Oncophage(R). The related business activities include product research and development activities, regulatory and clinical affairs, establishing manufacturing capabilities, production for clinical trials, and administrative and corporate development activities.

We have incurred annual operating losses since inception and, as a result, at December 31, 2000 have an accumulated deficit of approximately \$84.3 million. Prior to our acquisition of Aquila Biopharmaceutical Inc. ("Aquila") in the fourth quarter of 2000 (see note 3), we were in the development stage. Our operations have been funded principally by stockholders' equity. While we believe that our working capital resources are sufficient to satisfy our

liquidity requirements over at least the next 12 months, satisfying our long-term liquidity needs will require the successful commercialization of Oncophage or other products and may require additional capital.

Our immunotherapeutics require clinical trials and approvals from regulatory agencies as well as acceptance in the marketplace. We are conducting clinical trials in various cancer indications. Although we believe our patents, patent rights and patent applications are valid, the invalidation of our patents or failure of certain of its pending patent applications to issue as patents could have a material adverse effect upon our business. We compete with specialized biotechnology companies, major pharmaceutical and chemical companies and universities and research institutions. Many of these competitors have substantially greater resources than we do.

## (2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

# (a) Basis of Presentation and Principles of Consolidation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America and include the accounts of Antigenics Inc. and our wholly-owned subsidiary. All significant intercompany transactions and accounts have been eliminated. Certain amounts in the prior year consolidated financial statements have been reclassified to conform with the 2000 financial statement presentation.

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# ANTIGENICS INC. AND SUBSIDIARY

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

# (b) Segment Information

We are managed and operated as one business. The entire business is managed by a single management team that reports to the chief executive officer. We do not operate separate lines of business or separate business entities with respect to any of our product candidates. Accordingly, we do not prepare discrete financial information with respect to separate product areas or by location and do not have separately reportable segments as defined by SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information."

# (c) Use of Estimates

The preparation of consolidated 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 disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

# (d) Cash and Cash Equivalents

We consider all highly liquid investments purchased with maturities at acquisition of three months or less to be cash equivalents. Cash equivalents at December 31, 1999 and 2000 consist of investments in money market accounts, commercial paper and short-term investments.

# (e) Investments

We classify investments in marketable securities at the time of purchase. At December 31, 2000, all marketable securities were classified as available-for-sale.

Investments of less than 20% of the voting control of companies or other entities over whose operating and financial policies the Company does not have the power to exercise significant influence, are accounted for by the cost method. Pursuant to this method, we record our investment at cost and recognize dividends received as income. The carrying values of investments are periodically reviewed to determine whether a decline in

value is other than temporary.

#### Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentration of credit risk are primarily cash and cash equivalents, investments and accounts receivable. Cash and cash equivalents are restricted to financial institutions and corporations with high credit standings. Credit risk on accounts receivable is minimized by the strong financial position of the entities with whom we do business.

Inventories are stated at the lower of cost or market. Cost has been determined using standard costs that approximate the first-in, first-out method.

#### Plant and Equipment (h)

Plant and equipment, including software developed for internal use, are carried at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. Amortization of leasehold

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## ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

improvements is computed over the shorter of the lease term or estimated useful life of the asset. Additions and improvements are capitalized, while repairs and maintenance are charged to expense as incurred.

#### (i) Organization Costs

Prior to 1999, organization costs, consisting primarily of legal fees, were amortized using the straight-line method over a five-year period. Effective January 1, 1999, the Company adopted the provisions of the American Institute of Certified Public Accountants' Statement of Position No. 98-5 (SOP 98-5), "Reporting on the Costs of Start-Up Activities". SOP 98-5 requires that the costs of start-up activities and organizational costs be expensed as incurred and that previously capitalized organizational costs be charged to operations. The adoption of SOP 98-5 had an immaterial effect on our 1999 financial statements.

# Long-Lived Assets

Our policy is to record long-lived assets at cost, amortizing these costs over the expected useful lives of the related assets. These assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable. The assets are evaluated for continuing value and proper useful lives by comparison to expected undiscounted future net cash flows. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceed the fair value of the assets, calculated as expected discounted future cash flows. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell.

# Fair Value of Financial Instruments

The fair value of a financial instrument represents the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced sale or liquidation. Significant differences can arise between the fair value and carrying amounts of financial instruments that are recognized at historical cost amounts. The estimated fair values of all of our financial instruments, excluding debt, approximate their carrying amounts in the balance sheets. The fair value of our long-term debt was derived by evaluating the nature and terms of each term note and considering the prevailing economic and market conditions at the balance sheet date. The carrying amount of debt, including current portions, is approximately \$2,968,000 and \$4,978,000 at December 31, 1999 and 2000, respectively; and the fair value is estimated to be approximately \$3,026,000 and \$5,265,000 at December 31, 1999 and 2000, respectively.

#### (1) Intangibles

Intangibles arising from our acquisition of Aquila include core and developed technology and assembled workforce. The purchased technology and assembled workforce are amortized on a straight-line basis over their estimated useful lives of ten and three years, respectively.

#### Goodwill

The excess cost over the identifiable net assets of the acquired business (goodwill) is amortized on a straight-line basis over ten years.

#### Revenue Recognition

Revenue from product sales is recognized at the time of product shipment.

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# ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

#### Stock-Based Compensation

We account for options granted to employees and directors in accordance with Accounting Principles Board (APB) Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations. As such, compensation expense is recorded on fixed stock option grants only if the current fair value of the underlying stock exceeds the exercise price of the option at the date of grant and recognized on a straight-line basis over the vesting period.

We account for stock options granted to non-employees on a fair value basis in accordance with Statement of Financial Accounting Standards (SFAS) No. 123, "Accounting for Stock-Based Compensation" and Emerging Issues Task Force Issue No. 96-18, "Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services". As a result, the non-cash charge to operations for non-employee options with vesting or other performance criteria is affected each reporting period by changes in the fair value of our common stock.

As required, we also provide pro forma net loss and pro forma net loss per common share disclosures for employee and director stock option grants as if the fair-value-based method defined in SFAS No. 123 had been applied (see note 10).

# Research and Development

Research and development expenses include the costs associated with our internal research and development and research and development conducted for us by outside advisors, sponsored university-based research partners, and clinical study partners. All research and development costs discussed above are expensed as incurred. Amounts received under research and development contracts, which are not refundable, are recorded as a reduction to research and development expense in the consolidated statement of operations.

#### Income Taxes (q)

Prior to converting to a corporation, as a Delaware limited liability company, no federal, state and local income taxes were levied on the Company. Each member of the Company was individually responsible for reporting his or her share of our net income or loss on their personal tax returns. Therefore, no provision for income taxes and no deferred tax assets or liabilities are recognized in the accompanying consolidated financial statements for the years ending prior to December 31, 1999.

Beginning February 9, 2000, income taxes are accounted for under the

asset and liability method with deferred tax assets and liabilities recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be reversed or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in operations in the period that includes the enactment date. Deferred tax assets are recorded when they more likely than not are able to be realized.

#### (r) Net Loss Per Share

Basic earnings or loss per share (EPS) is computed using the weighted average number of shares of common stock outstanding during the period being reported on. Diluted EPS reflects the potential dilution that could occur if securities or other contracts to issue shares were exercised or converted into stock at the beginning of the period being reported on and the effect was dilutive. Net loss and weighted average common stock used for computing diluted EPS were the same as those used for computing basic EPS for each of the years ended December 31, 1998, 1999 and 2000 because our stock options and warrants were not included in the calculation since the inclusion of

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# ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

such potential shares (approximately 1,690,000 potential shares of common stock at December 31, 2000) would be antidilutive.

#### (s) Recent Accounting Pronouncements

In June 1998, the Financial Accounting Standards Board issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities", which establishes accounting and reporting standards for derivative instruments, including derivatives instruments embedded in other contracts, and for hedging activities. SFAS No. 133, as amended, is effective for all the Company's fiscal quarters beginning January 1, 2001. Adoption of this statement will not affect us as we currently do not have derivative instruments or engage in hedging activities.

## (3) MERGER AGREEMENT WITH AQUILA BIOPHARMACEUTICALS, INC.

On November 16, 2000, we acquired all of the outstanding common stock, options and warrants of Aquila, a biotechnology company engaged in the discovery, product development and commercialization of products to prevent, treat, or control infectious diseases, autoimmune disorders and cancers. The results of operations of Aquila have been included in the Company's consolidated financial statements from the date of acquisition.

The purchase price of \$44,819,000 is the sum of (i) \$39,936,000 representing approximately 2,498,000 shares of our common stock valued at approximately \$15.98 per share, which represents the average closing price per share of our common stock for the five days before and after the announcement of the merger on August 18, 2000, issued at an exchange ratio of 0.2898 shares of our common stock for each of the 8,619,000 outstanding shares of Aquila stock as of November 16, 2000 (the consummation date of the merger), (ii) \$2,722,000 representing the fair value of Aquila options and warrants to acquire Aquila stock which was vested upon the consummation of the merger and exchanged for options and warrants to purchase 264,000 shares of our common stock and (iii) an estimated \$2,161,000 of our costs of the merger and the cost to sever the employment of Aquila's president. The fair value of the Aquila options and warrants has been calculated using an option pricing model with the following weighted average assumptions: life of the options - 6 years; dividend yield - nil; risk-free interest rate - 5.50%; price volatility - 74.0%.

The acquisition was accounted for using the purchase method of accounting. Accordingly, a portion of the purchase price was allocated to the identifiable net assets acquired based on their estimated fair values. The fair value of the

tangible assets acquired and liabilities assumed were \$14,628,000 and \$5,306,000, respectively. In addition, \$25,800,000 of the purchase price was allocated to in-process research and development projects as described below; such amount was charged to operations at the date of acquisition. The balance of the purchase price was allocated as follows: core and developed technology of \$6,200,000, assembled work force of \$510,000 and goodwill of \$2,987,000. Such intangible assets will be amortized on a straight-line basis over their estimated useful lives of ten years, three years and ten years, respectively.

The value of acquired in-process research and development related to this acquisition represents the fair value of Aquila's products under development. These products are associated with Aquila's proprietary core technologies — the Stimulon family of adjuvants, including QS-21. The Stimulon family of adjuvants allows scientists to design products that can activate specific antibody and T cell responses with the objective of creating new, highly effective vaccines for both therapeutic and prophylactic applications.

At the date of acquisition, none of the products under development by Aquila that were included in our in-process research and development charge had achieved technological feasibility and none were being sold on the market. There still remained substantial risks and significant uncertainty concerning the remaining course of technical development. We need to conduct extensive additional research, preclinical and clinical testing of these products, and obtain regulatory approval, prior to any commercialization. Because of the great uncertainty associated with these issues and the remaining effort associated with development of these products, the Aquila development projects had not established technological feasibility at the acquisition date. Further, these partially completed products had no alternative future uses at the valuation date if the contemplated programs were to fail, as the technology was highly specialized to the targeted products.

The value of the in-process research and development projects was determined using an income approach which involves projecting the expected completion costs for the development projects as well as projected cash flows resulting from their commercialization. A risk adjusted discount rate of 60% has been utilized for each specific product. Cash inflows from projects are estimated to begin primarily in 2003 and 2004, the projected dates of product approvals. Gross margins on products are estimated at levels consistent with industry expectations.

The following table reflects unaudited pro forma combined results of operations of the Company and Aquila as if the merger had occurred as of January 1, 1999:

Revenue	\$ 2,068,000	\$ 4,543,000
Net loss, before non-recurring charge Net loss, before non-recurring charge,	\$27,342,000	\$26,916,000
per common share, basic and diluted	\$ (1.32)	\$ (1.00)

These unaudited pro forma combined results have been prepared for comparative purposes only and include certain adjustments, such as additional amortization expense as a result of the new basis in intangible assets and goodwill. These unaudited pro forma combined results exclude the related acquired in-process research and development charge of \$25,800,000.

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ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

They do not purport to be indicative of the results of operations which actually would have occurred had the merger been consummated at the beginning of 1999, or of future results of operations of the consolidated company.

# (4) INVENTORIES

Inventories consist of the following at December 31, 2000:

Finished goods	\$425,092
Work in process	175,353
Raw materials and supplies	69,173
	\$669,618
	=======

#### (5) INVESTMENTS

On May 18, 2000, we committed \$3,000,000 to become a limited partner in a limited partnership which will invest principally in companies that apply genomic technologies and information in their offerings of products and services or that are engaged in research and development and efforts involving genomic technologies with a view to developing such products and services. Contributions to the limited partnership are made as authorized by the general partner. As of December 31, 2000, we have invested \$300,000 and have included this amount in non-current other assets. We account for this investment under the cost method. The general partner of the limited partnership is AGTC Partners, L.P. and NewcoGen Group Inc. is the general partner of AGTC Partners, L.P. Noubar Afeyan, Ph.D., who is one of our directors, is the president of NewcoGen Group Inc. and is also a principal of the limited partnership. In addition, Garo H. Armen, Ph.D., our chief executive officer and one of our directors, is a director of NewcoGen Group Inc.

Other non-current assets also include 22,500 shares of restricted common stock of Progenics Pharmaceuticals, Inc. carried at its market price at December 31, 2000 of \$388,000.

#### (6) PLANT AND EQUIPMENT, NET

Plant and equipment, net at December 31, 1999 and 2000 consists of the following:

			ESTIMATED
			DEPRECIABLE
	1999	2000	LIVES
Furniture, fixtures and other	\$575 <b>,</b> 989	\$1,466,793	3 to 10 years
Laboratory and manufacturing equipment	2,915,053	7,542,560	3 to 10 years
Leasehold improvements	5,901,213	8,043,508	2 to 12 years
Software		530,164	3 years
	9,392,255	17,583,025	
Less accumulated depreciation and			
amortization	1,357,657	2,942,744	
	20 024 500	014 040 001	
	\$8,034,598	\$14,640,281	
	=======	========	

Plant and equipment retired and removed from the accounts aggregated \$310,807 and \$51,000 for the years ended December 31, 1999 and 2000, respectively.

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ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

#### (7) INCOME TAXES

As of December 31, 2000, we have available net operating loss carryforwards of approximately \$112,065,000 and \$48,556,000, for federal and state income tax purposes, respectively, which are available to offset future federal and state

taxable income, if any, and expire between 2001 and 2020, and 2001 and 2006, respectively. These net operating loss carryforwards include approximately \$93,465,000 and \$29,956,000 for federal and state income tax purposes, respectively, acquired in our merger with Aquila. Our ability to use such net operating losses may be limited by change in control provisions under Internal Revenue Code Section 382 or may expire unused.

The tax effect of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities as of December 31, 2000 are presented below:

Net operating loss carryforwards Start-up expenses Other temporary differences	\$42,023,842 1,734,412 166,137
Sub-total Less: valuation allowance	43,924,391 (43,924,391)
Net deferred tax asset	0

We have assessed the evidence relating to recoverability of the deferred tax asset and have determined that it is more likely than not that the deferred tax asset will not be realized due to the uncertainty of future earnings. Accordingly, a valuation allowance has been established for the full amount of the deferred tax asset. Of the deferred tax asset related to the federal and state net operating loss carryforwards, approximately \$436,000 relates to a tax deduction for non-qualified stock options and approximately \$33,815,000 relates to Aquila net operating loss carryforwards. When the benefits from non-qualified stock options are realized for tax purposes, additional paid-in capital will be increased. In addition, if adjustments are made to the net operating loss carryforward assets acquired from Aquila, such adjustments will result in changes to our acquired intangible assets.

#### (8) ACCRUED LIABILITIES

Accrued liabilities consist of the following at December 31, 1999 and 2000:

	1999	2000
Clinical trials.  Professional fees.  Vacation.  Sponsored research.  Severance.  Other.	170,000 59,551	\$ 360,224 642,660 197,547 659,187 988,966 1,154,399
	\$933,440 ======	\$4,002,983

#### (9) EQUITY

Prior to our conversion to a corporation, we had one class of members' equity. All members voted their equity interests in proportion to their respective unit interest in the Company. Our net profits and losses for each fiscal year were allocated to the capital accounts of the members as described in the limited liability company agreement, generally in proportion to their respective unit ownership interests. No members were liable for any of our obligations or were required to contribute any additional capital related to the deficits incurred.

During 1997, we commenced a private placement offering, which resulted in approximately 1,797,000 common shares being sold for approximately \$20,077,000 during 1998. This offering was completed during early 1999 and resulted in an aggregate of approximately \$27,572,000 being received by us over the three-year period.

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# ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

Subscription notes receivable of \$2,102,000 at December 31, 1998, which represented promissory notes from members in consideration of their equity contributions, were satisfied in full during 1999.

In November 1999, we raised gross proceeds of approximately \$39.2 million from the sale of approximately 2,809,000 common shares, inclusive of warrants, through a private equity placement. In connection with the private placement, we netted approximately \$293,000 of expenses against the gross proceeds. Each stockholder participating in this private placement received a warrant to purchase an additional 10% of the shares acquired in that offering, rounded to the nearest whole number, at a price of approximately \$13.96 per share. The warrants expire on September 30, 2002. Each stockholder participating in this private placement also received registration rights.

On February 9, 2000, we completed the initial public offering (IPO) of 4,025,000 shares of common stock at \$18 per share. We received gross proceeds of \$72,450,000 before deduction of offering expenses of approximately \$6,221,000 (approximately \$559,000 deferred at December 31, 1999). Concurrent with the completion of the IPO, we converted from a limited liability company to a corporation. All members of the limited liability company exchanged their respective member interests for shares of common stock in the corporation based on an exchange ratio of 172.0336 shares of common stock for each members' equity unit. The consolidated financial statements have been retroactively restated to reflect the change from a limited liability company to a corporation and the exchange of members' equity units for common stock. In conjunction with such conversion, our authorized capital stock consists of 100,000,000 shares of common stock, \$0.01 par value per share, and 1,000,000 shares of preferred stock, \$0.01 par value per share. Our board of directors is authorized to issue the preferred stock and to set the voting, conversion and other rights.

During 2000 we issued warrants to purchase approximately 31,000 shares of our common stock at a weighted average exercise price per share of \$13.96 to outside advisors. Compensation expense recognized with respect to such warrants totaled \$355,000.

We also assumed a warrant to purchase shares of our common stock in the Aquila merger that will continue to be governed by the same terms and conditions as were applicable to the Aquila warrant. The assumed warrant is exercisable for approximately 18,000 shares of our common stock with an exercise price per share of \$14.22.

# (10) STOCK- BASED COMPENSATION PLANS

In March 1996, the board of directors approved an equity-based incentive compensation plan (the 1996 Plan). Pursuant to the provisions of the Plan, the board of directors may grant options to directors, employees and outside advisors to purchase our common stock. At the date of grant, the board of directors sets the terms of the options including the exercise price and vesting period. The options granted through December 31, 2000 have vesting periods ranging up to five years. Options generally have a contractual life of ten years. Options outstanding under our 1996 plan were exchanged for stock options under the 1999 equity plan at the closing of the IPO.

In connection with the IPO, the board of directors approved an employee equity incentive plan (the 1999 equity plan). The plan was approved by our stockholders in May 2000. Our 1999 equity plan authorizes the grant of incentive stock options within the meaning of Section 422 of the Internal Revenue Code of 1986, as amended, and nonqualified stock options for the purchase of an aggregate of 4,800,000 shares (subject to adjustment for stock splits and similar capital changes) of common stock to employees and, in the case of non-qualified stock options, to consultants and directors as defined in the equity plan. The board of directors has appointed the compensation committee to administer the 1999 equity plan.

The following summarizes activity for options granted to directors and employees, including those with an exercise price equal to the fair value of the underlying shares of common stock at the date of grant ("at-the-money exercise price"), those with an exercise price greater than the fair value of the

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## ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

of-the-money exercise price"), and those with an exercise price less than the fair value of the underlying share of common stock at the date of grant ("in-the-money exercise price"):

	OPTIONS	OPTIONS EXERCISABLE AT END OF YEAR	WEIGHTED AVERAGE GRANT-DATE FAIR VALUE	WEIGHTED AVERAGE EXERCISE PRICE
Outstanding December 31, 1997	425,954	298,134		
Granted:				
Out-of-the-money exercise price	26,493		\$6.73 8.38	\$11.17
In-the-money exercise price	92,210		8.38	5.82
Outstanding December 31, 1998	544,657	347,851		
		======		
Granted:				
Out-of-the-money exercise price	254,609		6.25	12.07
In-the-money exercise price	50,921		9.67	6.50
Expired	(21,848)			7.10
Outstanding December 31, 1999	828,339	500,101		
		======		
Granted:				
In-the-money exercise price	202,370		13.87	10.74
At-the-money exercise price	561,322		8.91	12.91
Exercised	(17,203)		0.70	1.45
Forfeited	(113,066)			9.07
Aquila options	264,520		10.29	11.92
Outstanding December 31, 2000	1,726,282	840,973		
	=======	======		

During 1998, 1999 and 2000, 92,210, 50,921 and 202,370 options, respectively, were granted to employees and directors at exercise prices, which were less than the fair value of the shares of common stock on the grant date. Compensation expense recognized with respect to such options totaled approximately \$270,000, \$308,000, and \$530,000 for the years ended December 31, 1998, 1999 and 2000, respectively. Deferred compensation at December 31, 2000 of approximately \$1,277,000 will be recognized over the vesting period of the options.

The table above includes the options exchanged for Aquila options at the consummation of the merger. Each exchanged option will continue to be governed by the same terms and conditions of the applicable Aquila stock option plan that were in effect immediately prior to the consummation of the merger, except that each option will be exercisable for our common stock at an exchange ratio of 0.2898 and all outstanding options were immediately vested and exercisable.

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ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

The following summarizes activity for options granted to outside advisors:

	OPTIONS	OPTIONS EXERCISABLE AT END OF YEAR	WEIGHTED AVERAGE GRANT-DATE FAIR VALUE	WEIGHTED AVERAGE EXERCISE PRICE
Outstanding December 31, 1997	353,873	319,466 ======		
Granted Exercised	191,817 (38,535)		\$9.59 	\$3.19 1.45
Outstanding December 31, 1998	507,155	306,735 =====		
Granted Exercised	273,705 (1,720)		\$9.38 	\$12.01 0.06
Outstanding December 31, 1999	779,140	611 <b>,</b> 579		
Granted. Exercised.	115,925 (17,203)		\$12.72 	\$13.44 1.45
Outstanding December 31, 2000	877,862 =====	820,194 =====		

In December 1999, the board of directors accelerated the remaining vesting requirements on 268,716 stock options granted to outside advisors. As a result, the Company recognized a charge to operations in the fourth quarter of 1999 of approximately \$2,093,000.

The outstanding options as of December 31, 1997 exclude 88,941 options granted to outside advisors with an exercise price which is determined based on the fair value of the underlying shares of common stock beginning on the second anniversary of the grant date as the options vest; 41,289 of these unvested options were cancelled during the year ended December 31, 2000. Compensation expense for these options is recognized when the exercise price becomes known and performance has been completed. For the years ended December 31, 1998, and 1999 approximately \$199,000, and \$189,000 was charged to operations for 23,740, and 23,912 of such options respectively, that vested with at an exercise price of approximately \$11.17 per share of common stock in each year.

The charge to operations related to options we granted to outside advisors, including the amounts described in the two preceding paragraphs, totaled approximately, \$839,000, \$4,719,000, and \$1,936,000 for the years ended December 31, 1998, 1999, and 2000, respectively.

At December 31, 2000, unrecognized expense for options granted to outside advisors for which performance (vesting) has not yet been completed but the exercise price of the option is known is approximately \$215,000; such amount is subject to change each reporting period based upon changes in the fair value of our common stock, estimated volatility and the risk free interest rate until the outside advisor completes his or her performance under the option agreement.

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ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

A summary of the our options outstanding and exercisable, as of December 31, 2000, follows:

OPTIONS OUTSTANDING OPTIONS EXERCISABLE

WEIGHTED AVE.

NUMBER REMAINING WEIGHTED AVE. NUMBER WEIGHTED AVE.

RANGE OF EXERCISE PRICES	OUTSTANDING	LIFE (YEARS)	EXERCISE PRICE	EXERCISABLE	EXERCISE PRICE
\$1.45 -\$5.00	851,213	5.8	\$1.77	830,569	\$1.74
\$5.01 - \$10.00	352,089	6.9	7.37	208,509	7.92
\$10.01 - \$15.00	1,280,400	8.7	12.18	524,647	12.05
\$15.01 - \$20.00	159,111	7.3	16.51	136,111	16.22
\$20.01 - \$25.00	8,694	9.2	20.92	8,694	20.92
\$25.01 - \$30.01	289	3.1	25.47	289	25.47
	2,651,796			1,708,819	

Since the 1995 reorganization described in note 1, the Predecessor Company has directly or indirectly owned a majority of our common stock. During 1996, the Predecessor Company approved a stock option plan (the Predecessor Plan). In accordance with generally accepted accounting principles, the Predecessor Plan is accounted for as if it had been adopted by us and treated as a contribution to stockholders' equity. Pursuant to the provisions of the Predecessor Plan, the Predecessor Company may grant options to officers, directors, employees and consultants to purchase common stock of the Predecessor Company. The terms of the options, including exercise price and vesting period, are set at the date of grant. The options have a contractual life of ten years and may not have an exercise price less than the fair market value of a share of common stock of the Predecessor Company at date of grant. A maximum of 300 options may be granted under the Predecessor Plan.

During 1996, the Predecessor Company granted approximately 160 options to directors and employees at a weighted average exercise price of \$9,006 per share of Predecessor Company common stock and a weighted average grant-date fair value of approximately \$4,301 per share. During 1997, the Predecessor company granted approximately 14 options to a director at a weighted average grant-date fair value of \$16,407 per share. All the options are immediately vested and exercisable. All of the options remain outstanding and none have been exercised. No compensation expense was recognized by us during 1996 and 1997 as the exercise price of the options is equal to the fair market value of the common stock of the Predecessor Company at the date of the option grant.

During 1996, the Predecessor Company granted approximately 76 options to consultants at a weighted average exercise price of \$9,006 per share and a weighted average grant-date fair value of approximately \$5,535 per share. All of the consultants' options are immediately vested and exercisable. All of the consultants' options remain outstanding and none have been exercised. During 1996, we recognized a charge to operations related to options granted to consultants by the Predecessor Company of approximately \$421,000.

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#### ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

In connection with the IPO, the board of directors, and subsequently the stockholders, approved an employee stock purchase plan. Under the plan, employees may purchase shares of common stock at a discount from fair value. There are 300,000 shares of common stock reserved for issuance under the purchase plan. The purchase plan is intended to qualify as an employee stock purchase plan within the meaning of Section 423 of the Internal Revenue Code of 1986, as amended. Rights to purchase common stock under the purchase plan are granted at the discretion of the compensation committee, which determines the frequency and duration of individual offerings under the plan and the dates when stock may be purchased. Eligible employees participate voluntarily and may withdraw from any offering at any time before the stock is purchased. Participation terminates automatically upon termination of employment. The purchase price per share of common stock in an offering will not be less than 85% of the lesser of its fair value at the beginning of the offering period or on the applicable exercise date and may be paid through payroll deductions, periodic lump sum payments or a combination of both. The plan terminates on November 15, 2009. As of December 31, 2000, 10,782 shares of common stock have been issued under the plan.

We account for options granted to employees and directors and stock purchased in our employee stock purchase plan under APB Opinion No. 25. Had compensation cost for options granted to employees and directors by Antigenics and the Predecessor Company and stock purchased by employees through our employee stock purchase plan been determined consistent with the fair value method of SFAS No. 123, our

pro forma net loss and pro forma net loss per common share would have been as follows:

	YEAR ENDED DECEMBER 31, 1998	YEAR ENDED DECEMBER 31, 1999	YEAR ENDED DECEMBER 31, 2000
Net loss: As reported Pro forma	\$ (8,904,032)	\$(18,124,277)	\$(46,729,174)
	(8,978,654)	(19,097,345)	(48,554,719)
Net loss per common share: As reported Pro forma	\$(0.54)	\$ (1.00)	\$(1.90)
	(0.55)	(1.05)	(1.97)

The effects of applying SFAS No. 123, for either recognizing or disclosing compensation cost under such pronouncement, may not be representative of the effects on reported net income or loss for future years. The fair value of each option granted is estimated on the date of grant using an option-pricing model with the following weighted average assumptions:

	1998	1999	2000
Estimated volatility	61%	54%	74%
Expected life in years employee and director options	6	6	6
Risk-free interest rate	5.4%	5.0%	5.3%
Dividend yield	0%	0 %	0%

Prior to our IPO, we estimated volatility for purposes of computing compensation expense on outside advisor options and for disclosure purposes using the volatility of public companies that we considered comparable. The expected life used to estimate the fair value of outside advisor options is equal to the contractual life of the option granted.

Pro forma compensation cost included in the table above for the fair value of the employees' purchase rights was estimated using an option pricing model with a 0% dividend yield, an expected life of 1 year, expected volatility of 74% and a risk free interest rate of 5.3%.

#### (11) COMMITMENTS

In November 1994, the Predecessor Company entered into a Patent License Agreement (Mount Sinai Agreement) with the Mount Sinai School of Medicine (Mount Sinai). Through the Mount Sinai Agreement, we obtained the exclusive licenses to the patent rights that resulted from the research and development performed by Dr. Pramod Srivastava, one of our directors. Under the Mount Sinai Agreement, we agreed to pay Mount Sinai a nominal royalty on related product

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# ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

sales (as defined in the Mount Sinai Agreement) through the last expiration date of the patents under the Mount Sinai Agreement (2015). In addition to these royalty payments, Mount Sinai was issued a nominal equity interest.

During 1995, Dr. Srivastava moved his research to Fordham University (Fordham). The Predecessor Company entered into a Patent License Agreement (Fordham Agreement) with Fordham, agreeing to reimburse Fordham for all approved costs incurred in the performance of research. The Predecessor Company has also agreed to pay Fordham a nominal royalty on related product sales, as defined, through

the last expiration date on the patents under the Fordham Agreement. This agreement ended in  $\min-1997$ .

In February 1998, we entered into a research agreement with the University of Connecticut Health Center (UConn) and Dr. Srivastava. The agreement has a term of approximately five years and calls for payments to UConn totaling a minimum of \$5,000,000, payable quarterly at the rate of \$250,000 (contingent on the continuing employment of Dr. Srivastava by UConn). Research and development expense in the accompanying 1998, 1999 and 2000 consolidated statements of operations includes approximately \$1,000,000 in each of the respective years of costs incurred under the UConn agreement. Royalties at varying rates are due to UConn upon commercialization of a product utilizing technology discovered during the research agreement.

In 1996, we entered into an agreement with Sloan-Kettering Institute for Cancer Research (Sloan Kettering) to conduct clinical studies. We are required to pay Sloan Kettering \$10,000 for administration and start up costs and \$4,000 per patient in the study.

On December 2, 1997, we entered into two agreements with The University of Texas M.D. Anderson Cancer Center (M.D. Anderson) to conduct clinical studies. We are required to pay M.D. Anderson a total of approximately \$538,000 for expenses for the clinical study of approximately 90 patients and other related costs payable in four installments. In addition, on March 20, 1998 we entered into another clinical study with M.D. Anderson. Under such 1998 agreement, we are required to pay M.D. Anderson a total of approximately \$118,000 for the study of 30 patients and other related costs payable in four installments.

In 1998, we entered into an agreement with the Johannes Gutenberg Universitat Mainz Klinikum (Universitat) to conduct additional clinical studies. We are required to pay the Universitat approximately \$279,000 for expenses for the clinical study of approximately 30 patients. The first installment was paid upon signing the agreement.

In 1998, we entered into an agreement, as amended, with Sigma-Tau Industrie Farmaceutiche Riunite S.P.A (Sigma-Tau), a minority interest-holder of the Company's common stock, to conduct clinical studies in Italy, Spain, Portugal and Switzerland. Under the agreement, Sigma-Tau is required to pay us for services provided by us in relation to these clinical studies. In return, we have granted Sigma-Tau the exclusive right to negotiate a marketing and development agreement (the Development Agreement) for the exclusive use of our patent rights and their product, and the right of first offer to negotiate licenses for other medical uses of their product, in Italy, Spain, Portugal and Switzerland. The Development Agreement has not been finalized. During 1999, we provided approximately \$581,000 of services associated with this agreement and included that amount in accounts receivable in the accompanying consolidated balance sheet at December 31, 1999. This receivable amount was collected during the year ended December 31, 2000. Amounts received under this agreement are non-refundable even if the research effort is unsuccessful. In addition, we do not incur any future performance commitments in relation to amounts recorded for Sigma-Tau.

On June 21, 1999, we entered into another agreement with M.D. Anderson to conduct clinical studies. We are required to pay M.D. Anderson a total of approximately \$277,000 for the clinical study of approximately 40 patients and other related costs payable in installments over two years.

On February 11, and May 16, 2000 we entered into two additional research agreements with M.D. Anderson to conduct clinical studies. We are required to pay M.D. Anderson a total of approximately \$358,000 for the clinical study of

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ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

approximately 35 patients and a fee of \$274,000 over the next year in three installments. The first installments were paid upon signing the agreement.

For the years ended December 31, 1998, 1999 and 2000, approximately, \$255,000, \$975,000 and \$409,000, respectively, have been expensed in the accompanying

consolidated statements of operations related to the above-mentioned clinical studies.

During August and December 2000, we entered into four research agreements with educational institutions expiring between February 2001 and August 2002. These agreements require initial payments totaling approximately \$509,000 (of which \$388,000 was paid during the year ended December 31, 2000) and payments during 2001 of \$391,000. At December 31, 2000, \$222,000 is included in prepaid expenses in the accompanying consolidated balance sheet related to these agreements.

We have a comprehensive agreement with a corporate partner that allows the partner to use our proprietary Stimulon adjuvant ("QS-21") in numerous vaccines including hepatitis, lyme disease, human immunodeficiency virus (HIV), influenza and malaria. The agreement grants exclusive worldwide rights in some fields of use, and co-exclusive or non-exclusive rights in others. The agreement calls for royalties to be paid by the partner on its future sales of licensed vaccines that include our adjuvant and for us to manufacture QS-21 for the partner.

We have product development agreements and supply agreements with Virbac S.A. and a supply agreement with the Virbac S.A.'s U.S. subsidiary that cover collaboration on the development of products for feline immune deficiency virus ("FIV") and bovine mastitis and the supply of vaccine and adjuvant for feline leukemia ("FeLV"). Sales related to shipment of this product were approximately \$352,000 for the year ended December 31, 2000.

In 1999 Aquila was awarded a grant from the National Institutes of Health (NIH) to support the development of novel vaccines for tuberculosis based on the CD1 immune enhancement technology. During 2000, Aquila was awarded two additional grants from the NIH for the development of novel vaccines for chlamydia and staphaureus also based on the CD1 technology. All three grants expire at various times during 2001. As of the date of the merger, \$502,000 of funding was still available under those grants. We did not recognize revenue for these grants for the period from the date of the merger to December 31, 2000.

We entered into a license agreement with Neuralab Limited, a wholly owned subsidiary of Elan Corporation, p.l.c., that grants exclusive, worldwide rights to use its lead Stimulon adjuvant ("QS-21") with an undisclosed antigen in the field of Alzheimer's Disease. We also signed a supply agreement for the adjuvant.

In February 1999, Aquila received a letter from its predecessor, Cambridge Biotechnology Corporation (CBC), alleging that we must indemnify CBC under a Master Acquisition Agreement among Aquila, CBC and bioMarieux, Inc. for potential losses from the termination of CBC's rights under a license agreement. We have evaluated this claim and in the opinion of management, any potential liability will not have a material adverse effect on our financial position, liquidity, or results of operations.

# (12) RELATED PARTY TRANSACTIONS

On August 24, 2000, we assumed the seven-year lease for our New York City headquarters (see note 13) from an entity wholly owned by our chief executive officer. The lease for the New York City headquarters was signed in November 1999; prior to such time, we rented the headquarter space on a month-to-month basis from the same affiliate. Prior to 1999, we also utilized certain office services of this same entity. No consideration was paid or received as a result of our assumption of the lease. Rent and office services, which are recorded at the affiliate's cost, were allocated to us based on square footage and clerical staff usage, respectively, which management believes is reasonable. Such transactions amounted to approximately \$211,000, \$281,000, and \$268,000 for the years ended December 31, 1998, 1999 and 2000, respectively. As of December 31, 1999 and 2000, the affiliated entity was indebted to us for \$240 and \$376, respectively, for costs paid on the affiliated entity's behalf.

During 1997 and renewed each year thereafter, we obtained standby letters of credit for the benefit of the related party in the amount of approximately \$297,000 and \$78,000 in connection with the related party's lease of the New York City office space expiring in January 2000 and 2001, respectively.

# (13) LEASES

We lease administrative, laboratory and office facilities under various long-term lease arrangements. Rent expense, exclusive of the amounts paid to the affiliate (see note 12), was approximately \$685,000, \$560,000 and \$979,000 for

the years ended December 31, 1998, 1999 and 2000, respectively.

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# ANTIGENICS INC., AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

The future minimum rental payments under our leases of our Woburn and Framingham, Massachusetts manufacturing and laboratory facilities, which expire in 2003 and 2010, respectively, and our New York City headquarters, which expires in 2006, are as follows:

Year ending December 31:

2001	\$	1,705,088
2002		1,648,750
2003		1,507,180
2004		1,227,484
2005		1,227,484
Thereafter		4,240,284
	_	
	\$	11,556,270
	=	

In connection with the Framingham facility we maintain a fully collateralized letter of credit of \$756,000. No amounts have been drawn on the letter of credit as of December 31, 2000.

#### (14) DEBT

We had a \$5 million credit facility from a financial institution pursuant to which the Company drew down amounts to make or refinance certain capital expenditures. As we utilized the credit facility, separate term notes were executed. Each term loan has a term of forty-two months and the interest rate is fixed at the closing of each term loan (13.95% to 15.08%). Each loan is collateralized by the equipment, fixtures, and improvements acquired with the proceeds of the loan.

In connection with the merger of Aquila we assumed the liabilities of that company, including debentures of approximately \$204,000 with an interest rate of 7%. These debentures are callable and accordingly classified as part of our short-term debt. We also assumed a term loan agreement with an outstanding balance of \$2,711,780 at the date of the merger. This loan calls for interest at 13 % with monthly repayments and a 10% balloon payment of \$1,427,429 due at the end of the loan term (2002). Collateral for the loan consists of equipment and leasehold improvements.

The aggregate maturities of the term loans for each of the three years subsequent to December 31, 2000 are as follows: 2001 -- \$2,130,972; 2002 -- \$2,448,801; 2003 -- \$194,068.

# (15) 401(K) PLAN

We sponsor a defined contribution 401(k) savings plan for all eligible employees, as defined. Participants may contribute up to 15% of their compensation, as defined, with a maximum of \$10,500 in 2000. Each participant is fully vested in his or her contributions and related earnings and losses. We matched 100% of the participant's contribution and such matching contribution vests over four years. For the years ended December 31, 1998, 1999, and 2000, we charged approximately \$55,000, \$145,000 and \$204,000 to operations for the 401(k) plan. Effective January 2001, we changed our matching contribution to 75% of the participant's contribution.

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# ANTIGENICS INC. AND SUBSIDIARY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (CONTINUED)

## (16) QUARTERLY FINANCIAL DATA (UNAUDITED)

# (IN THOUSANDS, EXCEPT PER SHARE DATA)

THEF MONTES FINDER	THREE	MONTHS	ENDED
--------------------	-------	--------	-------

1999	MARCH 31,	JUNE 30,	SEPTEMBER 30,	DECEMBER 31,
Net sales	\$ 	\$ 	\$ 	ş
Net loss  Net loss per share, basic and	(3,630)	(3,587)	(4,267)	(6,640)
diluted	\$ (0.20)	\$ (0.20)	\$ (0.24)	\$ (0.36)

#### THREE MONTHS ENDED

2000	MAR	CH 31,	J( 	JNE 30,	SEPTE	MBER 30,	DECH	EMBER 31,
Net sales	\$		\$		\$		\$	443
Gross profit								79
Net loss	(	4,363)		4,846)	(	4,751)	(3	32,769)
Net loss per share, basic and diluted	\$	(0.19)	\$	(0.20)	\$	(0.19)	\$	(1.32)

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

Not applicable.

# PART III

## ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

A portion of the response to this item is contained under the caption "Directors and Executive Officers of the Registrant" in Part I, Item 1A of this Annual Report on Form 10-K.

#### SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Our executive officers and directors are required under Section 16(a) of the Securities Exchange Act of 1934, as amended, to file reports of ownership and changes in ownership of our securities with the Securities and Exchange Commission. Copies of those reports must also be furnished to us.

Based solely on a review of the copies of reports furnished to us and written representations that no other reports were required, we believe that during our 2000 fiscal year, our directors, executive officers and 10% beneficial owners complied with all application Section 16(a) filing requirements except that (1) a February 4, 2000 purchase of 1,000 shares of our common stock by Dr. Hawkins was reported on a Statement of Changes in Beneficial Ownership on Form 4 after the date on which the filing was required for the purchase and (2) a February 4, 2000 purchase of 1,000 shares of our common stock by Dr. Gordon's wife was reported on a Statement of Changes in Beneficial Ownership on Form 4 after the date on which the filing was required for the purchase.

# ITEM 11. EXECUTIVE COMPENSATION

# COMPENSATION OF OUR EXECUTIVE OFFICERS

The following table summarizes the compensation paid to or earned during the fiscal years ended December 31, 1998, 1999 and 2000 by our chief executive officer and all of our other executive officers whose salary and bonus exceeded \$100,000. We refer to these persons as named executive officers.

## SUMMARY COMPENSATION TABLE

				LONG-TERM COMPENSATION	
		ANNUAL COM	PENSATION OTHER	SHARES UNDERLYING	OTHER
NAME AND PRINCIPAL POSITION	YEAR	SALARY(\$)	BONUS (\$)	OPTIONS (#)	COMPENSATION
Garo H. Armen, Ph.D., Chief Executive Officer	2000	\$ 150,000			\$ 350,000(1)
	1999	\$ 150,000		254,682	\$ 50,000(1)
	1998	\$			
Elma Hawkins, Ph.D., Vice Chairman	2000	\$ 211,797	\$40,000	63,374	
	1999	\$ 200,000	\$25,000		
	1998	\$ 200,000	\$20,000		
Neal Gordon, Ph.D., Senior Vice President	2000	\$ 156,011	\$20,000	35,633	
	1999	\$ 136,282	\$20,000	9,634	
	1998	\$ 52,272(2)	\$28,750	18,924	

- (1) Represents the premium we paid for an executive split-dollar life insurance policy. Under this policy, under some circumstances, we would be entitled to a refund of the premiums paid.
- (2) Dr. Gordon commenced employment with us in July 1998.

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## 2000 OPTION GRANTS

The following table contains certain information regarding stock option grants during the twelve months ended December 31, 2000 by us to the named executive officers:

#### OPTION GRANTS IN LAST FISCAL YEAR

	NUMBER OF	PERCENT OF					
	SECURITIES	TOTAL OPTIONS	EXERCISE		POTENTIAL RE	ALIZABLE VALU	E AT ASSUMED
	UNDERLYING	GRANTED TO	OR BASE		ANNUAL	RATES OF STOC	K PRICE
	OPTIONS	EMPLOYEES IN	PRICE	EXPIRATION	APPRECIAT	ION FOR OPTIO	N TERM(1)
NAME	GRANTED(#)	FISCAL YEAR	(\$/SHARE)	DATE	0%(\$)	5%(\$)	10%(\$)
Garo H. Armen, Ph.D.,							
Chief Executive Officer						\$	\$
Elma Hawkins, Ph.D., Vice							
Chairman	1,000(2)	0.14%	\$ 13.50	2/10	\$ 4,500	\$ 15,821	\$ 33,180
	62,374(3)	8.55%	\$ 11.00	4/10	\$	\$431,494	\$1,093,490
Neal Gordon, Ph.D.,							
Senior Vice President	9,633(4)	1.32%	\$ 13.96	1/10	\$ 38,918	\$147,964	\$ 315,263
	1,000(5)	0.14%	\$ 13.50	2/10	\$ 4,500	\$ 15,821	\$ 33,180
	25,000(6)	3.43%	\$ 11.00	4/10	\$	\$172,947	\$ 438,280

(1) The dollar amounts under these columns are the result of calculations at rates set by the SEC and, therefore, are not intended to forecast possible future appreciation, if any, in the price of the underlying common stock. For options granted on or prior to February 4, 2000 (the first trading day of our common stock) the potential realizable values are calculated on the basis of our initial public offering price of \$18.00. For options granted on or after February 4, 2000, the potential realizable values are calculated on the basis of the closing price of the stock on the trading date immediately preceding the date on which the options are granted. For purposes of calculating potential realizable values, we assume that the market price appreciates from this price at the indicated rate for the entire term of each option and that each option is exercised and sold on the last day of its term at the appreciated price.

- (2) This option became exercisable as to 100% of the underlying shares on February 4, 2001.
- (3) This option became exercisable as to 1.67% of the underlying shares on each monthly anniversary of April 18, 2000 until March 28, 2001 and thereafter becomes exercisable as to 1.67% of the underlying shares on April 28, 2001 and as to 20% of the underlying shares on each of April 18, 2002, 2003, 2004 and 2005.
- (4) This option became exercisable as to 20% of the underlying shares on January 31, 2001 and becomes exercisable as to 20% of the underlying shares on each of January 3, 2002, 2003, 2004 and 2005.
- (5) This option became exercisable as to 50% of the underlying shares on February 4, 2001 and becomes exercisable as to 50% of the underlying shares on February 4, 2002.
- (6) This option becomes exercisable as to 20% of the underlying shares on each of April 18, 2001, 2002, 2004 and 2005.

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#### OPTION EXERCISES AND YEAR-END OPTION VALUES

The following table provides information about the number of shares issued upon option exercises by the named executive officers during the year ended December 31, 2000, and the value realized by the named executive officers. The table also provides information about the number and value of options held by the named executive officers at December 31, 2000.

# AGGREGATE OPTION EXERCISES IN LAST FISCAL YEAR AND FISCAL YEAR-END OPTION VALUES

	SHARES ACOUIRED ON	VALUE	UNDERLYING OPTIONS I YEAR-	SECURITIES UNEXERCISED AT FISCAL END(#)	IN-THE-MONE FI YEAR E	UNEXERCISED Y OPTIONS AT SCAL ND(\$)(1)
NAME 	EXERCISE (#)	REALIZED(\$)	EXERCISABLE	UNEXERCISABLE	EXERCISABLE	UNEXERCISABLE
Garo H. Armen, Ph.D., Chief Executive Officer Elma Hawkins, Ph.D., Vice			191,717	114,574	\$ 496,101	\$
Chairman			145,942	55,058	\$1,323,450	\$ 3 <b>,</b> 379
President of Operations			9,495	54,694	\$ 43,231	\$ 88,528

(1) Based on the difference between the option exercise price and the closing price of the underlying shares of common stock on the last trading day of the year 2000 as reported on the Nasdaq National Market (\$11.0625).

#### EMPLOYMENT AND CONSULTING AGREEMENTS

Under an employment agreement dated June 1, 1998, we agreed to employ Elma Hawkins, Ph.D. for one year at an annual base salary of \$200,000, which is subject to performance and merit based increases. The agreement is automatically renewed for successive one-year periods unless either party terminates the agreement. If we terminate Dr. Hawkins without cause, as that term is defined in the agreement, she is entitled to her base salary through the end of the one-year term during which the termination occurs. If we terminate Dr. Hawkins either because we eliminate her position or because there is a change in control of Antigenics, we are obligated to pay her cash or stock equal to one year's base salary.

In March 1995, in exchange for Dr. Pramod Srivastava's consulting services, we agreed to pay him \$1,500 per day for up to three days per month. This obligation expires in March 2005 but will be automatically extended for additional one-year periods unless either we or Dr. Srivastava decides not to extend the agreement.

# COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

Prior to our conversion from a limited liability company in February 2000, a compensation committee consisting of Messrs. Afeyan and Edward Brodsky, a former director, reviewed salaries and incentive compensation for our employees and consultants. The compensation committee of the board of directors currently consists of Messrs. Taylor, Panoz and Litvack. Although none of the compensation committee members are officers or employees of Antigenics, each of Garo Armen, the company's chairman and chief executive officer, and Gamil de Chadarevian, the company's vice chairman and executive vice president international, have previously participated in compensation discussions with the committee.

Mr. Afeyan was a member of Antigenic's compensation committee until September 2000. Dr. Armen is a member of the board of directors of NewcoGen Group Inc. of which Mr. Afeyan is chairman and chief executive officer.

#### DIRECTOR COMPENSATION

We reimburse directors for out-of-pocket and travel expenses incurred while attending board of director and committee meetings. We have generally granted to each non-employee director options to purchase 17,203 shares when that director has joined our board.

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#### ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our stock as of March 15, 2001:

- each person, or group of affiliated persons, who is known by Antigenics to beneficially own more than 5% of the common stock;
- each of its directors;
- each of its named executive officers; and
- all of its directors and current executive officers as a group.

Except as otherwise noted, the persons or entities in this table have sole voting and investing power with respect to all the shares of common stock beneficially owned by them, subject to community property laws, where applicable.

The "Number of Shares Beneficially Owned" column below is based on an assumed 27,448,353 shares of Antigenics stock outstanding as of March 19, 2001. For purposes of the table below, Antigenics deems shares of Antigenics stock subject to options that are currently exercisable or exercisable within 60 days of March 19, 2001, to be outstanding and to be beneficially owned by the person holding the options for the purpose of computing the percentage ownership of the person, but does not treat them as outstanding for the purpose of computing the percentage ownership of any other person.

	NUMBER OF SHARES	PERCENTAGE
BENEFICIAL OWNER(1)	BENEFICIALLY OWNED	OF TOTAL
Antigenics Holdings L.L.C	11,154,274 (2)	40.1%
Garo H. Armen, Ph.D	345,272(3)	1.2%
Pramod K. Srivastava, Ph.D	182,477(4)	*
Gamil G. de Chadarevian	1,649,290(5)	6.0%
Elma Hawkins, Ph.D	154,808(6)	*
Russell H. Herndon, Ph.D		
Neal Gordon, Ph.D.	19,848(7)	*
Donald Panoz	270,612(8)	1.0%
Noubar Afeyan, Ph.D	169,291(9)	*
Tom Dechaene	5,734(4)	*
Martin Taylor	60,370(10)	*
Sanford Litvack	3,000	*
All current executive officers and directors as a group (11	·	
persons)	2.860.702(11)	10.4%

- \* Indicates less than 1%
- (1) The address of each stockholder is Antigenics Inc., 630 Fifth Avenue, New York, New York 10111.

(2) Founder Holdings Inc. owns approximately 79% of the outstanding members equity of Antigenics Holdings. Antigenics Holdings owns 40% of our stock. Drs. Armen and Srivastava are managers of Antigenics Holdings. Dr. Armen is a director of Founder Holdings. The following individuals beneficially own the indicated percentages of Founder Holdings outstanding common

INDIVIDUAL	PERCENTAGE
Garo Armen, Ph.D	43.1%.
Pramod Srivastava, Ph.D	24.2%.
Noubar Afeyan, Ph.D	1.1%.
Lawrence Feinberg	22.1%.

The following individuals own the indicated percentage interests in Antigenics Holdings:

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INDIVIDUAL	PERCENTAGE
Garo Armen, Ph.D	13.6%. 6.2%.

- Includes (a) 91,268 shares of our stock held by Armen Partners L.P., of (3) which Dr. Armen is general partner, and (b) 249,004 shares of our stock issuable upon exercise of options currently exercisable or exercisable within 60 days of March 19, 2001. Dr. Armen disclaims beneficial ownership of the shares held by Armen Partners L.P. except to the extent of his pecuniary interest therein.
- Consists solely of shares of our stock issuable upon exercise of options currently exercisable or exercisable within 60 days of March 19, 2001.
- Includes (a) 1,479,488 shares of our stock held by Biovision, Inc., a (5) corporation of which Mr. de Chadarevian is the sole stockholder and (b) 144,802 shares of our stock issuable upon exercise of options currently exercisable or exercisable within 60 days of March 19, 2001.
- (6) Includes 153,808 shares of our stock issuable upon exercise of options currently exercisable or exercisable within 60 days of March 19, 2001.
- Includes 18,848 shares of our stock issuable upon exercise of options (7) currently exercisable or exercisable within 60 days of March 19, 2001 and 1,000 shares of our stock owned by Mr. Gordon's wife.
- (8) Consists of (a) 17,203 shares of our stock issuable upon exercise of options currently exercisable or exercisable within 60 days of March 19, 2001 and (b) 253,409 shares of our stock held by Fountainhead Holdings Ltd., all of the capital stock of which is held by trusts, the beneficiaries of which are the children and grandchildren of Mr. Panoz.
- Includes 164,291 shares of our stock issuable upon exercise of options (9) currently exercisable or exercisable within 60 days of March 19, 2001.
- (10) Includes 23,212 shares of our stock issuable upon exercise of options and a warrant currently exercisable or exercisable within 60 days of March 19, 2001.
- (11) Includes 953,645 shares of our stock issuable upon exercise of options and a warrant currently exercisable or exercisable within 60 days of March 19,

2001 and excludes the shares held by Antigenics Holdings as described in footnote (2). See footnotes (3), (4), (5), (6), (7), (8), (9) and (10).

#### ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

From our inception until August 2000, we subleased office space at cost from GHA Management Corporation which is wholly owned by Dr. Armen. Dr. Armen is our chairman and chief executive officer, and we used the office space for our corporate headquarters. We incurred an expense of approximately \$211,000, \$281,000 and \$268,000 for the years ended December 31, 1998, 1999 and 2000, respectively. We believe that the terms of the sublease were at least as favorable as terms we could have obtained in an arm's length transaction with an independent third party. GHA Management assigned its lease with the RCPI Trust to us in August 2000 and we will continue to use the office space for our corporate headquarters. As of December 31, 2000, we had outstanding a letter of credit for the benefit of GHA Management Corporation in connection with this lease in the amount of approximately \$78,000. The letter of credit expires in January 2001.

On May 18, 2000, we became a limited partner of the Applied Genomic Technology Capital Fund, L.P., referred to as the Capital Fund, and committed to invest \$3,000,000 in the Capital Fund. As of December 31, 2000, we had invested \$300,000 in the Capital Fund and future contributions to the Capital Fund will be made as authorized by the fund's general partner. During January 2001, we contributed an additional \$225,000 to the Capital Fund. The general partner of the Capital Fund is AGTC Partners, L.P. and NewcoGen Group Inc. is the general partner of AGTC Partners, L.P. Noubar Afeyan, Ph.D., who is one of our directors, is the chairman and chief executive officer of NewcoGen Group Inc. and is also a principal of the Capital Fund. In addition, Dr. Armen, our chief executive officer and one of our directors, is a director of NewcoGen Group Inc.

We have entered into an agreement with Elan Pharmaceuticals, Inc. and one of Elan's wholly owned subsidiaries, Neurolab Limited, pursuant to which we granted to Neurolab a license to use QS-21 in the field of alzheimer's disease. We have also entered into an agreement with these parties to supply Neurolab with all of its required quantities of QS-21. Dr. Armen, our chief executive officer and one of our directors, is a member of the board of Elan Corporation p.l.c., an affiliate of Elan Pharmaceuticals, Inc.

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# PART IV

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

#### (a) 1. CONSOLIDATED FINANCIAL STATEMENTS

The consolidated financial statements are listed under Item 8 of this report.

# 2. CONSOLIDATED FINANCIAL STATEMENT SCHEDULES

The financial statement schedules listed under Item 8 of this report are omitted because they are not applicable or required information and are shown in the financial statements of the footnotes thereto.

# (b) REPORTS ON FORM 8-K

On November 30, 2000, we filed a current report on Form 8-K dated November 16, 2000 to disclose the completion of our acquisition of Aquila Biopharmaceuticals, Inc. We filed an amendment to this current report on Form 8-K on January 29, 2001.

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(c) EXHIBITS

# EXHIBIT INDEX

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
2.1	Agreement and Plan of Merger dated as of August 18, 2000, among Antigenics Inc., St. Marks Acquisition Corp. and Aquila Biopharmaceuticals, Inc. Filed as Exhibit 99.1 to our Report on Form 8-K dated August 18, 2000 (File No. 000-29089) and incorporated herein by reference.
3.1	Certificate of Incorporation of Antigenics Inc. Filed as Exhibit 3.1 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
3.2	By-laws of Antigenics Inc. Filed as Exhibit 3.2 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
4.1	Form of Common Stock Certificate. Filed as Exhibit 4.1 to our registration statement on Form S-1 (File No. $333-91747$ ) and incorporated herein by reference.
4.2	Form of Warrant to purchase Common Stock, together with a list of holders. Filed as Exhibit 4.2 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
4.3	Form of Subscription Agreement, as amended, together with a list of parties thereto. Filed as Exhibit 4.3 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.1*	1999 Equity Incentive Plan. Filed as Exhibit 10.1 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.2*	1999 Employee Stock Purchase Plan. Filed as Exhibit 10.2 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.3	Founding Scientist's Agreement between Antigenics and Pramod K. Srivastava, Ph.D. dated March 28, 1995. Filed as Exhibit 10.3 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.4	Form of Indemnification Agreement between Antigenics and its directors and executive officers. These agreements are materially different only as to the signatories and the dates of execution. Filed as Exhibit 10.4 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.5	Lease Agreement between Antigenics and Cummings Property Management, Inc. dated May 28, 1998, as amended on December 10, 1998. Filed as Exhibit 10.5 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.6	License Agreement between GHA Management Corporation and Antigenics dated November 12, 1999. Filed as Exhibit 10.6 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.7	Master Loan and Security Agreement between Antigenics and Finova Technology Finance, Inc. dated November 19, 1998. Filed as Exhibit 10.7 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.

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EXHIBIT NUMBER

DESCRIPTION OF DOCUMENT

10.8	Patent License Agreement between Antigenics and Mount Sinai School of Medicine dated November 1, 1994, as amended on June 5, 1995. Filed as Exhibit 10.8 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.(1)
10.9	Sponsored Research and Technology License Agreement between Antigenics and Fordham University dated March 28, 1995, as amended on March 22, 1996. Filed as Exhibit 10.9 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.(1)
10.10	Research Agreement between Antigenics and The University of Connecticut Health Center dated February 18, 1998. Filed as Exhibit 10.10 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.(1)
10.11	License Agreement between Antigenics and Duke University dated March 4, 1999.(1) Filed as Exhibit 10.11 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.12	License Agreement between Antigenics and University of Miami dated April 12, 1999. Filed as Exhibit 10.12 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.(1)
10.13	Letter Agreement between Antigenics and Sigma-Tau Industrie Farmaceutiche Riunite SpA dated June 3, 1998. Filed as Exhibit 10.13 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.(1)
10.14	Letter Agreement between Antigenics and Medison Pharma Ltd. dated November 15, 1999. Filed as Exhibit 10.14 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.15	Amendment to Letter Agreement between Antigenics and Sigma-Tau Industrie Farmaceutiche Riunite SpA dated October 20, 1999. Filed as Exhibit 10.15 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.16*	Employment Agreement between Antigenics and Elma Hawkins, Ph.D. dated June 1, 1998. Filed as Exhibit 10.16 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.17*	Antigenics 401(k) Plan. Filed as Exhibit 10.17 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.18*	Antigenics L.L.C. Incentive Equity Plan. Filed as Exhibit 10.18 to our registration statement on Form S-1 (File No. 333-91747) and incorporated herein by reference.
10.19	Subscription Agreement dated May 18, 2000 between Antigenics and Applied Genomic Technology Capital Fund L.P. Filed as Exhibit 10.1 to our quarterly report on Form 10-Q for the quarter ended June 30, 2000 (File No. 000-29089) and incorporated herein by reference.
10.20	Assignment Agreement among RCPI Trust, GHA Management Corporation and Antigenics Inc. dated August 24, 2000. Filed herewith. Filed as Exhibit 10.20 to our Registration Statement on Form S-4 (File No. 333-46168) and incorporated herein by reference.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
21.1	Subsidiaries of the Company. Filed herewith.
23.1	Consent of KPMG LLP, independent accountants to Antigenics. Filed herewith.
24.1	Power of Attorney. Filed herewith.
99.1	Important Factors Regarding Forward-Looking Statements. Filed herewith.

- \* Indicates a management contract or compensatory plan.
- (1) Certain confidential material contained in the document has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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#### SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) the Securities Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the Town of Woburn, Commonwealth of Massachusetts, as of March 28, 2001.

## ANTIGENICS INC.

By: /s/ Garo H. Armen

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Garo H. Armen President, Chief Executive Officer and Chairman of the Board of Directors

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

SIGNATURE	TITLE	DATE
/s/ Garo H. Armen	President, Chief Executive Officer and Chairman of the Board of Directors	March 28, 2001
Garo H. Armen, Ph.D.	(Principal Executive Officer and Principal Financial and Accounting Officer)	
*	Director	March 28, 2001
Pramod Srivastava, Ph.D.		
*	Director	March 28, 2001
Noubar Afeyan, Ph.D.		
*	Vice Chairman of the Board of Directors, Executive Vice President, International	March 28, 2001
Gamil de Chadarevian	Executive vice Flesident, International	
*	Director	March 28, 2001
Tom Dechaene		
*	Director	March 28, 2001
Donald Panoz		
*	Director	March 28, 2001

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Martin Taylor

\* Director March 28, 2001

Sanford Litvack

\* By: /s/ Garo H. Armen

March 28, 2001

Garo H. Armen, Ph.D. Attorney-in-Fact

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- 21.1 Subsidiaries of the Company. Filed herewith.
- 23.1 Consent of KPMG LLP, independent accountants to Antigenics. Filed herewith.
- 24.1 Power of Attorney. Filed herewith.
- 99.1 Important Factors Regarding Forward-Looking Statements. Filed herewith.

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<sup>\*</sup> Indicates a management contract or compensatory plan.

<sup>(1)</sup> Certain confidential material contained in the document has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

# SUBSIDIARIES OF THE COMPANY

Aquila Biopharmaceuticals, Inc. and VacTex, Inc., both wholly owned subsidiaries of Antigenics, are incorporated in Delaware.

EXHIBIT 23.1

#### INDEPENDENT AUDITORS' CONSENT

The Board of Directors Antigenics Inc.:

We consent to incorporation by reference in the registration statements on Form S-8 (File Nos. 333-40440, 333-40442 and 333-50434) and on Form S-3 (File Nos. 333-37820 and 333-56948) of Antigenics Inc. of our report dated February 20, 2001, relating to the consolidated balance sheets of Antigenics Inc. and subsidiary as of December 31, 1999 and 2000, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2000, which report appears in the December 31, 2000 Annual Report on Form 10-K of Antigenics Inc. and to the reference to our firm under the heading "Selected Financial Data" in such Annual Report on Form 10-K.

/s/ KPMG LLP

Short Hills, New Jersey March 27, 2001

## EXHIBIT 24.1

## POWER OF ATTORNEY

The undersigned directors and officers of Antigenics Inc. (the "Company"), hereby severally constitute and appoint Garo H. Armen our true and lawful attorney-in-fact, with full power to him, in any and all capacities, to sign the Company's Annual Report of Form 10-K for the year ended December 31, 2000 and any and all amendments thereto, 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 said attorney-in-fact may do or cause to be done by virtue hereof.

SIGNATURE	TITLE	DATE	
/s/ Pramod Srivastava, Ph.D.	Director	January 30, 2001	
Pramod Srivastava, Ph.D.			
/s/ Noubar Afeyan, Ph.D.	Director	January 30, 2001	
Noubar Afeyan, Ph.D.			
/s/ Gamil de Chadarevian	Vice Chairman of the Board of Directors, Executive Vice	January 30, 2001	
Gamil de Chadarevian	President, International		
/s/ Tom Dechaene	Director	January 30, 2001	
Tom Dechaene			
/s/ Donald Panoz	Director	January 30, 2001	
Donald Panoz			
/s/ Martin Taylor	Director	January 30, 2001	
Martin Taylor			
/s/ Sanford M. Litvak	Director	March 15, 2001	
Sanford M. Litvack			

#### RISK FACTORS

You should carefully consider the following risk factors before you decide to buy our common stock. Any of these risks could have a material adverse impact on our business, financial condition, operating results or cash flows. This could cause the trading price of our common stock to decline, and you may lose part or all of your investment.

WE CANNOT GUARANTEE THAT WE WILL EVER COMMERCIALIZE ANY OF OUR THERAPEUTIC OR PROPHYLACTIC VACCINES AND GENERATE ADDITIONAL REVENUE IN THE FUTURE.

WE MUST RECEIVE SEPARATE REGULATORY APPROVALS FOR EACH OF OUR VACCINES IN EACH INDICATION BEFORE WE CAN SELL THEM COMMERCIALLY IN THE UNITED STATES OR INTERNATIONALLY.

To obtain regulatory approvals, we must, among other requirements, complete clinical trials demonstrating that a particular therapeutic or prophylactic vaccine is safe and effective. We have a number of therapeutic or prophylactic vaccines in clinical trials, any delays or difficulties that we encounter in these clinical trials may have a substantial adverse impact on our operations and cause our stock price to decline significantly. We have limited clinical data and future clinical trials may not show that our vaccines are safe and effective. In addition, we or the United States Food and Drug Administration, commonly known as the FDA, might delay or halt the clinical trials for various reasons, including:

- our vaccines may not appear to be more effective than current therapies;
- our vaccines may have adverse side effects;
- the time required to determine whether our vaccines are effective may be longer than expected;
- patients may die during a clinical trial because their disease is too advanced or because they experience medical problems that may not be related to our vaccines;
- sufficient number of patients may not enroll in the trials; or
- we may not be able to produce sufficient quantities of a vaccine to complete the trials.

We rely on third party clinical investigators to conduct our clinical trials. As a result, we may encounter delays outside of our control. Furthermore, the success of these third parties in performing their responsibilities under license agreements may affect the timing and amount of license fee payments, royalties and revenues from product sales, and we cannot assure that these collaborations will be successful.

We may not be able to establish additional acceptable collaborative arrangements or license agreements should we deem these necessary to develop and commercialize product candidates, nor can we assure that such future arrangements will be successful.

The process of obtaining and maintaining regulatory approvals for new therapeutic products is lengthy, expensive and uncertain. It also can vary substantially, based on the type, complexity and novelty of the product involved. To date, the FDA and foreign regulatory agencies have approved only a limited number of cancer therapeutic vaccines for commercial sale. Furthermore, the FDA and foreign regulatory agencies have relatively little experience with autologous therapies. This lack of experience may lengthen the regulatory review process for Oncophage, increase our development costs and delay or prevent commercialization. In addition, problems encountered with other companies' therapeutic vaccine products may slow the regulatory review of our therapeutic vaccines. The FDA may not consider Oncophage to be an appropriate candidate for fast track designation should we choose to seek it. Accordingly, Oncophage or any of our other future drug candidates could take a significantly longer time to gain regulatory approval than we expect or may never gain approval.

BECAUSE DEVELOPMENT OF OUR THERAPEUTIC OR PREVENTIVE VACCINES FOR INFECTIOUS DISEASES, AUTOIMMUNE DISORDERS, AND DEGENERATIVE DISORDERS WILL INVOLVE A LENGTHY AND COMPLEX PROCESS, WE ARE NOT CERTAIN WE WILL BE ABLE TO DEVELOP ANY MARKETABLE THERAPEUTIC OR PREVENTIVE VACCINES FOR THESE INDICATIONS.

With the exception of our immunotherapeutic agent for the treatment of genital herpes, we have not completed all of the preclinical development of any of our therapeutic or preventive vaccines for infectious diseases, autoimmune disorders or degenerative disorders. We will need to conduct extensive additional research and preclinical and clinical testing of these vaccines prior to commercialization. This development process takes several years and often fails to yield commercial products. Regulatory authorities may not permit human testing of these vaccines and, even if they permit human testing, we may not demonstrate that a vaccine is safe and effective.

EVEN IF SOME OF OUR VACCINES RECEIVE REGULATORY APPROVAL, THOSE VACCINES MAY STILL FACE SUBSEQUENT REGULATORY DIFFICULTIES.

If we receive regulatory approval to sell any of our human therapeutic or prophylactic vaccines, the FDA or a comparable foreign regulatory agency may, nevertheless, limit the categories of patients who can use that therapeutic or prophylactic vaccine. In addition, regulatory agencies subject a marketed product, its manufacturer and the manufacturer's facilities to continual review and periodic inspections. Furthermore, the FDA or foreign regulatory agencies may require expensive post-approval trials. If we discover previously unknown problems with a product or its manufacturing and laboratory facility, a regulatory agency may impose restrictions on that product or on us, including requiring us to withdraw the product from the market. If we fail to comply with applicable regulatory approval requirements, a regulatory agency may:

- send us warning letters;
- impose fines and other civil penalties on us;
- suspend our regulatory approvals;
- refuse to approve pending applications or supplements to approved applications filed by us;
- refuse to permit exports of our products from the United States;
- require us to recall products;
- seize our products;
- impose restrictions on our operations; or
- criminally prosecute us.

WE MAY ENCOUNTER MANUFACTURING PROBLEMS THAT LIMIT OUR ABILITY TO SUCCESSFULLY COMMERCIALIZE OUR THERAPEUTIC AND PROPHYLACTIC VACCINES.

IF WE ARE UNABLE TO PURIFY HEAT SHOCK PROTEINS FROM SOME CANCER TYPES, THE SIZE OF OUR POTENTIAL MARKET WOULD DECREASE.

Our ability to successfully commercialize a therapeutic vaccine for a particular cancer type depends on our ability to purify heat shock proteins from that type of cancer. Based on our clinical trials conducted to date, in renal cell carcinoma, we have been able to manufacture Oncophage from 98% of the tumors delivered to our manufacturing facility; for melanoma, 86%; for colorectal carcinoma, 100%; for gastric cancer, 70%; and for pancreatic cancer, 30%. The relatively low rate for pancreatic cancer is due to the abundance of proteases in pancreatic tissue. Proteases are enzymes that break down proteins. These proteases degrade the heat shock proteins during the purification process. We may encounter this problem or similar problems with other types of cancers as we expand our research. If we cannot overcome these problems, the number of cancer types that our therapeutic vaccines could treat would be limited.

DELAYS IN OBTAINING REGULATORY APPROVAL OF OUR MANUFACTURING FACILITY AND DISRUPTIONS IN OUR MANUFACTURING PROCESS MAY DELAY OR DISRUPT OUR COMMERCIALIZATION EFFORTS.

Before we can begin commercially manufacturing our therapeutic vaccines, we must obtain regulatory approval of our manufacturing facility and process.

Manufacturing of our therapeutic vaccines must comply with the FDA's current Good Manufacturing Practices requirements, commonly known as cGMP, and foreign regulatory requirements. The cGMP requirements govern quality control and documentation policies and procedures. In complying with cGMP and foreign regulatory requirements, we will be obligated to expend time, money and effort in production, recordkeeping and quality control to assure that the product meets applicable specifications and other requirements. If we fail to comply with these requirements, we will be subject to possible regulatory action and may be limited in the jurisdictions in which we are permitted to sell our therapeutic vaccines.

The FDA, the Commonwealth of Massachusetts and foreign regulatory authorities have the authority to continuously inspect our manufacturing facility in Woburn, Massachusetts. Preparing this facility for commercial manufacturing may take longer than planned and the costs of complying with FDA regulations may be higher than those for which we have budgeted. In addition, any material changes we make to the manufacturing process may require approval by the FDA, the Commonwealth of Massachusetts or foreign regulatory authorities. It could take longer than we expect for us to obtain these approvals. Any delays in obtaining these approvals could disrupt our manufacturing process.

We are the only manufacturer of our therapeutic vaccines. For the next several years, we expect that we will conduct all of the manufacturing of our therapeutic vaccines in the facility in Woburn, Massachusetts. If this facility or the equipment in the facility is significantly damaged or destroyed, we will not be able to quickly or inexpensively replace our manufacturing capacity. Due to the nature of our therapeutic vaccines, a third party may not be able to manufacture our therapeutic vaccines.

We have no experience manufacturing Oncophage in the volumes that will be necessary to support large clinical trials or commercial sales. Our present manufacturing process may not meet our initial expectations as to:

- scheduling;
- reproducibility;
- yield;
- purity;
- cost:
- potency;
- quality; and
- other measurements of performance.

We are the only manufacturer of our Feline Leukemia vaccine and the QS-21 family of adjuvants. For the next several years, we expect that we will conduct all of our manufacturing of these products in our facility in Framingham, Massachusetts. If this facility or the equipment in the facility is significantly damaged or destroyed, we will not be able to quickly or inexpensively replace our manufacturing capacity. This manufacturing facility has limited expansion potential and we may need to construct additional manufacturing facilities or contract with another company manufacture of our products. Furthermore, if product demand increases substantially, we will not be able to respond quickly or inexpensively to meet this demand. We cannot guarantee that we will be able to construct additional facilities or out-source our manufacturing at a reasonable cost, if at all.

WE MAY NOT RECEIVE SIGNIFICANT PAYMENTS FROM COLLABORATORS DUE TO UNSUCCESSFUL RESULTS IN EXISTING COLLABORATIONS OR A FAILURE TO ENTER INTO FUTURE COLLABORATIONS.

Part of our strategy is to develop and commercialize some of our products by continuing our existing collaborative arrangements with academic and corporate collaborators and licensees and by entering into new collaborations. Our success depends on the success of these parties in performing research, preclinical and clinical testing. These arrangements may require us to transfer important rights to these corporate collaborators and licensees. These collaborators and licensees could choose not to devote resources to these arrangements or, under certain circumstances, may terminate these arrangements early. In addition, these collaborators and licensees, outside of their arrangements with us, may develop technologies or products that are competitive with those that we are developing. As a result, we cannot guarantee that any of our strategic collaborations will continue, that we will be able to enter into new collaborations or that we will receive revenues from any of these relationships.

WE MAY HAVE CONFLICTS OF INTEREST WITH OUR CORPORATE PARTNERS THAT COULD ADVERSELY AFFECT EXPECTATIONS REGARDING OUR COLLABORATIONS.

We may have conflicts of interest with our corporate partners that could adversely affect our business. For example, existing or future corporate partners may pursue alternative technologies, including those of our competitors. Disputes may arise with respect to the ownership of rights to any technology or products developed with any current or future corporate partner. If our corporate partners pursue alternative technologies or fail to develop or commercialize successfully any product candidate to which they have obtained rights from us, our business will suffer.

IF WE ARE UNABLE TO PROTECT OUR PROPRIETARY TECHNOLOGY, TRADE SECRETS OR KNOW-HOW, WE MAY NOT BE ABLE TO OPERATE OUR BUSINESS PROFITABLY.

IF WE FAIL TO SUSTAIN AND FURTHER BUILD OUR INTELLECTUAL PROPERTY RIGHTS, COMPETITORS WILL BE ABLE TO TAKE ADVANTAGE OF OUR RESEARCH AND DEVELOPMENT EFFORTS TO DEVELOP COMPETING THERAPIES.

Our success depends, in part, on our ability to maintain protection for our products and technologies under the patent laws of the United States and other countries, so that we can stop others from using our inventions. Our success also will depend on our ability to prevent others from using our trade secrets. In addition, we must operate in a way that does not infringe, or violate, the intellectual property rights of others.

We currently have exclusive rights to 30 issued United States patents and foreign counterpart patents relating to its heat shock protein technology. Our rights to these patents are as a result of exclusive worldwide licenses with Fordham University and Mount Sinai School of Medicine of New York University. In addition, we have licensed or optioned rights to 106 pending United States patent applications and foreign counterpart patent applications relating to our heat shock protein technology. We also have exclusive rights to 31 issued and 59 pending U.S. and foreign patents and patent applications, respectively, relating to our Saponin and CD1 technology. The standards which the United States Patent and Trademark Office uses to grant patents are not always applied predictably or uniformly and can change. Consequently, we cannot be certain as to the type and extent of patent claims that will be issued to us in the future. Any patents which are issued may not contain claims which will permit us to stop competitors from using similar technology. The standards which courts use to interpret patents are not always applied predictably or uniformly and can change, particularly as new technologies develop. Consequently, we cannot be certain as to how much protection, if any, will be given to our patents, if we attempt to enforce them and they are challenged in court. If we choose to go to court to stop someone else from using the inventions claimed in our patents, that individual or company has the right to ask the court to rule that our patents are invalid and should not be enforced against us. These lawsuits are expensive and would consume time and other resources, even if we are successful in stopping the violation of our patents. In addition, there is a risk that the court will decide that our patents are not valid and that we do not have the right to stop the other party from using the inventions. There is also the risk that, even if the validity of our patents is upheld, the court will refuse to stop the other party on the ground that such other party's activities are not covered by, that is, do not infringe, our patents.

Furthermore, a third party may claim that we are using inventions covered by such third party's patent and may go to court to stop us from engaging in our normal operations and activities. These lawsuits are expensive and would consume time and other resources. There is a risk that a court would decide that we are violating the third party's patent and

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would order us to stop the activities covered by the patent. In addition, there is a risk that a court will order us to pay the other party damages for having violated the other party's patent.

We rely on certain proprietary trade secrets and know-how. We have taken measures to protect our trade secrets and know-how, including the use of confidentiality agreements with our employees, consultants and certain contractors. It is possible, however, that:

- these persons will breach the agreements;
- we would have inadequate remedies for any breach; or
- our competitors will independently develop or otherwise discover its trade secrets.

ANTIGENICS MAY INCUR SUBSTANTIAL COSTS AS A RESULT OF LITIGATION OR OTHER PROCEEDINGS RELATING TO PATENT AND OTHER INTELLECTUAL PROPERTY RIGHTS.

The cost to us of any litigation or other proceeding relating to intellectual property rights, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to continue our operations.

Should third parties file patent applications, or be issued patents claiming technology also claimed by us in pending applications, we may be required to participate in interference proceedings in the United States Patent and Trademark Office to determine priority of invention. We, or our licensors, may also need to participate in interference proceedings involving our issued patents and pending applications of another entity. An unfavorable outcome in an interference proceeding could require us to cease using the technology or to license rights from prevailing third parties. There is no guarantee that any prevailing party would offer us a license or that we could acquire any license made available to us on commercially acceptable terms.

We cannot guarantee that the practice of our technologies will not conflict with the rights of others. We are aware of a United States patent, issued to a third party, with claims directed to certain heat shock protein based therapeutic vaccines and their use in the field of tissue grafting. We do not believe that our products or activities are infringing any valid claims of this patent. We also is aware of two United States patents, issued to a different third party, with claims directed to certain methods of making heat shock protein products and related apparatuses. These patents do not claim any therapeutic applications. These patents also do not claim any of the methods we presently use to make Oncophage. Moreover, we do not believe that our methods of producing any of our heat shock protein-based therapeutic vaccines would infringe any valid claim of either of these patents. However, we cannot guarantee that this third party, or any other third party, will not sue us for infringing these, or any other, patents. One of the patent applications licensed to us contains claims which are substantially the same as claims in one of this third party's patents. Therefore, there is a possibility that the United States Patent and Trademark Office will declare an interference proceeding between one or both of this third party's patents and our patent application. In an interference proceeding, the party with the earliest effective filing date has certain advantages. We believe that our claims have an earlier effective filing date than the claims of the other patents. However, we cannot guarantee that we would prevail in any interference proceeding. In the past and again recently, this third party has contacted us about licensing patents rights and we have not yet made a decision regarding this matter.

In some foreign jurisdictions, we could become involved in opposition proceedings, either by opposing the validity of another's foreign patent or by

third parties opposing the validity of our foreign patents. In 1995, the European Patent Office issued a European patent, with claims directed to the use of heat shock proteins to produce or enhance immune responses to cancer and infectious diseases, to the Whitehead Institute for Biomedical Research and the Medical Research Council. This patent is exclusively licensed to StressGen Biotechnologies Corporation. The patent holders have made no attempt to enforce this patent against us. Nevertheless, we have successfully sought to have this patent revoked in its entirety in an opposition proceeding in the European Patent Office. After an oral hearing at the European Patent Office before the Opposition Division, the Opposition Division revoked the patent in its entirety. The holders of the patent have the right to appeal the decision to revoke the patent in its entirety. Even if the decision to revoke the patent were to be reversed on appeal, we still should be free to practice its autologous cancer business in Europe.

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However, the patent owners or their licensee might still try to enforce the revoked patent against our infectious disease business in Europe during any appeal. We may not obtain a final, non-appealable decision for several years, during which time the patent remains enforceable. We may incur significant costs by participating in the opposition proceedings and any appeals. Furthermore, if we are sued on this patent in Europe prior to any final decision of revocation, we may incur significant defense costs, even if we ultimately succeed in proving that we do not infringe any valid claims of this patent.

This European patent claims priority to a United States patent application filed in 1988. We do not know whether this application, or any related application, is still pending. We do not believe that any United States patent has issued from this application, and we do not know whether a United States patent will ever issue from this patent application. If a United States patent does issue, we do not know whether the patent will be enforceable, whether any valid claims will cover its activities or products, or whether the patent owner will attempt to assert the patent against us.

In 1999, we received correspondence from both Copernicus Therapeutics, Inc. and its counsel alleging similarity between the companies' respective logos and demanding that we cease using its logo. In July 1999, we sent a response to Copernicus stating that we have prior rights in the logo. In the response to Copernicus, we also stated that since the respective corporate names are vastly different, both companies should be able to continue the use of their respective logos without causing public confusion. At this time, we have not received any further communications from Copernicus or its counsel. Although we do not believe we are infringing any rights owned by Copernicus, Copernicus may proceed with a trademark lawsuit against us.

WE ARE AN EARLY STAGE BIOTECHNOLOGY COMPANY THAT MAY NEVER BE PROFITABLE.

IF WE INCUR OPERATING LOSSES FOR LONGER THAN WE EXPECT, WE MAY BE UNABLE TO CONTINUE OUR OPERATIONS.

We have generated \$443,000 in revenues for the year ended December 31, 2000 and we do not expect to generate significant revenues for several years. We have incurred losses since we were formed. From inception through December 31, 2000, we have generated losses totaling \$84.3 million. We expect to incur increasing and significant losses over the next several years as we complete our Oncophage clinical trials, apply for regulatory approvals, continue development of our technology and expand our operations.

Our profitability will depend on the market acceptance of any of our therapeutic and prophylactic vaccines that receive FDA or foreign regulatory marketing approval. The commercial success of any of our vaccines will depend on whether:

- the vaccine is more effective than alternative treatments;
- side effects of the vaccine are acceptable to doctors and patients;
- we produce the vaccine at a competitive price;
- we obtain sufficient reimbursement for the vaccine; and

- we have sufficient capital to market the vaccine effectively.

Because Oncophage is autologous, or patient specific, it may be more expensive to manufacture than conventional therapeutic products. This increased expense may decrease our profit margins. Furthermore, because our autologous products are novel, some doctors and patients may be reluctant to use them.

IF WE FAIL TO OBTAIN THE CAPITAL NECESSARY TO FUND OUR OPERATIONS, WE WILL BE UNABLE TO ADVANCE OUR DEVELOPMENT PROGRAMS AND COMPLETE OUR CLINICAL TRIALS.

Developing therapeutic and prophylactic vaccines and conducting clinical trials for multiple diseases is expensive. We plan to conduct clinical trials for many different diseases simultaneously, which will increase our costs. We will need to raise additional capital:

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- to fund operations;
- to continue the research and development of our vaccines; and
- to commercialize our vaccines.

Additional financing may not be available on favorable terms or at all. If we are unable to raise additional funds when we need them, we may be required to delay, reduce or eliminate some or all of our development programs and some or all of our clinical trials. We also may be forced to license technologies to others that we would prefer to develop internally.

On December 31, 2000, we had \$99.1 million in cash, cash equivalents, and marketable securities. We believe that we will have sufficient capital to fund our operations for the next two years. We may need to raise capital sooner, however, due to a number of factors, including:

- an acceleration of the number, size or complexity of our clinical trials;
- slower than expected progress in developing our vaccines;
- higher than expected costs to obtain regulatory approvals;
- higher than expected costs to pursue our intellectual property strategy;
- higher than expected costs to further develop our manufacturing capability; and
- higher than expected costs to develop our sales and marketing capability.

BECAUSE OF THE SPECIALIZED NATURE OF OUR BUSINESS, THE TERMINATION OF RELATIONSHIPS WITH OUR SCIENTIFIC ADVISORS OR THE DEPARTURE OF KEY MEMBERS OF MANAGEMENT MAY PREVENT US FROM ACHIEVING OUR OBJECTIVES.

IF PRAMOD K. SRIVASTAVA, PH.D. SEVERS HIS RELATIONSHIP WITH US, WE MAY EXPERIENCE SIGNIFICANT DIFFICULTIES IN OUR FUTURE DEVELOPMENT EFFORTS.

Since our formation, Dr. Srivastava has played a significant role in our research efforts. Dr. Srivastava is our chief scientific officer, a member of our board of directors and acts as chairman of our scientific advisory board. In addition, we have licensed a significant portion of our intellectual property from institutions at which Dr. Srivastava has worked. We sponsor research in Dr. Srivastava's laboratory at the University of Connecticut Health Center in exchange for the right to license discoveries made in that laboratory with our funding. Dr. Srivastava is a member of the faculty of the University of Connecticut School of Medicine. The regulations and policies of the University of Connecticut Health Center govern the relationship between a faculty member and a commercial enterprise. These regulations and policies prohibit Dr. Srivastava from becoming an employee of Antigenics. Furthermore, the University of Connecticut may modify these regulations and policies in the future to further limit Dr. Srivastava's relationship with us. While Dr. Srivastava has a

consulting agreement with us, which includes financial incentives for him to remain associated with us, we cannot guarantee that he will remain associated with us even during the time covered by the consulting agreement. In addition, this agreement does not restrict his ability to compete with us after his association is terminated.

IF WE FAIL TO KEEP KEY MANAGEMENT AND SCIENTIFIC PERSONNEL, WE MAY BE UNABLE TO SUCCESSFULLY DEVELOP OUR THERAPEUTIC OR PROPHYLACTIC VACCINES, CONDUCT CLINICAL TRIALS AND OBTAIN FINANCING.

We are highly dependent on our senior management and scientific staff, particularly Garo H. Armen, Ph.D., our chairman and chief executive officer, and Elma Hawkins, Ph.D. our vice chairman. The competition for qualified personnel in the biotechnology field is intense, and we rely heavily on our ability to attract and retain qualified scientific, technical and managerial personnel. Since our manufacturing process is unique, our manufacturing and quality control personnel are also very important.

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THE COMMERCIAL SUCCESS OF ANY OF OUR THERAPEUTIC OR PREVENTIVE VACCINES WILL DEPEND UPON THE STRENGTH OF OUR SALES AND MARKETING EFFORT AND THE AVAILABILITY OF THIRD PARTY REIMBURSEMENT.

IF WE ARE UNABLE TO ESTABLISH SALES AND MARKETING CAPABILITIES OR ENTER INTO AGREEMENTS WITH PHARMACEUTICAL COMPANIES TO SELL AND MARKET OUR THERAPEUTIC OR PROPHYLACTIC VACCINES, WE MAY EXPERIENCE DIFFICULTY GENERATING REVENUES.

We do not have a sales organization and have no experience in the sales, marketing and distribution of pharmaceutical products. If Oncophage is approved for commercial sale, we plan to market it in the United States with our own sales force. Developing a sales force is expensive and time consuming and could delay any product launch. We cannot be certain that we would be able to develop this capacity. If we are unable to establish our sales and marketing capability, we will need to enter into sales and marketing agreements to market Oncophage in the United States. We plan to enter into these types of arrangements for sales outside the United States. If we are unable to establish successful distribution relationships with pharmaceutical companies, we may fail to realize the full sales potential of our vaccines.

If we fail to obtain adequate levels of reimbursement for our therapeutic or prophylactic vaccines from third party payors, the commercial potential of our therapeutic or prophylactic vaccines will be significantly limited.

Our profitability will depend on the extent to which government administration authorities, private health insurance providers and other organizations provide reimbursement for the cost of our therapeutic or prophylactic vaccines. Many patients will not be capable of paying for our therapeutic or prophylactic vaccines themselves. A primary trend in the United States health care industry is toward cost containment. Large private payors, managed care organizations, group purchasing organizations and similar organizations are exerting increasing influence on decisions regarding the use of particular treatments. These organizations are becoming increasingly economically focused. Furthermore, many third party payors limit reimbursement for newly approved health care products. Cost containment measures may prevent us from becoming profitable.

In addition, healthcare reform is an area of significant government focus. Any reform measures, if adopted, could adversely affect:

- the pricing of therapeutic or prophylactic vaccines in the United States or internationally; and
- the amount of reimbursement available from governmental agencies or other third party payors.

For example, recent proposals regarding Medicare coverage, if they take effect, may put novel cancer therapies like Oncophage, at a competitive disadvantage compared to existing therapies.

PRODUCT LIABILITY AND OTHER CLAIMS AGAINST US MAY REDUCE DEMAND FOR OUR PRODUCTS OR RESULT IN SUBSTANTIAL DAMAGES.

We face an inherent risk of product liability exposure related to testing therapeutic or prophylactic vaccines in human clinical trials and will face even greater risks when we sell additional therapeutic or prophylactic products commercially. An individual may bring a product liability claim against us if one of our therapeutic or prophylactic vaccines causes, or merely appears to have caused, an injury. Regardless of merit or eventual outcome, product liability claims may result in:

- decreased demand for our therapeutic or prophylactic vaccines;
- injury to our reputation;
- withdrawal of clinical trial volunteers;
- costs of related litigation; and
- substantial monetary awards to plaintiffs.

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We manufacture Oncophage from a patient's tumor, and a medical professional must inject the Oncophage into that same patient. A patient may sue us if we, a hospital or a delivery company fails to deliver the removed tumor or that patient's Oncophage. We anticipate that the logistics of shipping will become more complex as the number of patients we treat increases, and we cannot assure that all shipments will be made without incident. In addition, administration of Oncophage at a hospital poses another chance for delivery to the wrong patient. Currently, we do not have insurance that covers loss of or damage to Oncophage and do not know whether insurance will be available to us at a reasonable price or at all.

We have limited product liability coverage for clinical research use of product candidates such as the Stimulon adjuvants and Oncophage, Quilvax and Quilimmune products. We also maintain limited product liability insurance for the commercial sale of our feline leukemia vaccine.

WE MAY INCUR SIGNIFICANT COSTS COMPLYING WITH ENVIRONMENTAL LAWS AND REGULATIONS.

We use hazardous, infectious and radioactive materials that could be dangerous to human health, safety or the environment. As appropriate, we store these materials and various wastes resulting from their use at our facility pending ultimate use and disposal. We are subject to a variety of federal, state and local laws and regulations governing the use, generation, manufacture, storage, handling and disposal of these materials and wastes resulting from their use. We may incur significant costs complying with both existing and future environmental laws and regulations. In particular, we are subject to regulation by the Occupational Safety and Health Administration and the Environmental Protection Agency and to regulation under the Toxic Substances Control Act and the Resource Conservation and Recovery Act. OSHA or the EPA may adopt regulations that may affect our research and development programs. We are unable to predict whether any agency will adopt any regulations which could have a material adverse effect on our operations.

Although we believe our safety procedures for handling and disposing of these materials comply with federal, state and local laws and regulations, we cannot entirely eliminate the risk of accidental injury or contamination from these materials. In the event of an accident, we could be held liable for any resulting damages which could be substantial.

OUR COMPETITORS IN THE BIOTECHNOLOGY AND PHARMACEUTICAL INDUSTRIES MAY HAVE SUPERIOR PRODUCTS, MANUFACTURING CAPABILITY OR MARKETING EXPERTISE.

Our business may fail because we face intense competition from major pharmaceutical companies and specialized biotechnology companies engaged in the development of therapeutic or preventive vaccines and other therapeutic products directed at cancer, infectious diseases, autoimmune disorders, and degenerative disorders. Many of our competitors have greater financial and human resources and more experience. Our competitors may:

develop safer or more effective therapeutic or preventive

vaccines and other therapeutic products;

- implement more effective approaches to sales and marketing; or
- establish superior proprietary positions.

More specifically, if we receive regulatory approvals, some of our therapeutic or preventive vaccines will compete with well-established, FDA approved therapies that have generated substantial sales over a number of years.

We anticipate that we will face increased competition in the future as new companies enter our markets and scientific developments surrounding immunotherapy and other cancer therapies continue to accelerate.

WE MAY NOT BE ABLE TO KEEP UP WITH THE RAPID TECHNOLOGICAL CHANGES IN THE BIOTECHNOLOGY AND PHARMACEUTICAL INDUSTRIES WHICH COULD MAKE OUR VACCINES OBSOLETE.

The field of biotechnology is characterized by significant and rapid technological change. Research and discoveries by others may result in medical insights or breakthroughs which may render our vaccines obsolete even before they generate any revenue.

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WE MAY NOT SUCCESSFULLY INTEGRATE OPERATIONS WITH OUR RECENTLY ACQUIRED BUSINESS, AND THE INTEGRATION OF THE BUSINESSES MAY BE COSTLY.

On November 16, 2000 we acquired Aquila Biopharmaceuticals, Inc. We are currently integrating our operations with those of Aquila. The integration requires significant efforts from each entity, including coordinating research and development efforts. Aquila collaborators, customers, distributors or suppliers may terminate their arrangements with Aquila or demand new arrangements and Aquila personnel may leave the company as a result of the acquisition. Integrating our operations may distract management's attention from the day-to-day business of the combined company. If we are unable to successfully integrate the operations of the two companies or if this integration process costs more than expected, our future results will be negatively impacted.

OUR OFFICERS AND DIRECTORS MAY BE ABLE TO BLOCK PROPOSALS FOR A CHANGE IN CONTROL.

Antigenics Holdings L.L.C. controls approximately 40.8% of our outstanding common stock. Due to this concentration of ownership, Antigenics Holdings may be able to prevail on all matters requiring a stockholder vote, including:

- the election of directors;
- the amendment of Antigenics' organizational documents; or
- the approval of a merger, sale of assets or other major corporate transaction.

Our directors and officers, if they elect to act together, can control Antigenics Holdings. In addition, several of Antigenics' directors and officers directly and indirectly own shares of our common stock.

ANTI-TAKEOVER PROVISIONS IN OUR CHARTER DOCUMENTS AND UNDER DELAWARE LAW MAY MAKE AN ACQUISITION OF US MORE DIFFICULT.

We are incorporated in Delaware. Anti-takeover provisions of Delaware law and our charter documents may make a change in control more difficult, even if the stockholders desire a change in control. Our anti-takeover provisions include provisions in our certificate of incorporation providing that stockholders' meetings may only be called by the president or the majority of the board of directors and a provision in our by-laws providing that our stockholders may not take action by written consent. Additionally, our board of directors has the authority to issue 1,000,000 shares of preferred stock and to determine the terms of those shares of stock without any further action by our stockholders. The rights of holders of our stock are subject to the rights of the holders of any preferred stock that may be issued. The issuance of preferred stock could

make it more difficult for a third party to acquire a majority of our outstanding voting stock. Our charter also provides for the classification of our board of directors into three classes. This "staggered board" generally may prevent stockholders from replacing the entire board in a single proxy contest. In addition, our directors may only be removed from office for cause. Delaware law also prohibits a corporation from engaging in a business combination with any holder of 15% or more of its capital stock until the holder has held the stock for three years unless, among other possibilities, the board of directors approves the transaction. The board may use this provision to prevent changes in our management. Also, under applicable Delaware law, our board of directors may adopt additional anti-takeover measures in the future.

OUR STOCK HAS LOW TRADING VOLUME AND THEREFORE ITS PUBLIC TRADING PRICE MAY BE VOLATILE.

Since our initial public offering on February 4, 2000, the per share price of our common stock has fluctuated between \$10.00 and \$71.50 with an average daily trading volume over the three months ended February 28, 2001 of approximately 90,400 shares. The market has experienced significant price and volume fluctuations that are often unrelated to the operating performance of individual companies. In addition to general market volatility, many factors may have a significant adverse effect on the market price of our stock, including:

- announcements of decisions made by public officials;
- results of our preclinical and clinical trials;

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- announcement of technological innovations or new commercial products by us or our competitors;
- developments concerning proprietary rights, including patent and litigation matters;
- publicity regarding actual or potential results with respect to products under development by us or by our competitors;
- regulatory developments; and
- quarterly fluctuations in our revenues and other financial results.

THE SALE OF A SUBSTANTIAL NUMBER OF SHARES COULD CAUSE THE MARKET PRICE OF OUR STOCK TO DECLINE.

The sale by us or the resale by stockholders of shares of our stock could cause the market price of our stock to decline. As of December 31, 2000, we had 27,316,295 shares of common stock outstanding. All of these shares are eligible for sale on the Nasdaq National Market, although certain of the shares are subject to sale volume and other limitations.

We have filed a registration statement to permit the sale of approximately 4,800,000 shares of common stock under our equity incentive plan and 300,000 shares of common stock under our employee stock purchase plan. As of December 31, 2000, options to purchase 2,651,796 shares of our stock upon exercise of options with a weighted average exercise price per share of \$8.49 were outstanding. Many of these options are subject to vesting that generally occurs over a period of up to five years following the date of grant. As of December 31, 2000, warrants to purchase 296,989 shares of Antigenics stock with a weighted average exercise price per share of \$13.98 were outstanding.