SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(MARK ONE)

/X/ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED DECEMBER 31, 2000

or

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

COMMISSION FILE NUMBER 0-15006

AVANT IMMUNOTHERAPEUTICS, INC.
(F/K/A T CELL SCIENCES, INC.)
(Exact name of registrant as specified in its charter)

DELAWARE	13-3191702
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

119 FOURTH AVENUE, NEEDHAM, MASSACHUSETTS 02494
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (781) 433-0771

Securities registered pursuant to Section 12(b) of the Act: NONE

Securities registered pursuant to Section 12(g) of the Act:
COMMON STOCK, PAR VALUE $.001

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes /X/ No / /

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

The aggregate market value of common stock held by non-affiliates as of March 1, 2001 was $273,936,360 (excludes shares held by directors and executive officers). Exclusion of shares held by any person should not be construed to indicate that such person possesses the power, direct or indirect, to direct or cause the actions of the management or policies of the registrant, or that such person is controlled by or under common control with the registrant. The number of shares of common stock outstanding at March 1, 2001 was: 57,285,488 shares.

Certain information contained in the registrant's proxy statement relating to its annual meeting of stockholders to be held on May 10, 2001 is incorporated by reference in Part III, Items 10, 11, 12 and 13.

SAFE HARBOR STATEMENT UNDER THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995: STATEMENTS CONTAINED IN THIS REPORT, INCLUDING PART II, ITEM 5: MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS, THAT ARE NOT HISTORICAL FACTS MAY BE FORWARD-LOOKING STATEMENTS THAT ARE SUBJECT TO A VARIETY OF RISKS AND UNCERTAINTIES. THERE ARE A NUMBER OF IMPORTANT FACTORS THAT COULD CAUSE THE ACTUAL RESULTS TO DIFFER MATERIALLY FROM THOSE EXPRESSED IN ANY FORWARD-LOOKING STATEMENTS MADE BY THE REGISTRANT. THESE FACTORS INCLUDE, BUT ARE NOT LIMITED TO: (I) THE REGISTRANT'S ABILITY TO SUCCESSFULLY COMPLETE PRODUCT RESEARCH AND DEVELOPMENT, INCLUDING PRE-CLINICAL AND CLINICAL STUDIES, AND COMMERCIALIZATION; (II) THE REGISTRANT'S ABILITY TO OBTAIN SUBSTANTIAL ADDITIONAL FUNDING; (III) THE REGISTRANT'S ABILITY TO OBTAIN REQUIRED GOVERNMENTAL APPROVALS; (IV) THE REGISTRANT'S ABILITY TO ATTRACT MANUFACTURING, SALES, DISTRIBUTION AND MARKETING PARTNERS AND OTHER STRATEGIC ALLIANCES; AND (V) THE REGISTRANT'S ABILITY TO DEVELOP AND COMMERCIALIZE ITS PRODUCTS BEFORE ITS COMPETITORS.

PART I

ITEM 1. BUSINESS

A. GENERAL

As used herein, the terms "we", "us", "our", or "AVANT" refer to AVANT Immunotherapeutics, Inc., a Delaware corporation organized in 1983. We are a biopharmaceutical company that uses novel applications of immunology to prevent and treat diseases caused by both the enemy within (autoimmune diseases, cardiovascular diseases, and inflammation) and the enemy without (infectious diseases and organ transplant rejection). The company's most advanced therapeutic program focuses on compounds with the potential to inhibit inappropriate activation of the complement cascade, a vital part of the body's immune defense system. AVANT is also developing on its own a portfolio of oral vaccines aimed at protecting travelers from diseases endemic in developing areas, as well as a proprietary therapeutic vaccine for the management of cholesterol. Through corporate collaborations, the company is additionally developing a variety of infectious disease vaccines.

On December 1, 2000, we acquired Megan Health, Inc., a Delaware corporation ("Megan"), pursuant to an Agreement and Plan of Merger dated as of November 20, 2000 by and among AVANT, AVANT Acquisition Corp., a Delaware corporation and our wholly-owned subsidiary, and Megan.

On August 21, 1998, we acquired Virus Research Institute, Inc., a Delaware corporation ("VRI"), pursuant to an Agreement and Plan of Merger dated as of May 12, 1998 by and among AVANT, TC Merger Corp., a Delaware corporation and our wholly-owned subsidiary, and VRI.

One of the benefits of focusing on immunology is that this field of science spans a large spectrum of medical endeavor, with implications in widely diverse areas of clinical medicine and public health. Immunology plays a key role in developing drug therapies for inflammatory and autoimmune illnesses. It is central to the creation of new vaccines that prevent or treat disease. Moreover, understanding the immune system is essential to advancing new therapeutic approaches in transplantation biology and many other areas of medicine. Thus, developing an understanding of how various components of the immune system function and interact has allowed AVANT to cultivate a variety of opportunities for product development.

Using our expertise in immunology, AVANT is building business franchises in three major disease areas: cardiac surgery, cholesterol management and travelers' vaccines. Each of our business franchises addresses large market opportunities for which current therapies are inadequate or non-existent. Some of these opportunities we have pursued on our own in a highly focused manner. In other cases, we have leveraged the financial support and development capabilities of corporate and public sector partners to bring our development projects to fruition. The research we have so diligently pursued over the past years has matured into an exciting portfolio of product candidates.

Our products derive from a broad set of complementary technologies with the ability to inhibit the complement system, regulate T and B cell activity, and enable the creation of preventative and therapeutic vaccines. We are using these technologies to develop vaccines and immunotherapeutics that prevent or treat disease caused by infectious organisms, and drugs and treatment vaccines that modify undesirable activity by the body's own proteins or cells. All of our products are in various stages of research and development. Below is a table of our currently active programs:

CURRENT PROGRAMS AND PARTNERSHIPS

TECHNOLOGY	PRODUCT	INDICATION/FIELD	PARTNER	STATUS
Complement Inhibitors	TP10	Organ Transplantation	Novartis Pharma	Phase II
		Pediatric Cardiac Surgery	--	Phase IIb
		Adult Cardiac Surgery	--	Phase II
		Heart Attacks	--	Phase I
	TP20	Stroke	--	Pre-clinical
Immunotherapeutics	CETi-1 Vaccine	Atherosclerosis	--	Phase I
Travelers' Vaccines	Cholera Vaccine	Cholera	--	Phase IIb
	Typhoid Vaccine	Typhoid fever	--	Phase I/II
	Shigella Vaccine	Dysentery	--	Pre-clinical
	ETEC Vaccine	E COLI infection	--	Pre-clinical
	Campylobacter Vaccine	CAMPYLOBACTER infection	--	Pre-clinical
Anti-Viral Vaccines	Rotarix-TM- Vaccine	Rotavirus	GlaxoSmithKline	Phase II
	Adjumer-Registered Trademark--RSV Vaccine	Respiratory Syncytial Virus	Aventis Pasteur	Phase I/II
	Therapore-TM-	Viral Infection	US Army	Pre-clinical
		-HIV	--	Pre-clinical
		-Hepatitis		

B. STRATEGY

AVANT'S strategy is to utilize our expertise to design and develop vaccine and therapeutic products that have significant and growing market potential; to establish governmental and corporate alliances to fund development; and to commercialize our products either through corporate partners or, in appropriate circumstances, by our own direct selling efforts. Implementation of this strategy is exemplified by the following lead programs:

COMPLEMENT INHIBITORS: We are developing a new class of therapeutics that inhibits the complement system, a key triggering mechanism for the body's inflammatory response. Medical problems that result from excessive complement activation represent multi-billion dollar market opportunities. These include reperfusion injury, the vascular and tissue damage that occurs following a heart attack, stroke or surgical procedure where the patient's blood supply is shut off and then restored; hyperacute or chronic organ rejection following transplantation; acute inflammatory injury to the lungs and autoimmune diseases. We developed a lead compound, TP10, through to early clinical trials before licensing rights for organ transplant surgery to Novartis Pharma AG ("Novartis"), the world leader in organ transplant drugs. We have elected to independently develop and commercialize TP10 for pediatric cardiac surgery, initiating a Phase I/II trial in 1999. Results of this Phase I/II trial were presented at the American Heart Association's Annual Meeting in November 2000.

AVANT expects to complete two Phase IIb studies of TP10, in pediatric cardiac surgery utilizing cardiopulmonary bypass in a total of 40-70 patients, before moving to a pivotal Phase III trial. The first study, which was initiated at the end of 2000, is enrolling babies born with hypoplastic left heart

syndrome, who often have high morbidity and mortality after heart surgery. The second study, which is being conducted in a lower risk infant population, is planned to begin shortly and will allow us to further define our clinical endpoints. We are looking to the results of these trials to support a mortality endpoint for the high risk infant population in the larger pivotal Phase III study and to allow for a possible broadening of the potential product label for TP10 to cover all babies under one year requiring cardiac surgery to repair congenital heart defects. We believe that this is an appropriate indication for a small company to pursue for the following reasons:

- Orphan drug status has been received because only 30,000 pediatric cardiac surgeries are performed each year;

- Because the surgery is life-threatening, we will seek priority review for the TP10 compound with the FDA; and

- Because such surgery is performed at a limited number of medical centers, a targeted direct sales and marketing effort should be manageable and effective.

In addition, in November 2000, AVANT initiated a placebo-controlled Phase II trial in approximately 600 adult patients undergoing cardiac surgery utilizing cardiopulmonary bypass. This 30-center study is a dose-ranging study that will allow us to further define our clinical endpoints in an adult patient population before moving ahead to a number of pivotal clinical trials. This adult study is intended to investigate the efficacy and safety, in a population known to be at high risk, of medically important adverse outcomes that have a real effect on the long term health of a substantial population. AVANT may partner the adult program when additional clinical data becomes available.

The objective of these three Phase II studies in infants and adults is to assess the ability of TP10 to mitigate the injury to the heart, brain and other organs that occurs when patients are placed on cardiopulmonary bypass (CPB) circuits, thus potentially improving post-operative outcomes.

CHOLESTEROL TREATMENT VACCINE: Atherosclerosis, the leading cause of morbidity and mortality in the United States and most of the Western world, is the accumulation of fatty deposits in the walls of blood vessels. Low blood levels of high-density lipoprotein (HDL, the so-called "good" cholesterol) are associated with increased risk of atherosclerosis, which in turn leads to heart disease and stroke. We are developing a novel, treatment vaccine (CETi-1) aimed at increasing levels of HDL. The vaccine stimulates the production of antibodies to cholesteryl ester transfer protein (CETP), which mediates the balance between HDL and LDL (low-density lipoprotein, or "bad" cholesterol). While billions of dollars of drugs that lower LDL are sold each year, the few drugs that increase HDL have failed to achieve market acceptance, largely due to undesirable side effects. Thus, we believe that a therapeutic vaccine that increases HDL with one or two injections a year would present a substantial market opportunity. In pre-clinical studies in rabbits, the CETi-1 vaccine increased HDL levels and significantly reduced atherosclerotic lesions in blood vessels as compared to an untreated control group. Our pre-clinical work on the vaccine was partially funded by almost $1 million in Small Business Innovation Research ("SBIR") grants.

AVANT completed a Phase I clinical trial in late 2000 and results indicated that the vaccine was very well tolerated in the 48 adult volunteers who participated in the study. The only serious adverse reaction reported during the study (allergic reaction to shower gel) was not related to study medication. There were no differences in the safety profiles of placebo groups and active vaccine groups. In addition, there was limited evidence of an immune response in one subject treated with the highest dose. AVANT recently announced preliminary results from a double-blinded placebo controlled extension of the earlier completed Phase I trial of the CETi-1 vaccine in healthy adult volunteers receiving a second dose of the vaccine. Results from the extension study showed measurable antibody titers in all dose groups treated with study medication and suggest a dose-response relationship. These data will be extremely helpful in designing a Phase II study, which we plan to begin this summer.

CETi-1 is being developed for the management of patients with low levels of HDL (high-density lipoprotein) cholesterol. As clinical data becomes available, AVANT plans to seek a corporate partner to complete development of and to commercialize the vaccine.

TRAVELERS' VACCINES: AVANT is developing a series of single-dose, genetically-attenuated, live bacterial vaccines to prevent travelers' diarrhea and dysentery. Frost & Sullivan, a leading market research firm, estimated in a 1999 report that the worldwide market for diarrheal vaccines, addressed to the travelers' market only, would reach almost one billion dollars in 2005. Many of these vaccines could also meet the healthcare requirements of less developed countries, where the need for cholera and typhoid vaccines is particularly acute. We believe that vaccines for the travelers' market are appropriate indications for a small company such as AVANT to pursue independently with our own sales and marketing effort.

We are developing a single dose, oral cholera vaccine using a live, genetically attenuated cholera strain. Based on this technology, developed in academia, we have developed the vaccine through early Phase II trials. We then negotiated a collaboration agreement under which a Phase IIb trial will be performed and funded by the Walter Reed Army Institute of Research ("WRAIR") and the National Institutes of Health (the "NIH"). This trial, which began in October 2000 at the Children's Hospital in Cincinnati, will test the safety, immunogenecity and protective capacity of the vaccine against a challenge with live virulent cholera. If results from this study are positive, AVANT will move rapidly to complete the manufacture of cGMP grade clinical material this year and to initiate a pivotal challenge trial in the first half of 2002. Development of a safe, effective cholera vaccine is the first step in establishing AVANT's travelers' vaccine franchise. AVANT has also conducted initial clinical studies of its single dose, oral typhoid vaccine and has a shigella vaccine in pre-clinical development. With our acquisition of Megan, AVANT has gained access to technologies for developing vaccines against CAMPYLOBACTER and E. COLI, two additional causes of serious diarrheal diseases worldwide.

ROTAVIRUS VACCINE: Rotavirus is a major cause of diarrhea and vomiting in infants and children. No vaccine against rotavirus is currently on the market. We licensed from a non-profit institution an oral vaccine for rotavirus, and initiated a Phase I clinical trial with the goal of licensing the vaccine to a major vaccine company. After completing Phase I studies and commencing a Phase II study, we licensed the vaccine to GlaxoSmithKline plc ("SmithKline"). The initial license fee from SmithKline partially funded the Phase II study. In 1999, after the study demonstrated 89% protection in a study involving 215 infants, SmithKline paid us an additional license fee and assumed full responsibility for funding and performing all remaining clinical development. In the second half of this year, AVANT expects SmithKline to initiate Phase III studies of its investigational rotavirus vaccine, Rotarix-TM-, a two-dose oral rotavirus vaccine which has been shown to be helpful in preventing rotavirus gastroenteritis (RGE) disease in young children for at least two years following administration. Assuming product development and commercialization continues satisfactorily, we expect that SmithKline will pay us additional milestones and a royalty based on sales.

VACCINES AND IMMUNOTHERAPEUTIC DELIVERY SYSTEMS: The vaccine industry is changing, with increased emphasis on recombinant antigens, sophisticated attenuation strategies and use of vaccines therapeutically to treat patients who are already infected. AVANT is a leader in developing delivery systems that support these new approaches, including:

- Adjumer-Registered Trademark-, a water soluble polymer intended as an adjuvant to enhance systemic immune response with fewer injections and lower antigen doses;

- Micromer-Registered Trademark-, a polymer microsphere adjuvant designed to enhance systemic and mucosal immune responses to oral or nasal administration;

- Therapore-TM-, a genetically engineered bacterial protein vector designed to induce cell-mediated immunity, believed to be particularly important for therapeutic vaccines; and

- VibrioVec-TM-, the attenuated bacterial strain used in the cholera vaccine which we believe can be used to deliver other, non-cholera bacterial antigens.

We expect to commercialize these vaccine delivery systems primarily through commercial partners that have antigens in need of improved delivery, thereby increasing our potential access to a wide range of antigens and shifting clinical development expense to the partner. For example, we have licensed to Aventis Pasteur ("Aventis"), the world's leading vaccine manufacturer, use of Adjumer-Registered Trademark- and Micromer-Registered Trademark- in a variety of vaccines, including vaccines for influenza, respiratory syncytial virus (RSV) and Lyme disease. Aventis has begun clinical trials on both the influenza and RSV vaccines. In the case of Therapore-TM-, the novelty of the approach is such that partnering on commercially attractive terms would best be done after the availability of clinical data. Thus, we have entered into a collaborative agreement for WRAIR to fund and perform the first clinical trial of Therapore-TM-, which is expected to begin this year. Although we will focus on licensing vaccine delivery systems to commercial partners, we will remain alert for opportunities where we can develop complete vaccines, as was done with rotavirus.

Because AVANT's strategy ultimately depends on the commercial success of our products, we assume, among other things, that end users of our products will be able to pay for them. In the United States and other countries, in most cases, the volume of sales of products like those we are developing depends on the availability of reimbursement from third-party payors. These include national health care agencies, private health insurance plans and health maintenance organizations. Third-party payors increasingly challenge the prices charged for medical products and services. Our success in generating revenues from sales of products may depend on the availability of reimbursement from third-party payors for the products. Accordingly, if we succeed in bringing products to market, there is no means to assure their cost effectiveness or the availability of reimbursement sufficient to sell the products on a profitable basis. If reimbursement is not available or is insufficient, the level of market acceptance of our products could suffer significantly.

The health care industry in the United States and in Europe is undergoing fundamental changes as a result of political, economic and regulatory influences. Reforms proposed from time to time include mandated basic health care benefits, controls on health care spending through limitations on the growth of private health insurance premiums and Medicare and Medicaid spending, creation of large medical services and products purchasing groups and fundamental changes to the health care delivery system.

We anticipate ongoing review and assessment of alternative health care delivery systems and methods of payment in the United States and other countries. We cannot predict whether any particular reform initiatives will result or, if adopted, their impact on us. However, we expect that adoption of any reform proposed will impair our ability to market products at acceptable prices.

Additional factors that may significantly harm our commercial success, and ultimately the market price of our common stock, include announcements of technological innovations or new commercial products by our competitors, disclosure of unsuccessful results of clinical testing or regulatory proceedings and governmental approvals, adverse developments in patent or other proprietary rights, public concern about the safety of products developed by AVANT and general economic and market conditions.

C. THERAPEUTIC DRUG PROGRAMS

1. COMPLEMENT INHIBITORS

We are developing a new class of therapeutics that inhibit a part of the immune system called the complement system. The complement system is a series of proteins that are important initiators of the body's acute inflammatory response against disease, infection and injury. Excessive complement activation also plays a role in some persistent inflammatory conditions. When complement is activated,

it helps to identify and eliminate infectious pathogens and damaged tissue. In some situations, however, excessive complement activation may destroy viable and healthy tissue and tissue which, though damaged, might recover. This excessive response compounds the effects of the initial injury or introduces unwanted tissue destruction in clinical situations such as organ transplants, cardiovascular surgeries and treatment for heart attacks. Independently published studies have reported that our lead compound, TP10, a soluble form of naturally occurring Complement Receptor 1, effectively inhibits the activation of the complement cascade in animal models. We believe that regulating the complement system could have therapeutic and prophylactic applications in several acute and chronic conditions, including reperfusion injury from surgery or ischemic disease, organ transplant, multiple sclerosis, rheumatoid arthritis, and myasthenia gravis. In the United States, several million people are afflicted with these complement-mediated conditions.

We started the complement program in 1988. From 1989 through 1994, TP10 was under development in a joint program with SmithKline and Yamanouchi Pharmaceutical Co., Ltd. ("Yamanouchi"). During 1994, AVANT and SmithKline negotiated various amendments to the agreement and, in 1995, the two companies agreed to a mutual termination by which we regained all rights to the program except for co-marketing rights in Japan, which were retained by SmithKline and Yamanouchi. In December 1999, SmithKline and Yamanouchi returned the marketing rights for Japan to us.

Under our direction, in 1995 the first Phase I clinical trial of TP10 in 24 patients at risk for acute respiratory distress syndrome (ARDS) was completed. Results of this trial were presented in October 1995 at The American College of Chest Physicians meeting. A second Phase I safety trial for reperfusion injury was completed in late 1995 in 25 patients with first-time myocardial infarctions. This study was presented at the American Heart Association's Joint Conference on Thrombosis, Arteriosclerosis and Vascular Biology in February 1996. In each trial, TP10 demonstrated excellent safety and pharmacokinetic profiles, had a terminal phase half-life of at least 72 hours and was able to inhibit complement activity in a dose-dependent manner.

Based on these favorable results, in early 1996, we initiated a Phase IIa trial in patients with established ARDS. This trial was an open-label, single-dose feasibility trial to determine the potential for efficacy of TP10 in reducing neutrophil accumulation in the lungs and improved clinical outcome of patients with ARDS. During the second half of 1996, we initiated a series of steps, including broadening enrollment criteria, to modify this trial to improve the rate of patient accrual. In late 1997, we completed this Phase IIa trial after it had enrolled nine patients with ARDS arising from a number of different medical conditions. The trial results showed that patients receiving TP10 tended towards improved respiratory performance and improved blood oxygenation. Because the trial included few patients and no placebo control was used, no definitive claims about efficacy could be made.

In 1996, we began enrollment in a Phase I/II clinical trial in patients undergoing lung transplantation. A goal of the trial was to determine the ability of TP10 to reduce reperfusion injury and improve lung function in patients with end-stage pulmonary disease who were undergoing lung transplant surgery. This study was a randomized, placebo-controlled, double-blind trial consisting of single dosages of 10 mg/kg of TP10 as an intravenous infusion over 30 minutes. The trial was conducted at multiple centers in North America and included a total of 59 patients. In October 1997, we presented positive preliminary results from the efficacy portion of the trial. In April 1998, we presented final trial results at the International Society of Heart and Lung Transplantation conference. The final results showed that TP10 therapy appeared safe and well tolerated and demonstrated significant efficacy. Treated patients undergoing cardiopulmonary by-pass as part of the transplantation procedure showed significantly decreased intubation time and time on ventilation and a trend toward reduced time in the intensive care unit.

In 1997, we entered into a collaborative agreement with Novartis relating to the development of TP10 for use in xenotransplantation (animal organs into humans) and allotransplantation (human to human organ transplantation). Under the agreement, we received annual option fees and supplies of TP10 for clinical trials in return for granting Novartis a two-year option to license TP10 with exclusive worldwide (except Japan) marketing rights. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. In December 1999, the Novartis agreement was amended to include the marketing rights for Japan. The decision to license TP10 resulted in a $6 million equity investment and license fee payment by Novartis which was received by AVANT in January 2000. Under the agreement, we may receive additional milestone payments based upon attainment of development and regulatory goals, which have an approximate aggregate value of up to $14 million. We may also receive funding for research as well as royalty payments on eventual product sales.

In September 1999, we initiated an open-label, Phase I/II trial of TP10 in infants undergoing cardiac surgery for congenital heart defects. The trial evaluated the ability of TP10 to mitigate the injury to the heart and other organs that occurs when patients are placed on cardiopulmonary bypass circuits. Results of this Phase I/II trial were presented at the American Heart Association's Annual Meeting in November 2000.

AVANT expects to complete two Phase IIb studies of TP10, in pediatric cardiac surgery utilizing cardiopulmonary bypass in a total of 40-70 patients, before moving to a pivotal Phase III trial. The first study, which was initiated at the end of 2000, is enrolling babies born with hypoplastic left heart syndrome who often have high morbidity and mortality after heart surgery. The second study, which is being conducted in a lower risk infant population, is planned to begin shortly and will allow us to further define our clinical endpoints. We are looking to the results of these trials to support a mortality endpoint for the high risk infant population in the larger pivotal Phase III study and to allow for a possible broadening of the product label for TP10 to cover all babies under one year requiring cardiac surgery to repair congenital heart defects.

In addition, in November 2000, AVANT initiated a placebo-controlled Phase II trial in approximately 600 adult patients undergoing cardiac surgery utilizing cardiopulmonary bypass. This 30-center study is a dose-ranging study that will allow us to further define our clinical endpoints in the adult patient population before moving ahead to a number of pivotal clinical trials. This adult study is intended to investigate the efficacy and safety in a population known to be at high risk of medically important adverse outcomes that have a real effect on the long term health of a substantial population. AVANT may partner the adult program when additional clinical data becomes available.

The objective of these three Phase II studies in infants and adults is to assess the ability of TP10 to mitigate the injury to the heart, brain and other organs that occurs when patients are placed on cardiopulmonary bypass (CPB) circuits, thus potentially improving post-operative outcomes.

In addition to TP10, we have identified other product candidates to inhibit activation of the complement system. The lead candidate under research evaluation is a form of sCR1 (TP10) that has been modified by the addition of sialyl Lewis X (sLe(x)) carbohydrate side chains yielding sCR1sLe(x) (TP20). sLe(x) is a carbohydrate which mediates binding of neutrophils to selectin proteins, which appear on the surface of activated endothelial cells and platelets as an early inflammatory event. Selectin-mediated binding of neutrophils to activated endothelial cells is a critical event in inflammation. We have confirmed the presence of the desired carbohydrate structures and confirmed the presence of both anti-complement and selectin-binding functions in IN VITRO experiments. During 1997, we produced additional TP20 material and began pre-clinical studies in disease-relevant animal models. Research results published in the July 1999 issue of SCIENCE showed that the TP20 molecule, which simultaneously blocks complement activation and cell-mediated inflammatory events, can significantly limit damage to cerebral tissue in a mouse model of ischemic stroke.

TP20 may create new and expanded opportunities for us in complement- and selectin-dependent indications such as stroke and myocardial infarction. We believe that TP20 has the ability to target the complement-inhibiting activity of sCR1 to the site of inflammation and, at the same time, inhibit the leukocyte/endothelial cell adhesion process.

2. CHOLESTEROL TREATMENT VACCINE

We are developing a therapeutic vaccine against endogenous cholesteryl ester transfer protein (CETP), which may be useful in reducing risks associated with atherosclerosis. CETP is a key intermediary in the balance of HDL and LDL. We are developing a vaccine (CETi-1) to stimulate an immune response against CETP which we believe may improve the ratio of HDL to LDL cholesterol and reduce the progression of atherosclerosis. We have conducted preliminary studies of rabbits which had been administered the CETi-1 vaccine and fed a high-cholesterol, high-fat diet. In these studies, vaccine-treated rabbits exhibited reduced lesions in their blood vessels compared to a control group of untreated rabbits which developed significant blood vessel lesions. These studies have demonstrated, in animal models, the ability of CETi-1 vaccine to elevate HDL and reduce the development of blood vessel lesions.

Atherosclerosis is one of the leading causes of morbidity and mortality in the United States and most of the Western world. Current pharmacologic treatments require daily administration and can result in high costs and poor patient compliance. A vaccine directed at lowering CETP activity, such as the one we are developing, may offer several advantages over conventional approaches, including requiring less frequent dosing, lower costs, reduced side effects, and improved patient compliance.

In 1996, the NIH awarded us a $100,000 Phase I SBIR grant for the development of a novel transgenic rat atherosclerosis model, affording better comparison to human atherosclerosis. In early 1997, the NIH awarded us a second $100,000 Phase I SBIR grant to develop a novel plasmid-based vaccine to prevent or treat atherosclerosis. In late 1997, the NIH awarded us a $678,000 Phase II SBIR grant which provided funding over a two year period for the continued development of the novel transgenic rat model of atherosclerosis. In 1998, we received a $96,000 Phase I SBIR grant from the NIH for the development of a novel peptide vaccine to prevent or treat atherosclerosis.

In June 1999, we initiated a double-blinded placebo controlled, Phase I clinical trial of our CETi-1 vaccine in adult volunteers. The object of the study was to demonstrate the safety of single administrations of the vaccine at four different dosage strengths. AVANT completed the Phase I clinical trial in late 2000 and results indicated that the vaccine was very well tolerated in the 48 adult volunteers who participated in the study. The only serious adverse reaction reported during the study (allergic reaction to shower gel) was not related to study medication. There were no differences in the safety profiles of placebo groups and active vaccine groups. In addition there was limited evidence of an immune response in one subject treated with the highest dose. AVANT recently announced preliminary results from a double-blinded placebo controlled extension of the earlier completed Phase I trial of the CETi-1 vaccine in healthy adult volunteers receiving a second dose of the vaccine. Results from the extension study showed measurable antibody titers in all dose groups treated with study medication and suggest a dose-response relationship. These data will be extremely helpful in designing a Phase II study, which we plan to begin this summer. CETi-1 is being developed for the management of patients with low levels of HDL (high-density lipoprotein) cholesterol. As clinical data becomes available, AVANT plans to seek a corporate partner to complete development and to commercialize the vaccine.

D. VACCINE DEVELOPMENT PROGRAMS

1. TRAVELERS' VACCINES

AVANT is developing a series of single-dose, genetically-attenuated, live bacterial vaccines to prevent travelers' diarrhea and dysentery. Frost & Sullivan, a leading market research firm, estimated in a 1999 report that the worldwide market for diarrheal vaccines, addressed to the travelers' market only, would reach almost one billion dollars in 2005. Many of these vaccines could also meet the healthcare requirements of less developed countries, where the need for cholera and typhoid vaccines is particularly acute.

We are developing an attenuated form of the bacterium VIBRIO CHOLERAE as a potential cholera vaccine. In several Phase I/II clinical studies, single oral doses of the cholera vaccine, Peru-15, were administered to more than 100 subjects and shown to be safe, immunogenic and protective against infection with the virulent organism. In 1999, we announced the collaboration on a Phase IIb clinical trial of the Peru-15 vaccine with WRAIR and the NIH. AVANT and the National Institute of Allergy and Infectious Disease ("NIAID") of the NIH also signed a Clinical Trial Agreement that allows for the clinical evaluation of the Peru-15 vaccine formulation at Children's Hospital in Cincinnati. AVANT and WRAIR have successfully manufactured clinical supplies of the vaccine at WRAIR's facility for use in the study.

This phase IIb trial, which began in October 2000 at the Children's Hospital in Cincinnati, will test the safety, immunogenecity and protective capacity of the vaccine against a challenge with live virulent cholera. It is expected that the NIH will report results of this trial in the first half of 2001. If results from this study are positive, AVANT will move rapidly to complete the manufacture of cGMP grade clinical material this year and to initiate a pivotal challenge trial in the first half of 2002. Development of a safe, effective cholera vaccine is the first step in establishing AVANT's travelers' vaccine franchise. AVANT has also conducted initial clinical studies of its single dose, oral typhoid vaccine and has a shigella vaccine in pre-clinical development. With our acquisition of Megan Health, AVANT has gain access to technologies for developing vaccines against CAMPYLOBACTER and E. COLI, two additional causes of serious diarrheal diseases worldwide.

2. ROTAVIRUS VACCINE

We are developing a novel vaccine against rotavirus infection. Rotavirus, a major cause of diarrhea and vomiting in infants, affects approximately 80% of the approximately 4 million infants born each year in the United States. As a result, on an annual basis, about 500,000 infants require medical attention and 50,000 are hospitalized. The economic burden in the United States is estimated at over $1 billion in direct medical and indirect societal costs. We anticipate that in the United States a vaccine against rotavirus disease will become a universal pediatric vaccine. We have completed Phase I clinical trials of the orally delivered live human rotavirus vaccine selected to elicit a broadly protective immune response to the most prevalent strains of rotavirus. During 1997, we completed a Phase I/II clinical trial designed to define the optimal vaccine dose and optimal age for immunization. Based on the assessment of the safety and immunogenicity of the vaccine, we initiated a Phase II efficacy study in 1997. This trial, conducted at four U.S. medical centers, was designed to examine the vaccine's ability to prevent rotavirus disease and to further study the safety of the vaccine. A total of 215 infants were enrolled in the study and have been immunized with the vaccine. In 1998, we announced positive results from this trial, which were published in LANCET in July 1999. The results showed that approximately 90 percent of the vaccinated infants were protected from rotavirus disease and demonstrated a statistical significance at pLESS THAN0.001. Examination of the safety data revealed only mild transient symptoms in a small number of infants.

AVANT and SmithKline are currently collaborating on the development and commercialization of our oral rotavirus vaccine. As discussed under "F. Collaborative Agreements", with the successful

completion of the Phase II clinical trial and the development by SmithKline of a viable manufacturing process, SmithKline has assumed financial responsibility for all subsequent clinical and development activities and paid us a milestone payment of $500,000. In the second half of this year, AVANT expects SmithKline to initiate Phase III studies of its investigational rotavirus vaccine, Rotarix-TM-, a two-dose oral rotavirus vaccine which has been shown to be helpful in preventing rotavirus gastroenteritis (RGE) disease in young children for at least two years following administration. Assuming that product development and commercialization continues satisfactorily, we expect to receive additional milestones and royalties from SmithKline based on net sales of the rotavirus vaccine.

3. OTHER HUMAN VACCINE PROGRAMS

We have conducted pre-clinical research and development in vaccines for genital herpes and anthrax infections. In October 2000, we were awarded a Phase I Small Business Innovation Research (SBIR) grant to support the development of a vaccine for genital herpes. The grant was awarded by the National Institute of Allergy and Infectious Disease (NIAID) of the NIH. The vaccine, d15-29, utilizes a live, replication-defective mutant of the herpes virus to induce immunity. As with other live, attenuated vaccines, these defective herpes viruses are capable of eliciting a strong immune response in inoculated individuals, but are incapable of replicating themselves and spreading within the body. Previous studies by AVANT and Harvard Medical School have shown excellent pre-clinical safety and efficacy results with this vaccine. The SBIR grant will be used to support work in preparation for manufacturing of material to be used in human clinical trials. We are allocating only limited internal resources to these programs so that we may focus on more advanced projects which are currently in clinical development.

4. ANIMAL HEALTH AND FOOD SAFETY VACCINE PROGRAMS

On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan, a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies. In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer whereby Pfizer has licensed from us Megan's technology for the development of animal health and food safety vaccines. In accordance with this agreement, Megan's existing poultry health and food safety products and development programs fall outside the Pfizer collaboration.

In addition to developing proprietary and patented bacterial gene technologies, Megan has commercialized two veterinary vaccines; Argus-TM- SC, licensed by the USDA in March 1998 and marketed by Intervet, Inc., and Megan-Registered Trademark-Vac 1, licensed by the USDA in November 1998 and marketed by Megan.

EXISTING PRODUCTS: Megan-Registered Trademark-Vac 1 is a double gene-deleted modified vaccine for use in chickens for protection against multiple species and/or strains of Salmonella bacteria. The vaccine is administered to chicks at the hatchery in a spray cabinet with a field boost generally given at around two weeks. The objective of the vaccine is to eliminate or reduce the overall load of SALMONELLA SPP. in the bird and environment, thus reducing bacteria levels on broiler carcasses in the processing plant. While the reduction of SALMONELLA SPP. in the broiler may provide some direct health benefit to the chicken, the primary purpose of the vaccine is to increase food safety. Megan-Registered Trademark-Vac 1 is also registered in New Zealand. Registration activities are underway for South Korea, Canada, Israel, Turkey, Egypt and the Dominican Republic.

Megan-Registered Trademark-Vac 1 has also been used extensively (off-label) in commercial table-egg pullets. Pullets generally receive three vaccinations during the growing period and are protected throughout the lay period without further vaccination. In the case of table-egg layers, the primary objective is elimination or reduction of SALMONELLA ENTERITIDIS levels in the eggs, bird, and poultry house.

PRODUCTS UNDER DEVELOPMENT: Megan presently has three vaccine programs in development for the poultry market.

Megan-Registered Trademark-Egg, with USDA licensure expected in 2002, is from the same master seed as Megan-Registered Trademark-Vac 1 with titer, dosage recommendations, and product configuration specifically targeting the layer market.

AntiPath-TM- is a SALMONELLA TYPHIMURIUM strain containing both chromosomal and plasmid genes derived from pathogenic E. COLI. AntiPath-TM- will be labeled for prevention of airsacculitis, perihepatitis, and pericarditis (and possibly cellulitis) caused by E. COLI infection in poultry. Licensure is expected in 2003.

Megan-Registered Trademark-Vac "Kentucky" is in the research stage and is focused on the broiler processing plant, where over 30% of the SALMONELLA SPP. found on broiler carcasses are the SALMONELLA KENTUCKY strain. While Megan-Registered Trademark-Vac 1 does reduce some type C salmonellae, efficacy against SALMONELLA KENTUCKY is inadequate in some cases. With current candidates under development, licensure is expected in 2004.

Because AVANT's focus is on human health care, we are seeking an established animal health company to take over marketing and distribution of Megan's currently marketed poultry products and to assume control of the late-stage food safety and animal health vaccines under development for the commercial poultry market.

E. VACCINES AND IMMUNOTHERAPEUTIC DELIVERY SYSTEMS

AVANT is developing a portfolio of proprietary vaccine delivery systems designed to improve the efficacy of existing vaccines, and permit the development of new vaccines and immunotherapeutics for the prevention and/or treatment of infectious diseases and some forms of cancers.

ADJUMER-REGISTERED TRADEMARK-: We are developing Adjumer-Registered Trademark-, a proprietary vaccine delivery system, as an adjuvant to enhance the immune response to injected intramuscular vaccines. The water soluble nature of Adjumer-Registered Trademark-, which utilizes a polyphosphazene polymer (PCPP), facilitates a simple aqueous-based manufacturing process for vaccines, thereby preserving the integrity of the antigen.

We have licensed to Aventis use of Adjumer-Registered Trademark- and Micromer-Registered Trademark-, a second proprietary delivery system designed to facilitate mucosal delivery, in a variety of vaccines, including influenza, respiratory syncytial virus (RSV) and Lyme disease. During the fourth quarter of 1998, Aventis initiated a Phase I/II trial of an Adjumer-Registered Trademark--formulated vaccine for RSV. RSV, the major cause of lower respiratory tract infections in infants and children, hospitalizes 90,000 children and causes 4,500 deaths annually in the United States. Initiation of the trial resulted in a milestone payment by Aventis.

THERAPORE-TM-: During 1997, we received an exclusive worldwide license to Therapore-TM- from Harvard College. In 1998, we received a non-exclusive license from the NIH to further secure our Therapore-TM- technology rights. We believe that Therapore-TM- will be the core of a novel technology for the development of immunotherapeutics. We are conducting pre-clinical research to evaluate this system for the treatment of persistent viral infections, such as Hepatitis B, Hepatitis C and HIV, and some forms of cancer.

Therapore-TM- is composed of two bacterial proteins that in IN VIVO tests have delivered peptides to induce potent cell-mediated immune responses. These responses include the generation of long-lived cytotoxic T-lymphocytes (CTL) and alterations in the amounts of cellular cytokines produced, which may lead to the effective treatment of persistent viral infections and the resolution of some forms of cancer. Potential products utilizing Therapore-TM- technology could include peptides or proteins from viruses such as Hepatitis B, Hepatitis C and HIV, all of which cause persistent infections, and from a range of cancers, including breast, ovarian, melanoma and prostate. Each of these indications represents a large market with a need for safe and effective treatments.

Early stage pre-clinical research studies indicate that Therapore-TM- may be distinguished from other delivery systems. We believe that the therapeutic and preventative potential of Therapore-TM- is significant for the following two reasons: (i) the targeting of Therapore-TM- is highly efficient, such that in IN VIVO tests potent cell-mediated immune responses have been induced by the delivery of minute quantities of Therapore-TM- constructs; and (ii) Therapore-TM- has the potential to deliver large peptides and proteins for processing by normal cellular mechanisms, which may permit broad immune coverage in humans. As a result of these characteristics, we believe that Therapore-TM--delivered antigens will be capable of producing an enhanced cell-mediated response more efficiently and safely than other products currently under development by our competitors.

We plan to employ Therapore-TM- to develop novel immunotherapeutics for the treatment of chronic viral infections and cancers. We have entered into a collaborative agreement for WRAIR to fund and perform the first human clinical trial of a Therapore-TM--based product, a vaccine candidate under development by the U.S. Army against the Human Immunodeficiency Virus (HIV). This clinical trial of Therapore-TM--HIV is expected to begin this year. As clinical data becomes available, AVANT may seek a corporate partner to develop and to commercialize Therapore-TM-. We have currently suspended all in-house development efforts on Therapore-TM- to focus on more advanced programs.

F. COLLABORATIVE AGREEMENTS

NOVARTIS: In 1997, we entered into a collaborative agreement with Novartis relating to the development of TP10 for use in xenotransplantation (animal organs into humans) and allotransplantation (human to human organ transplantation). Under the agreement, we received annual option fees and supplies of TP10 for clinical trials in return for granting Novartis a two-year option to license TP10 with exclusive worldwide (except Japan) marketing rights. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. The decision to license TP10 resulted in a $6 million equity investment and license fee payment by Novartis which was received by AVANT in January 2000. Under the agreement, we may receive additional milestone payments based upon attainment of development and regulatory goals, which has an approximate aggregate value of up to $14 million. We may also receive funding for research as well as royalty payments on eventual product sales.

AVENTIS: We are a party to two license agreements entered into in 1994 and 1995 with Aventis relating to Adjumer-Registered Trademark-- and Micromer-Registered Trademark--formulated vaccines, respectively, for the prevention of a variety of infectious diseases. Under the agreements, Aventis has been granted the exclusive right to make, use and sell Adjumer-Registered Trademark-- and Micromer-Registered Trademark--formulated vaccines for prevention of influenza, Lyme disease and diseases caused by meningococcus and the co-exclusive right (exclusive, except for the right of AVANT or one other person licensed by us) to make, use and sell Adjumer-Registered Trademark-- and Micromer-Registered Trademark--formulated vaccines directed against five other pathogens, including pneumococcus and RSV. The licenses to Aventis apply to specified territories, including North and South America, Europe, Africa, Thailand and the countries of the former Soviet Union. We have retained rights to make, use, sell and license Adjumer-Registered Trademark-- and Micromer-Registered Trademark--formulated vaccines against the subject infections in most of the Far East, including China and Japan, subject to geographical extension rights available to Aventis.

Aventis made a $3.0 million equity investment in AVANT in 1994 upon the execution of the agreement relating to Adjumer-Registered Trademark-. In addition, in connection with this collaboration, in 1996 Aventis made milestone payments of $4.5 million and an additional equity investment of $1.0 million in AVANT. During 1998, Aventis made a further milestone payment to us upon initiation of a Phase I trial using an Adjumer-Registered Trademark--formulated vaccine for RSV. Contingent upon our achieving specified milestones, Aventis has agreed to pay AVANT up to an additional $6.2 million in connection with the development of Adjumer-Registered Trademark--formulated vaccines for influenza and Lyme disease and to make payments, on a product by product basis with respect to the development of other Adjumer-Registered Trademark-- and Micromer-Registered Trademark--formulated vaccines. Aventis must fund all costs associated with the development and

commercialization, including the costs of clinical trials, of any vaccines it elects to develop utilizing our technology. In addition, we will be entitled to royalties based on net sales of any vaccine products developed and sold by Aventis pursuant to these agreements.

In connection with our agreement relating to Micromer-Registered Trademark-, Aventis sponsored research at AVANT into Micromer-Registered Trademark--formulated vaccines directed against influenza and parainfluenza virus (PIV). This arrangement, pursuant to which we received $2.5 million, covered a two-year period that ended in 1997.

Under the agreement relating to Adjumer-Registered Trademark-, we were required to use commercially reasonable efforts to establish a process capable of yielding quantities of clinical grade PCPP for use by Aventis in clinical studies. We have satisfied this requirement. In addition, we have facilitated the production of commercial grade PCPP in a contractor's current Good Manufacturing Practice (cGMP) compliant manufacturing facility according to agreed upon specifications. The Aventis agreement, while reserving to Aventis the right to manufacture PCPP, anticipates that we will supply PCPP under a cost-plus supply agreement.

GLAXOSMITHKLINE: During 1997, we entered into an agreement with SmithKline to collaborate on the development and commercialization of our oral rotavirus vaccine. Under the terms of the agreement, SmithKline received an exclusive worldwide license to commercialize our rotavirus vaccine. We were responsible for continuing the Phase II clinical efficacy study of the rotavirus vaccine, which was completed in August 1998. Subject to the development by SmithKline of a viable manufacturing process, SmithKline must assume responsibility for all subsequent clinical trials and all other development activities. SmithKline made an initial license payment in 1997 upon execution of the agreement and has agreed to make further payments upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of the rotavirus vaccine. In June 1999, the Company received a milestone payment of $500,000 from SmithKline for successfully completing the Phase II clinical efficacy study and establishing a commercially viable process to manufacture the vaccine.

PFIZER: In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer whereby Pfizer has licensed Megan's technology for the development of animal health and food safety vaccines. Upon execution of the agreement, Pfizer made an initial license payment of $2.5 million together with a $3 million equity investment. Under the agreement, we may receive additional milestone payments based upon attainment of specified milestones. We will also receive research and development funding for up to two years as well as royalty payments on eventual product sales.

We depend on our collaborative relationships and may enter into more of them in the future. Some of the above referenced agreements give our collaborator substantial responsibility to commercialize a product and to make decisions about the amount and timing of resources that are devoted to developing and commercializing a product. As a result, we do not have complete control over how resources are used toward some of our products.

In addition, some of these agreements relate to products in the early stages of research and development. Others require AVANT and our collaborator to jointly decide on the feasibility of developing a particular product using our technologies. In either case, these agreements may terminate without benefit to us if the underlying products are not fully developed. Moreover, once specific products are chosen for development, the agreements relating to them may require AVANT to meet specified milestones, to invest money and other resources in the development process or to negotiate additional licenses and other agreements, which may not be possible or advantageous. If we fail to meet our obligations under those agreements, they could terminate and we might need to enter into relationships with other collaborators and to spend additional time, money, and other valuable resources in the process.

Moreover, we cannot predict whether our collaborators will continue their development efforts or, if they do, whether their efforts will achieve success. Many of our collaborators face the same kinds of risks and uncertainties in their business that we face. A delay or setback to a collaborator will, at a minimum, delay the commercialization of any affected products, and may ultimately prevent it. Moreover, any collaborator could breach its agreement with us or otherwise not use best efforts to promote our products. A collaborator may choose to pursue alternative technologies or products that compete with our technologies or products. In either case, if a collaborator failed to successfully develop one of our products, we would need to find another collaborator. Our ability to do so would depend upon our legal right to do so at the time and whether the product remained commercially viable.

G. RISK FACTORS

You should consider carefully these risk factors together with all of the information included or incorporated by reference in this Annual Report. This section includes some forward-looking statements.

OUR HISTORY OF LOSSES AND UNCERTAINTY OF FUTURE PROFITABILITY MAKE OUR COMMON STOCK A HIGHLY SPECULATIVE INVESTMENT.

We have had no commercial revenues to date from sales of our products and cannot predict when we will. We have accumulated net operating losses since inception of approximately $155.3 million, as of December 31, 2000. We expect to spend substantial funds to continue research and product testing of the following products we have in the pre-clinical and clinical testing stages of development:

PRODUCT	USE	STAGE
TP10	Organ transplantation	Clinical phase II
TP10	Pediatric cardiac surgery	Clinical phase IIb
TP10	Adult cardiac surgery	Clinical phase II
TP10	Heart attacks	Clinical phase I
TP20	Stroke	Pre-clinical
CETi-1 vaccine	Atherosclerosis	Clinical phase I
Cholera vaccine	Cholera	Clinical phase IIb
Typhoid vaccine	Typhoid fever	Clinical phase I/II
Shigella vaccine	Dysentery	Pre-clinical
ETEC vaccine	E. coli infection	Pre-clinical
Campylobacter vaccine	Campylobacter infection	Pre-clinical
Rotavirus vaccine	Rotavirus	Clinical phase II
Adjumer-Registered Trademark-	Respiratory syncytial virus	Clinical phase I/II
Therapore-TM-	Hepatitis	Pre-clinical
Therapore-TM-	HIV	Pre-clinical

In anticipation of Food and Drug Administration approval of these products, we will need to make substantial investments to establish sales, marketing, quality control, and regulatory compliance capabilities. These investments will increase if and when any of these products receive FDA approval. We cannot predict how quickly our lead products will progress through the regulatory approval process. As a result, we may continue to lose money for several years.

IF WE CANNOT SELL CAPITAL STOCK TO RAISE NECESSARY FUNDS, IT MAY FORCE US TO LIMIT OUR RESEARCH, DEVELOPMENT AND TESTING PROGRAMS.

We will need to raise more capital from investors to advance our lead products through the clinical testing and to fund our operations until we receive final FDA approval and our products begin to

generate revenues for us. However, based on our history of losses, we may have difficulty attracting sufficient investment interest. We may also try to obtain funding through research grants and agreements with commercial collaborators. This kind of funding is at the discretion of other organizations and companies which have limited funds and many companies compete with us for those funds. As a result, we may not receive any research grants or funds from collaborators.

IF SELLING STOCKHOLDERS CHOOSE TO SELL SHARES IN LARGE VOLUME, THE TRADING PRICE OF OUR COMMON STOCK COULD SUFFER.

In December 2000, we issued 1,841,236 shares of our common stock at $9.54 per share in connection with our acquisition of Megan Health Inc. and 285,877 shares of our common stock at $10.50 per share in a separate private placement with Pfizer, Inc. These transactions were the latest of several private placements of our common stock. Those shares plus among others, 4,650,953 shares we sold in a July 2000 private placement at $7.85 per share, 5,459,375 shares we sold in a September 1999 private placement at $1.92 per share, 2,043,494 shares we sold in a March 1998 private placement at $1.90 per share, 1,433,750 shares we issued in June 1998 in settlement of a contract dispute with a landlord, and 3,209,289 shares that employees may purchase under stock options at prices ranging from $0.30 to $24.64 per share, can be resold in the public securities markets without restriction. These shares in total account for approximately 33.1% of our total common stock outstanding as of December 31, 2000. If large numbers of shares are sold over a short period of time, the price of our stock may decline rapidly or fluctuate widely.

IF OUR PRODUCTS DO NOT PASS REQUIRED TESTS FOR SAFETY AND EFFECTIVENESS, WE WILL NOT BE ABLE TO DERIVE COMMERCIAL REVENUE FROM THEM.

For AVANT to succeed, we will need to derive commercial revenue from the products we have under development. The FDA has not approved any of our lead products for sale to date. Our lead drug, TP10, is undergoing phase II clinical testing for use in pediatric and adult cardiac surgery. TP10 has also undergone phase I clinical testing for use in treating heart attacks and phase II clinical testing for organ transplant. Other products in our vaccine programs are in various stages of pre-clinical and clinical testing. Pre-clinical tests are performed at an early stage of a product's development and provide information about a product's safety and effectiveness on laboratory animals. Pre-clinical tests can last years. If a product passes its pre-clinical tests satisfactorily, we file an investigational new drug application for the product with the FDA, and if the FDA gives its approval we begin phase I clinical tests. Phase I testing generally lasts between 6 and 12 months. If phase I test results are satisfactory and the FDA gives its approval, we can begin phase II clinical tests. Phase II testing generally lasts between 6 and 18 months. If phase II test results are satisfactory and the FDA gives its approval, we can begin phase III pivotal studies. Phase III studies generally last between 12 and 36 months. Once clinical testing is completed and a new drug application is filed with the FDA, it may take more than a year to receive FDA approval.

In all cases we must show that a pharmaceutical product is both safe and effective before the FDA, or drug approval agencies of other countries where we intend to sell the product, will approve it for sale. Our research and testing programs must comply with drug approval requirements both in the United States and in other countries, since we are developing our lead products with companies, including Novartis Pharma AG, GlaxoSmithKline plc, Pfizer Inc. and Aventis Pasteur, which intend to commercialize them both in the U.S. and abroad. A product may fail for safety or effectiveness at any stage of the testing process. The key risk we face is that none of our products under development will come through the testing process to final approval for sale, with the result that we cannot derive any commercial revenue from them after investing significant amounts of capital in multiple stages of pre-clinical and clinical testing.

PRODUCT TESTING IS CRITICAL TO THE SUCCESS OF OUR PRODUCTS BUT SUBJECT TO DELAY OR CANCELLATION IF WE HAVE DIFFICULTY ENROLLING PATIENTS.

As our portfolio of potential products moves from pre-clinical testing to clinical testing, and then through progressively larger and more complex clinical trials, we will need to enroll an increasing number of patients with the appropriate characteristics. At times we have experienced difficulty enrolling patients and we may experience more difficulty as the scale of our clinical testing program increases. The factors that affect our ability to enroll patients are largely uncontrollable and include principally the following:

- the nature of the clinical test

- the size of the patient population

- the distance between patients and clinical test sites

- the eligibility criteria for the trial

If we cannot enroll patients as needed, our costs may increase or it could force us to delay or terminate testing for a product.

WE MAY FACE UNEXPECTED DIFFICULTY OR COSTS IN THE INTEGRATION OF MEGAN'S BUSINESS AND PROGRAMS WITH OUR OWN.

In December 2000, we acquired all of the outstanding stock of Megan Health, Inc., a company engaged in the discovery and development of human and food and safety vaccines using patented technologies. We may not be able to successfully integrate Megan's business, product and/or technology without a significant expenditure of operating, financial and management resources. In addition, Megan's acquired technology may require substantial additional research and development and clinical trials before they can be commercialized, all of which could adversely affect our results of operations and financial position.

Although we believe that beneficial synergies will ultimately result from our acquisition of Megan, there can be no assurance that the long-term combination of the two companies' businesses will allow AVANT to achieve results of operations superior to what we could have achieved independently. No assurance can be given that AVANT will integrate the operations of Megan without encountering difficulties or experiencing the loss of key Megan personnel or that the benefits expected from such integration will be realized.

During the integration process, we may encounter unforeseen difficulties and incur unforeseen costs. Management may have to spend significant time, money and other resources to integrate these businesses and resolve these difficulties. AVANT and Megan use complementary but different technologies, have different capabilities and employ different management styles, all of which may be barriers to the successful integration of the combined companies. Although management believes that substantial opportunities exist in the integration of the businesses of AVANT and Megan, the integration process may prove to be more difficult or costly than anticipated.

WE DEPEND GREATLY ON THE INTELLECTUAL CAPABILITIES AND EXPERIENCE OF OUR KEY EXECUTIVES AND SCIENTISTS AND THE LOSS OF ANY OF THEM COULD AFFECT OUR ABILITY TO DEVELOP OUR PRODUCTS.

The loss of Dr. Una S. Ryan, our president and chief executive officer, or other key members of our staff could harm us. We have an employment agreement with Dr. Ryan. We do not have any key-person insurance coverage. We also depend on our scientific collaborators and advisors, all of whom have outside commitments that may limit their availability to us. In addition, we believe that our future success will depend in large part upon our ability to attract and retain highly skilled scientific, managerial and marketing personnel, particularly as we expand our activities in clinical trials, the regulatory approval process and sales and manufacturing. We face significant competition for this type

of personnel from other companies, research and academic institutions, government entities and other organizations. We cannot predict our success in hiring or retaining the personnel we require for continued growth.

WE RELY ON OUR CONTRACT MANUFACTURERS. SHOULD THE COST, DELIVERY AND QUALITY OF CLINICAL AND COMMERCIAL GRADE MATERIALS SUPPLIED BY CONTRACT MANUFACTURERS VARY TO OUR DISADVANTAGE, OUR BUSINESS OPERATIONS COULD SUFFER SIGNIFICANT HARM.

We are dependent on sourcing from third-party manufacturers for suitable quantities of clinical and commercial grade materials essential to pre-clinical and clinical studies currently underway and to planned clinical trials in addition to those currently being conducted by third parties or us. The inability to have suitable quality and quantities of these essential materials produced in a timely manner would result in significant delays in the clinical development and commercialization of products, which could adversely affect our business, financial condition and results of operations. We plan to rely on collaborators and contract manufacturers to manufacture proposed products in both clinical and commercial quantities in the future. There can be no assurances that we will be able to enter into any arrangements with such third party manufacturers on acceptable terms or at all. Further, contract manufacturers must also operate in compliance with the FDA's Good Manufacturing Practices, or GMP; failure to do so could result in, among other things, the disruption of product supplies. Our potential dependence upon third parties for the manufacture of our products may adversely affect our profit margins and our ability to develop and deliver products on a timely and competitive basis.

We depend on third party suppliers and manufacturers, including Walter Reed Army Institute of Research, Lonza Biologics plc, Bioconcepts, Inc., Multiple Peptide Systems and Maine Biological Laboratories, to provide us with suitable quantities of materials necessary for clinical tests. If these materials are not available in suitable quantities of appropriate quality, in a timely manner, and at a feasible cost, our clinical tests will face delays.

WE RELY ON THIRD PARTIES TO PLAN, CONDUCT AND MONITOR OUR CLINICAL TESTS, AND THEIR FAILURE TO PERFORM AS REQUIRED WOULD INTERFERE WITH OUR PRODUCT DEVELOPMENT.

We rely on third parties, including Duke University Medical Center, The Cleveland Clinic, The Chicago Center for Clinical Research, Pharmaceutical Research Associates, Inc., PPD Development, LLC, the NIH and GlaxoSmithKline plc to conduct our clinical tests. If any one of those third parties fails to perform as we expect or if their work fails to meet regulatory standards, our testing could be delayed, cancelled or rendered ineffective.

WE DEPEND GREATLY ON THIRD PARTY COLLABORATORS TO LICENSE, DEVELOP AND COMMERCIALIZE SOME OF OUR PRODUCTS, AND THEY MAY NOT MEET OUR EXPECTATIONS.

We have agreements with other companies, including Novartis Pharma AG, Aventis Pasteur, GlaxoSmithKline plc, Pfizer Inc., and Innogenetics, Inc., for the licensing, development and ultimate commercialization of some of our products. Some of those agreements give substantial responsibility over the products to the collaborator. Some collaborators may be unable or unwilling to devote sufficient resources to develop our products as their agreements require. They often face business risks similar to ours, and this could interfere with their efforts. Also, collaborators may choose to devote their resources to products that compete with ours. If a collaborator does not successfully develop any one of our products, we will need to find another collaborator to do so. Our search for a new collaborator will depend on our legal right to do so at the time and whether the product remains commercially viable.

WE MAY FACE DELAYS, DIFFICULTIES OR UNANTICIPATED COSTS IN ESTABLISHING SALES, DISTRIBUTION AND MANUFACTURING CAPABILITIES FOR OUR COMMERCIALLY READY PRODUCTS.

We have chosen to retain, rather than license, all rights to some of our lead products, such as TP10 for pediatric and adult cardiac surgery and our portfolio of travelers' vaccines. If we proceed with this strategy, we will have full responsibility for commercialization of these products if and when they are approved for sale. We currently lack the marketing, sales and distribution capabilities that we will need to carry out this strategy. To market any of our products directly, we must develop a substantial marketing and sales force with technical expertise and a supporting distribution capability. We have little expertise in this area, and we may not succeed. We may find it necessary to enter into strategic partnerships on uncertain but potentially unfavorable terms to sell, market and distribute our products when they are approved for sale.

Some of our products are difficult to manufacture, especially in large quantities, and we have not yet developed commercial scale manufacturing processes for any of our products. We do not currently plan to develop internal manufacturing capabilities to produce any of our products if they are approved for sale. To the extent that we choose to market and distribute products ourselves, this strategy will make us dependent on other companies to produce our products in adequate quantities, in compliance with regulatory requirements, and at a competitive cost. We may not find third parties capable of meeting those manufacturing needs.

A DECREASE IN DEMAND FOR MEGAN-REGISTERED TRADEMARK-VAC 1 AND OTHER FUTURE PRODUCTS COULD ADVERSELY AFFECT OUR REVENUES.

Both demand and ultimately the profitability of Megan-Registered Trademark-Vac 1, our only current product available for commercial sales, and future products, are key to our success. The following are potential factors that may negatively affect the demand for Megan-Registered Trademark-Vac 1:

- Our competitors may develop, manufacture and market products that are more effective or less expensive than ours;

- Megan-Registered Trademark-Vac 1 could be replaced by a novel product and may disappear due to obsolescence;

- Users may not accept such a recently approved product without years of proven history;

- Our competitors in the food safety market have greater financial and management resources than we do, and significantly more experience in bringing products to market; and

- We have no manufacturing or distribution facilities for Megan-Registered Trademark-Vac 1. Instead, we contract with Maine Biological Laboratories ("MBL"), a subsidiary of Lohmann Animal Health International, to manufacture Megan-Registered Trademark-Vac 1 for us.

Any one of these factors could reduce demand for Megan-Registered Trademark-Vac 1 to a level which may lead to our discontinuation of the product.

We employ two full time sales people to sell Megan-Registered Trademark-Vac 1. The costs associated with the employment of these two people, as well as the costs associated with our marketing and distribution of the product could become prohibitively expensive. Should we be unable to realize acceptable profits from sales of Megan-Registered Trademark-Vac 1, we may choose to scale back our commercialization efforts.

Because AVANT's focus is on human health care, we are seeking an established animal health company to take over marketing and distribution of Megan-Registered Trademark-Vac 1 and to assume control of the late-stage food safety and animal health vaccines under development for the commercial poultry market. If we are unable to find a marketing and distribution partner, or the partner is unable to continue to distribute Megan-Registered Trademark-Vac 1 in an effective manner, or if we are unable to maintain sufficient personnel with the appropriate levels of experience to manage this function, we may be unable to meet the demand for our products and we may lose potential revenues.

WE MAY BE UNABLE TO MANAGE MULTIPLE LATE STAGE CLINICAL TRIALS FOR A VARIETY OF PRODUCT CANDIDATES SIMULTANEOUSLY.

While we believe that we can have materials available for clinical trials and the initial market launch for our lead product candidates, we will not be able to commercialize these products until we have acceptable clinical trial results and regulatory approval from the FDA and/or foreign regulatory authorities. The FDA and other regulatory authorities require that the safety and efficacy of a drug be supported by results from adequate and well-controlled clinical trials before approval for commercial sale. If the results of Phase I and Phase II clinical trials of our products currently in progress do not demonstrate that they are safe and effective, we will not be able to initiate Phase III clinical trials when we currently anticipate or at all and to submit to the FDA a new drug application or other relevant applications for pre-market approval. Further, the results of pre-clinical testing and initial clinical trials do not necessarily predict how safe and effective a product will be when it is evaluated in large-scale Phase III clinical trials. It is possible that unacceptable side effects may be discovered at any time. A number of companies have suffered significant setbacks in advanced clinical trials, despite promising results in earlier trials.

Even if we believe the clinical trials demonstrate the safety and efficacy of a product, the FDA and foreign regulatory authorities may not accept our assessment of the results. The FDA and foreign regulatory authorities may require us to conduct additional advanced clinical trials beyond those we are currently planning in order to demonstrate the safety and efficacy of our products. The rate of completion of our clinical trials depends on, among other factors, the rate of patient enrollment. Patient enrollment is a function of many factors, including the size of the patient population, the nature of the clinical protocol, the proximity of patients to clinical sites and the eligibility criteria for the trial. Delays in planned patient enrollment may result in increased costs, delays or termination of clinical trials, which could have a material adverse effect on our business, financial condition and results of operations.

Moreover, we have not historically managed multiple late stage clinical trials simultaneously. During 2001 we expect to have in progress five Phase II clinical trials. Attracting individuals qualified to administer these and planned future late stage clinical trials is often difficult due to the complexity of the protocols and the size of the studies. We may be unable to find qualified individuals, which could delay our trials or result in increased costs. We may be unable to complete multiple late stage clinical trials concurrently as effectively or as quickly as we currently anticipate, which could have a material adverse effect on our business, financial condition and results of operations.

OUR RELIANCE ON THIRD PARTIES REQUIRES US TO SHARE OUR TRADE SECRETS, WHICH INCREASES THE POSSIBILITY THAT A COMPETITOR WILL DISCOVER THEM.

Because we rely on third parties to develop our products, we must share trade secrets with them. We seek to protect our proprietary technology in part by confidentiality agreements and, if applicable, inventor's rights agreements with our collaborators, advisors, employees and consultants. Our competitors may discover our trade secrets, either through breach of these agreements or through independent development. A competitor's discovery of our trade secrets would impair our competitive position. Moreover, we conduct a significant amount of research through academic advisors and collaborators who are prohibited from entering into confidentiality or inventor's rights agreements by their academic institutions.

WE LICENSE TECHNOLOGY FROM OTHER COMPANIES TO DEVELOP OUR PRODUCTS, AND THOSE COMPANIES COULD RESTRICT OUR USE OF IT.

Companies that license to us technologies we use in our research and development programs may require us to achieve milestones or devote minimum amounts of resources to develop products using those technologies. They may also require us to make significant royalty and milestone payments,

including a percentage of any sublicensing income, as well as payments to reimburse them for patent costs. The number and variety of our research and development programs require us to establish priorities and to allocate available resources among competing programs. From time to time we may choose to slow down or cease our efforts on particular products. If in doing so we fail to perform our obligations under a license fully, the licensor can terminate the licenses or permit our competitors to use the technology. Moreover, we may lose our right to market and sell any products based on the licensed technology.

WE HAVE MANY COMPETITORS IN OUR FIELD AND THEY MAY DEVELOP TECHNOLOGIES THAT MAKE OURS OBSOLETE.

Biotechnology, pharmaceuticals and therapeutics are rapidly evolving fields in which scientific and technological developments are expected to continue at a rapid pace. We have many competitors in the U.S. and abroad, including Alexion Pharmaceutical, Bayer, Merck, Pfizer, Active Biotech, Swiss Serum Vaccine Institute and Japan Tobacco. Our success depends upon our ability to develop and maintain a competitive position in the product categories and technologies on which we focus. Many of our competitors have greater capabilities, experience and financial resources than we do. Competition is intense and is expected to increase as new products enter the market and new technologies become available. Our competitors may:

- develop technologies and products that are more effective than ours, making ours obsolete or otherwise noncompetitive;

- obtain regulatory approval for products more rapidly or effectively than us; and

- obtain patent protection or other intellectual property rights that would block our ability to develop competitive products.

WE RELY ON PATENTS, PATENT APPLICATIONS AND OTHER INTELLECTUAL PROPERTY PROTECTIONS TO PROTECT OUR TECHNOLOGY AND TRADE SECRETS; THEY ARE EXPENSIVE AND MAY NOT PROVIDE SUFFICIENT PROTECTION.

Our success depends in part on our ability to obtain and maintain patent protection for technologies that we use. Biotechnology patents involve complex legal, scientific and factual questions and are highly uncertain. To date, there is no consistent policy regarding the breadth of claims allowed in biotechnology patents, particularly in regard to patents for technologies for human uses like those we use in our business. We cannot predict whether the patents we seek will issue. If they do issue, a competitor may challenge them and limit their scope. Moreover, our patents may not afford effective protection against competitors with similar technology. A successful challenge to any one of our patents could result in a third party's ability to use the technology covered by the patent. We also face the risk that others will infringe, avoid or circumvent our patents. Technology that we license from others is subject to similar risks and this could harm our ability to use that technology. If we, or a company that licenses technology to us, were not the first creator of an invention that we use, our use of the underlying product or technology will face restrictions, including elimination.

If we must defend against suits brought against us or prosecute suits against others involving intellectual property rights, we will incur substantial costs. In addition to any potential liability for significant monetary damages, a decision against us may require us to obtain licenses to patents or other intellectual property rights of others on potentially unfavorable terms. If those licenses from third parties are necessary but we cannot acquire them, we would attempt to design around the relevant technology, which would cause higher development costs and delays, and may ultimately prove impracticable.

OUR BUSINESS REQUIRES US TO USE HAZARDOUS MATERIALS, WHICH INCREASES OUR EXPOSURE TO DANGEROUS AND COSTLY ACCIDENTS.

Our research and development activities involve the use of hazardous chemicals, biological materials and radioactive compounds. Although we believe that our safety procedures for handling and

disposing hazardous materials comply with the standards prescribed by applicable laws and regulations, we cannot completely eliminate the risk of accidental contamination or injury from these materials. In the event of an accident, an injured party will likely sue us for any resulting damages with potentially significant liability. The ongoing cost of complying with environmental laws and regulations is significant and may increase in the future. In addition, in connection with our merger with Virus Research Institute, Inc. in 1998, we assumed the real property lease at Virus Research Institute, Inc.'s former site. We understand that this property has a low level of oil-based and other hazardous material contamination. We believe that the risks posed by this contamination are low, but we cannot predict whether additional hazardous contamination exists at this site, or that changes in applicable law will not require us to clean up the current contamination of the property.

H. COMPETITION

Competition in the biotechnology and vaccine industries is intense. We face competition from many companies in the United States and abroad, including a number of large pharmaceutical companies, firms specialized in the development and production of vaccines, adjuvants and vaccine and immunotherapeutic delivery systems and major universities and research institutions. Most of our competitors have substantially greater resources, more extensive experience in conducting pre-clinical studies and clinical testing and obtaining regulatory approvals for their products, greater operating experience, greater research and development and marketing capabilities and greater production capabilities than those of AVANT. There can be no assurance that our competitors will not develop technologies and products that are safer or more effective than any which are being developed by us or which would render our technology and products obsolete and noncompetitive, and our competitors may succeed in obtaining FDA approval for products more rapidly than we do. There can be no assurance that the vaccines and immunotherapeutic products under development by us and our collaborators will be able to compete successfully with existing products or products under development by other companies, universities and other institutions or that they will obtain regulatory approval in the United States or elsewhere. We believe that the principal competitive factors in the vaccine and immunotherapeutic market are product quality, measured by efficacy and safety, ease of administration and price.

Our competitive position will also depend upon our ability to attract and retain qualified personnel, obtain patent protection or otherwise develop proprietary products or processes and secure sufficient capital resources for the often lengthy period between technological conception and commercial sales. We will require substantial capital resources to complete development of some or all of our products, obtain the necessary regulatory approvals and successfully manufacture and market our products. In order to secure capital resources, we anticipate having to sell additional capital stock, which would dilute existing stockholders. We may also attempt to obtain funds through research grants and agreements with commercial collaborators. However, these types of fundings are uncertain because they are at the discretion of the organizations and companies that control the funds. As a result, we may not receive any funds from grants or collaborations. Alternatively, we may borrow funds from commercial lenders, likely at high interest rates, which would increase the risk of any investment in AVANT.

I. MANUFACTURING

We have no manufacturing facilities, no experience in volume manufacturing and we plan to rely upon collaborators or contractors to manufacture our proposed products for both clinical and commercial purposes. We believe that there is currently sufficient capacity worldwide for the production of our potential products by our collaborators or through contract manufacturers.

To date, we have been arranging with contract manufacturers for the manufacture of clinical trials supplies of TP10, CETi-1 and our rotavirus vaccine candidate. We have also contracted for the

manufacture of PCPP in quantities sufficient for pre-clinical and clinical studies. Future manufacture of our rotavirus vaccine is the responsibility of SmithKline, which has received from us a world-wide exclusive license to commercialize this vaccine.

We have contracted with Lonza Bologics plc for the scale-up and manufacture of commercial grade TP10 for our planned pivotal Phase III trial in infants undergoing cardiac surgery. The CETi-1 vaccine is manufactured under contracts with Multiple Peptide Services and Bioconcepts, Inc. WRAIR has manufactured Cholera Peru-15 and Bengal-15 vaccines under a collaborative agreement with us. We have also entered into a collaborative arrangement with WRAIR for the manufacture of a Therapore-TM--HIV product.

Under the agreement relating to Adjumer-Registered Trademark-, we were required to use commercially reasonable efforts to establish a process capable of yielding quantities of clinical grade PCPP for use by Aventis in clinical studies. We have satisfied this requirement. The Aventis agreement, while reserving to Aventis the right to manufacture PCPP, anticipates that we may supply PCPP under a cost-plus supply agreement.

The manufacturing processes for our other vaccine and immunotherapeutic delivery systems and vaccines utilize known technologies. We believe that the products we currently have under development can be scaled up to permit manufacture in commercial quantities. However, there can be no assurance that we will not encounter difficulties in scaling up the manufacturing processes.

Use of third party manufacturers limits our control over and ability to monitor the manufacturing process. As a result, we may not be able to detect a variety of problems that may arise. If third party manufacturers fail to meet our manufacturing needs in an acceptable manner, we would face delays and additional costs while it develops internal manufacturing capabilities or finds alternative third party manufacturers.

We intend to establish manufacturing arrangements with manufacturers that comply with the FDA's requirements and other regulatory standards, although there can be no assurance that we will be able to do so. In the future, we may, if it becomes economically attractive to do so, establish our own manufacturing facilities to produce any vaccine products that we may develop. In order for us to establish a manufacturing facility, we will require substantial additional funds and will be required to hire and retain significant additional personnel and comply with the extensive cGMP regulations of the FDA applicable to such facility. The product manufacturing facility would also need to be licensed for the production of vaccines by the FDA.

J. MARKETING

Under the terms of existing and future collaborative agreements, we rely and expect to continue to rely on the efforts of our collaborators for the sale and marketing of our products. There can be no assurance that our collaborators will market vaccine products incorporating our technologies, or, if marketed, that such efforts will be successful. The failure of our collaborators to successfully market products would harm our business.

We have retained, and in the future intend to retain, marketing rights to some of our product candidates, including vaccine and immunotherapeutic delivery systems and vaccine candidates, in selected geographic areas and for specified indications. We intend to seek marketing and distribution agreements and/or co-promotion agreements for the distribution of our products in these geographic areas and for these indications. We believe that these arrangements could enable us to generate greater financial return than might be obtained from early stage licensing and collaboration agreements. We have no marketing and sales staff and limited experience relating to marketing and distribution of commercial products, including vaccines. If we determine in the future to engage in direct marketing of our products, we will be required to recruit an experienced marketing group, develop a supporting

distribution capability and incur significant additional expenditures. There can be no assurance that we will be able to establish a successful marketing force. We may choose or find it necessary to enter into strategic partnerships on uncertain, but potentially unfavorable, terms to sell, market and distribute our products. Any delay in the marketing or distribution of our products, whether it results from problems with internal capabilities or with a collaborative relationship, could harm the value of an investment in AVANT.

K. PATENTS, LICENSES AND PROPRIETARY RIGHTS

AVANT's policy is to protect our technology by filing patent applications and obtaining patent rights covering our own technology, both in the United States and in foreign countries. In addition, we have acquired and will seek to acquire as needed or desired, exclusive rights of others through assignment or license to complement our portfolio of patent rights. We also rely on trade secrets, unpatented know-how and technological expertise and innovation to develop and maintain our competitive position.

PATENTS: The successful development and marketing of products by AVANT will depend in part on our ability to create and maintain intellectual property, including patent rights. We have established a proprietary patent position in the areas of complement inhibitor technology, vaccine technologies and diagnostic technologies, and we are the owner or exclusive licensee of numerous patents and pending applications around the world. Although we continue to pursue patent protection for our products, no assurance can be given that any pending application will issue as a patent, that any issued patent will have a scope that will be of commercial benefit, or that we will be able to successfully enforce our patent position against competitors.

In the area of complement molecules, we are co-owner with The Johns Hopkins University and Brigham & Women's Hospital, whose rights AVANT has exclusively licensed, of patents and applications covering inventions relating to complement receptor type 1 (CR1). These rights are based in part on the work of Dr. Douglas Fearon and include U.S. and foreign patents which claim nucleic acid sequences encoding CR1, sCR1 and active fragments; purification methods; and therapeutic uses of sCR1. We also own or have rights to a number of other issued patents and patent applications relating to sCR1, sCR1sLe(x) and other complement inhibitor molecules and their uses.

In 1996, we licensed portions of our patent and technology rights regarding CR1 to CytoTherapeutics, Inc. ("CytoTherapeutics") for use in protecting CytoTherapeutics' proprietary cell-encapsulation products for the delivery of therapeutic substances to the central nervous system.

In July 1999, we entered into a transfer and sale agreement with Innogenetics, Inc. ("Innogenetics") in which we conveyed to Innogenetics our rights in the TRAx-Registered Trademark- technology for detection of cell surface markers, such as CD4 and CD8 on T cells. This agreement gave Innogenetics the exclusive rights to sell the TRAx-Registered Trademark- CD4 and CD8 diagnostic products worldwide, with AVANT receiving payments and the rights to receive future royalties on sales.

In the area of vaccine technology, we own issued U.S. patents and corresponding foreign applications directed to the use of vaccines incorporating both our Adjumer-Registered Trademark- and Micromer-Registered Trademark- vaccine delivery technology. Further, we own and have licensed other U.S. patents and patent applications, and corresponding foreign applications, directed to technology that may be useful for our Micromer-Registered Trademark- and Adjumer-Registered Trademark- vaccine delivery systems. We have an exclusive license to a United States patent application, and corresponding foreign applications, directed to a vector construct that is used in our VibrioVec-TM- vaccine delivery system and an exclusive license to an issued U.S. patent directed to a rotavirus strain antigen, which forms the basis of our rotavirus vaccine. We also have an exclusive license to a U.S. patent application, and corresponding foreign applications, directed to a defective HSV2 virus for use in our vaccine directed against genital herpes, an exclusive license to U.S. patent applications, and a non-exclusive license to U.S. and foreign patents and applications directed to technology that may be

useful for our Therapore-TM- system. We have two issued patents in foreign countries and additional pending patent applications in the U.S. and selected foreign countries relating to control of CETP activity through vaccination.

There can be no assurance that patent applications owned by or licensed to AVANT will result in granted patents or that, if granted, the resultant patents will afford protection against competitors with similar technology. It is also possible that third parties may obtain patents or other proprietary rights that may be necessary or useful to AVANT. In cases where third parties are first to invent a particular product or technology, it is possible that those parties will obtain patents that will be sufficiently broad to prevent us from using important technology or from further developing or commercializing important vaccine and immunotherapeutic systems and vaccine candidates. If licenses from third parties are necessary but cannot be obtained, commercialization of the covered products might be delayed or prevented. Even if these licenses can be obtained, they would probably require us to pay ongoing royalties and other costs, which could be substantial.

Although a patent has a statutory presumption of validity in the United States, the issuance of a patent is not conclusive as to validity or as to the enforceable scope of the patent claims. The validity or enforceability of a patent after its issuance by the Patent and Trademark Office can be challenged in litigation. As a business that uses a substantial amount of intellectual property, we face a heightened risk of intellectual property litigation. If the outcome of the litigation is adverse to the owner of the patent, third parties may then be able to use the invention covered by the patent without payment. There can be no assurance that our issued patents or any patents subsequently issued to or licensed by us will not be successfully challenged in the future. In addition, there can be no assurance that our patents will not be infringed or that the coverage of our patents will not be successfully avoided by competitors through design innovation.

We are aware that others, including universities and companies, have filed patent applications and have been granted patents in the United States and other countries which claim subject matter potentially useful or necessary to the commercialization of our products. The ultimate scope and validity of existing or future patents which have been or may be granted to third parties, and the availability and cost of acquiring rights in those patents necessary to the manufacture, use or sale of our products presently cannot be determined by AVANT.

We use a mutated Vibrio cholerae in our VibrioVec-TM- vaccine delivery system. We are aware of an issued U.S. patent which claims a culture of mutated Vibrio cholerae. We believe that only one claim (the "Claim") of the patent may be pertinent to our VibrioVec-TM- system. The remaining claims of the patent cover other cultures, which we believe are not pertinent to VibrioVec-TM-. We have received an opinion of counsel from Fish & Richardson, P.C. that, based on the analysis set forth in their opinion and the facts known to them, the Claim is invalid. It should be noted that a party challenging the validity of a patent has the burden of proving invalidity and that the outcome of any litigation cannot be predicted with certainty. Accordingly, there can be no assurance that, if litigated, a court would conclude that the Claim is invalid.

In November 2000, we acquired Megan Health, Inc. and by this acquisition obtained exclusive rights to vaccine technology patents and applications based on the work of Dr. Roy Curtiss III. These patent rights complement and expand the patent rights of AVANT in this technological area.

We are aware of an issued U.S. patent relating to herpes virus vaccines that covers the same technology claimed in an application to which AVANT has been granted an exclusive license. In January 2000, an interference was declared in the U.S. Patent and Trademark Office to determine who is entitled to a U.S. patent on this technology.

In addition to the patents referred to in the previous two paragraphs, there may be other patent applications and issued patents belonging to competitors that may require us to alter our vaccine

candidates and vaccine and immunotherapeutic delivery systems, pay licensing fees or cease some of our activities. If our product candidates conflict with patents that have been or may be granted to competitors, universities or others, the patent owners could bring legal action against us claiming damages and seeking to enjoin manufacturing and marketing of the patented products. If any of these actions are successful, in addition to any potential liability for damages, we could be required to obtain a license in order to continue to manufacture or market the affected products. There can be no assurance that we would prevail in any such action or that any license required under any such third party patent would be made available on acceptable terms or at all. We believe that there may be significant litigation in the biotechnology and vaccine industries regarding patent and other intellectual property rights. If we become involved in that litigation, we could consume substantial resources.

LICENSES: We have entered into several significant license agreements relating to technology that is being developed by AVANT and/or its collaborators, including licenses from the following: Massachusetts Institute of Technology covering proprietary technologies for vaccine delivery related to PCPP microparticles; Penn State Research Foundation covering the production of polyphosphazene polymer; Harvard College relating to proprietary technology involving genetically altered Vibrio cholera and Salmonella strains; Cincinnati Children's Hospital involving proprietary rights and technologies relating to an attenuated rotavirus strain for a rotavirus vaccine; Harvard College and the Dana Farber Cancer Institute relating to a genetically-altered HSV2 virus for use in a genital herpes virus vaccine; and Harvard College and the NIH for the proprietary technology related to Therapore-TM-, a novel immunotherapy delivery system to be developed for delivery of products for the treatment of persistent viral infections and some forms of cancer. In general, these institutions (except the NIH) have granted us an exclusive worldwide license (with right to sublicense) to make, use and sell products embodying the licensed technology, subject to the reservation by the licensor of a non-exclusive right to use the technologies for non-commercial purposes. Generally, the term of each license is through the expiration of the last of the patents issued with respect to the technologies covered by the license. We have generally agreed to use reasonable efforts to develop and commercialize licensed products and to achieve specified milestones and pay license fees, milestone payments and royalties based on the net sales of the licensed products or to pay a percentage of sublicense income. If we breach our obligations, the licensor has the right to terminate the license, and, in some cases, convert the license to a non-exclusive license.

PROPRIETARY RIGHTS: We also rely on unpatented technology, trade secrets and confidential information, and no assurance can be given that others will not independently develop substantially equivalent information and techniques or otherwise gain access to our know-how and information, or that we can meaningfully protect our rights in such unpatented technology, trade secrets and information. We require each of our employees, consultants and advisors to execute a confidentiality agreement at the commencement of an employment or consulting relationship with AVANT. The agreements generally provide that all inventions conceived by the individual in the course of employment or in providing services to AVANT and all confidential information developed by, or made known to, the individual during the term of the relationship shall be the exclusive property of AVANT and shall be kept confidential and not disclosed to third parties except in limited specified circumstances. There can be no assurance, however, that these agreements will provide meaningful protection for our information in the event of unauthorized use or disclosure of such confidential information.

L. GOVERNMENT REGULATION

Our activities and products are significantly regulated by a number of governmental entities, including the FDA in the United States and by comparable authorities in other countries and by the USDA with respect to products developed by Megan. These entities regulate, among other things, the manufacture, testing, safety, effectiveness, labeling, documentation, advertising and sale of our products. We must obtain regulatory approval for a product in all of these areas before we can commercialize the product. Product development within this regulatory framework takes a number of years and involves the expenditure of substantial resources. Many products that initially appear promising ultimately do not reach the market because they are found to be unsafe or ineffective when tested. Our inability to commercialize a product would impair our ability to earn future revenues.

In the United States, vaccines and immunotherapeutics for human use are subject to FDA approval as "biologics" under the Public Health Service Act and "drugs" under the Federal Food, Drug and Cosmetic Act. The steps required before a new product can be commercialized include: pre-clinical studies in animals, clinical trials in humans to determine safety and efficacy and FDA approval of the product for commercial sale.

Data obtained at any stage of testing is susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. Moreover, during the regulatory process, new or changed drug approval policies may cause unanticipated delays or rejection of our product. We may not obtain necessary regulatory approvals within a reasonable period of time, if at all, or avoid delays or other problems in testing our products. Moreover, even if we received regulatory approval for a product, the approval may require limitations on use, which could restrict the size of the potential market for the product.

The FDA provides that human clinical trials may begin thirty (30) days after receipt and review of an Investigational New Drug ("IND") application, unless the FDA requests additional information or changes to the study protocol within that period. An IND must be sponsored and filed by AVANT for each of our proposed products. Authorization to conduct a clinical trial in no way assures that the FDA will ultimately approve the product. Clinical trials are usually conducted in three sequential phases. In a Phase I trial, the product is given to a small number of healthy volunteers to test for safety (adverse effects). Phase II trials are conducted on a limited group of the target patient population; safety, optimal dosage and efficacy are studied. A Phase III trial is performed in a large patient population over a wide geographic area to prove that significant efficacy exists. The FDA has ongoing oversight over all these trials and can order a temporary or permanent discontinuation if warranted. Such an action could materially harm AVANT. Clinical tests are critical to the success of our products but are subject to unforeseen and uncontrollable delay, including delay in enrollment of patients. Any delay in clinical trials could delay our commercialization of a product.

A product's safety and effectiveness in one test is not necessarily indicative of its safety and effectiveness in another test. Moreover, we may not discover all potential problems with a product even after completing testing on it. Some of our products and technologies have undergone only pre-clinical testing. As a result, we do not know whether they are safe or effective for humans. Also, regulatory authorities may decide, contrary to our findings, that a product is unsafe or not as effective in actual use as its test results indicated. This could prevent the product's widespread use, require its withdrawal from the market or expose us to liability.

The results of the clinical trials and all supporting data are submitted to the FDA for approval. A Biologics License Application (BLA) is submitted for a biologic product; a New Drug Application (NDA) for a drug product. The interval between IND filing and BLA/NDA filing is usually at least several years due to the length of the clinical trials, and the BLA/NDA review process can take over a year. During this time the FDA may request further testing or additional trials or may turn down the

application. Even with approval, the FDA frequently requires post-marketing safety studies (known as Phase IV trials) to be performed.

The FDA requires that the manufacturing facility that produces a licensed product meet specified standards, undergo an inspection and obtain an establishment license prior to commercial marketing. Subsequent discovery of previously unknown problems with a product or its manufacturing process may result in restrictions on the product or the manufacturer, including withdrawal of the product from the market. Failure to comply with the applicable regulatory requirements can result in fines, suspensions of regulatory approvals, product recalls, operating restrictions and criminal prosecution.

In the United States, vaccines for animal health and food safety use are subject to USDA approval. The steps required before a new product can be commercialized include: pre-clinical studies in animals; clinical trials in animals to determine safety and efficacy; and USDA approval of the product for commercial sale. The registration of these vaccines may be subject to numerous delays or possibly outright rejection of the product by the agency. Delays may occur at any stage of testing, clinical results may be subject to unfavorable interpretation by the agency and regulatory approval, if received, may require limitations on use which could restrict the size of the potential market for the product. The USDA requires that the manufacturing facility that produces a licensed product meet specified standards, undergo an inspection and obtain an establishment license prior to commercial marketing. Under USDA regulations, this license is held by the manufacturer of the product, not the developer of the product, such as Megan. Failure to comply with applicable USDA regulatory requirements can result in fines, suspensions of regulatory approvals, product recalls, operating restrictions and criminal prosecution.

The Advisory Committee on Immunization Practices (ACIP) of the CDC has a role in setting the public market in the United States for the vaccine products we intend to develop. The ACIP makes recommendations on the appropriate use of vaccines and related products and the CDC develops epidemiologic data relevant to vaccine requirements and usage.

Because we may market our products abroad, we will be subject to varying foreign regulatory requirements. Although international efforts are being made to harmonize these requirements, applications must currently be made in each country. The data necessary and the review time varies significantly from one country to another. Approval by the FDA does not ensure approval by the regulatory bodies of other countries.

Our collaborators are also subject to all of the above-described regulations in connection with the commercialization of products utilizing our technology.

M. PRODUCT LIABILITY

The risk of product liability claims, product recalls and associated adverse publicity is inherent in the testing, manufacturing, marketing and sale of medical products. If and when we manufacture vaccines that are recommended for routine administration to children, we will be required to participate in the National Vaccine Injury Compensation Program. This program compensates children having adverse reactions to certain routine childhood immunizations with funds collected through an excise tax from the manufacturers of these vaccines.

We have clinical trial liability insurance coverage in the amount of $5 million. However, there can be no assurance that such insurance coverage is or will continue to be adequate or available. We may choose or find it necessary under our collaborative agreements to increase our insurance coverage in the future. We may not be able to secure greater or broader product liability insurance coverage on acceptable terms or at reasonable costs when needed. Any liability for mandatory damages could exceed the amount of our coverage. A successful product liability claim against us could require us to pay a substantial monetary award. Moreover, a product recall could generate substantial negative

publicity about our products and business and inhibit or prevent commercialization of other product candidates.

N. EMPLOYEES; SCIENTIFIC CONSULTANTS

As of March 1, 2001, we employed 66 full time persons, 13 of whom have doctoral degrees. Of these employees, 50 were engaged in or directly support research and development activities.

We have also retained a number of scientific consultants and advisors in various fields and have entered into consulting agreements with each of them. These consultants include the following members of the Scientific Advisory Board: Dr. Mark Davis, Stanford University; Dr. Tak Mak, Ontario Cancer Institute; Dr. Peter Ward, University of Michigan School of Medicine; Dr. Hans Wigzell, Karolinska Institute; Dr. Peter Henson, National Jewish Center for Immunology and Respiratory Medicine; Dr. Peter Libby, Brigham and Women's Hospital; and Dr. Robert Langer, Massachusetts Institute of Technology.

ITEM 2. PROPERTIES

We lease approximately 54,000 square feet of laboratory and office space in Needham, Massachusetts, of which we sublease approximately 13,000 square feet of excess laboratory and office space to a tenant. The lease has an initial six-year term which expires in April 2002. Under the lease agreement, we are obligated to pay a base annual rent of $1,335,600 until the end of the initial term. The sublease relating to the 13,000 square feet of excess space has an initial four-year term which expires in April 2000 with an option to extend the lease to April 2002. Under the sublease agreement, which was extended by the subtenant to April 2002, we will receive base annual sub-rental income of $308,300 until the end of the initial term. Aggregate net base rental payments for the years ended December 31, 2000 and 1999 for this facility were $1,019,700 and $580,600, respectively.

We also lease approximately 17,800 square feet of laboratory and office space in Cambridge, Massachusetts. The lease has a five-year term, which commenced on December 1, 1996. Under the lease agreement, we are obligated to pay a base annual rent of $293,700 until the end of the lease term. Effective February 1, 1999, we sublet the entire Cambridge, Massachusetts facility through the end of the lease term. Under the sublease agreement, we will receive base annual sub-rental income of $431,700 of which approximately $41,400 will be payable to the landlord as additional rent.

Our wholly owned subsidiary, Megan Health Inc., leases approximately 11,000 square feet of laboratory and office space in St. Louis, Missouri. The lease has a five-year term that expires August 31, 2002. Under the lease agreement, we are obligated to pay a base annual rent of $244,000 until the end of the lease term. In November 2000, our building was sold to a new landlord who subsequently notified Megan that its lease was being terminated without cause as provided in the lease. As required by the lease, Megan was given 270 days written notice that its lease would now terminate as of August 31, 2001. Megan is currently in discussions with the new landlord about possibly occupying less space in the building and extending the lease beyond August 2001 on a month-to-month basis. Megan is also investigating alternative lease arrangements in the St. Louis area.

ITEM 3. LEGAL PROCEEDINGS

None.

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

None.

PART II

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

Our common stock began trading on the Nasdaq National Market (the "Nasdaq") under the symbol "AVAN" on August 24, 1998. Prior to that date, we were traded on the Nasdaq under the symbol "TCEL". The following table sets forth for the periods indicated the high and low closing sales prices for our common stock as reported by Nasdaq.

FISCAL PERIOD	HIGH	LOW
YEAR ENDED DECEMBER 31, 1999		
1Q (Jan. 1 - March 31, 1999)	$ 2.41	$1.06
2Q (April 1 - June 30, 1999)	2.13	1.13
3Q (July 1 - Sept. 30, 1999)	3.13	1.69
4Q (Oct. 1 - Dec. 31, 1999)	2.47	1.50
YEAR ENDED DECEMBER 31, 2000		
1Q (Jan. 1 - March 31, 2000)	$16.75	$2.06
2Q (April 1 - June 30, 2000)	11.06	4.66
3Q (July 1 - Sept. 30, 2000)	12.00	6.50
4Q (Oct. 1 - Dec. 31, 2000)	11.00	6.00

As of March 1, 2001, there were approximately 655 shareholders of our common stock. The price of the common stock was $5.00 as of the close of the market on March 1, 2001. We have not paid any dividends on our common stock since our inception and do not intend to pay any dividends in the foreseeable future. Declaration of dividends will depend, among other things, upon our operating and future earnings, our capital requirements and general business conditions.

In December 2000, we issued 1,841,236 shares of our common stock at $9.54 per share in connection with our acquisition of Megan Health Inc. and 285,877 shares of our common stock at $10.50 per share in a separate private placement with Pfizer Inc.

On July 17, 2000, we closed a private placement of approximately 4.7 million shares of common stock at $7.85 per share for a total amount of $36.5 million. PaineWebber, Inc. was the placing agent for the offering, which included several European and U.S. institutional investors. The transaction was not registered under the Securities Act of 1933, as amended, in reliance on an exemption from registration provided by Rule 506 of the Securities Act of 1933, as amended, which was available because, among other things, there were fewer than thirty five purchasers of common stock and more than six months had elapsed from the date of any previous offerings. Proceeds from the private placement will be used to support clinical development of our lead complement inhibitor, TP10, in infants and adults undergoing cardiac surgery on cardiopulmonary bypass, the manufacture of commercial grade TP10 for the planned pivotal Phase III in pediatric cardiac surgery and other company activities.

On September 22, 1999, we closed a private placement of approximately 5.5 million shares of common stock at $1.92 per share for a total amount of $10.5 million. Nomura was the placing agent for the offering, which included several European and U.S. institutional investors. The transaction was not registered under the Securities Act of 1933, as amended, in reliance on an exemption from registration provided by Rule 506 of the Securities Act of 1933, as amended, which was available because, among other things, there were fewer than thirty five purchasers of common stock and more than six months had elapsed from the date of any previous offerings. Proceeds from the private placement will be used

to support clinical development of our lead complement inhibitor, TP10, in infants undergoing cardiac surgery on cardiopulmonary bypass and other company activities.

ITEM 6. SELECTED FINANCIAL DATA

The selected consolidated financial data presented below for the years ended December 31, 2000, 1999, 1998, 1997 and 1996 have been derived from the audited consolidated financial statements of AVANT. The results of operations for 2000, 1999 and 1998 include the operating results of Virus Research Institute, Inc. ("VRI") from August 21, 1998, the date on which AVANT acquired VRI, through the present. The results of operations for 2000 also include the operating results of Megan Health, Inc. ("Megan") from December 1, 2000, the date on which AVANT acquired Megan, through the present (see Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations"). All amounts are in thousands except per share data.

CONSOLIDATED STATEMENTS OF OPERATIONS DATA

	YEAR ENDED DECEMBER 31,				
	2000	1999	1998	1997	1996
OPERATING REVENUE:					
Product Sales, Product Development and Licensing Agreements	$ 763	$ 1,484	$ 2,150	$ 1,192	$ 1,115
OPERATING EXPENSE:					
Research and Development	10,774	7,872	5,703	5,257	6,036
Charge for Purchased In-Process Research & Development	9,012	--	44,630	--	--
Legal Settlement	(500)	--	(166)	6,109	--
Other Operating Expense	5,430	5,556	4,377	3,494	6,549
Total Operating Expense	24,716	13,428	54,544	14,860	12,585
Non-Operating Income, Net	1,978	635	594	560	680
Net Loss	$ (21,975)	$ (11,309)	$ (51,800)	$(13,108)	$(10,790)
Basic and Diluted Net Loss Per Common Share	$ (0.42)	$ (0.26)	$ (1.56)	$ (0.52)	$ (0.50)
Weighted Average Common Shares Outstanding	52,438	44,076	33,177	25,140	21,693

CONSOLIDATED BALANCE SHEET DATA

	DECEMBER 31,				
	2000	1999	1998	1997	1996
Working Capital	$ 46,409	$ 12,289	$ 12,298	$ 4,629	$ 11,673
Total Assets	63,563	19,883	22,650	9,827	17,224
Other Long Term Obligations	4,233	269	563	750	--
Accumulated Deficit	(155,320)	(133,345)	(122,036)	(70,237)	(57,129)
Total Stockholders' Equity	53,932	17,413	18,770	6,316	15,619

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We own financial instruments that are sensitive to market risk as part of our investment portfolio. Our investment portfolio is used to preserve our capital until it is used to fund operations, including our research and development activities. None of these market-risk sensitive instruments are held for trading purposes. We invest our cash primarily in money market mutual funds and U.S. Government and other investment grade debt securities. These investments are evaluated quarterly to determine the fair value of the portfolio. Our investment portfolio includes only marketable securities with active secondary or resale markets to help insure liquidity. We have implemented policies regarding the amount and credit ratings of investments. Due to the conservative nature of these policies, we do not believe we have material exposure due to market risk. The impact to our financial position and results of operations from likely changes in interest rates is not material.

We do not utilize derivative financial instruments. See Notes 1 and 2 to the Consolidated Financials Statements for a description of our use of other financial instruments. The carrying amounts reflected in the consolidated balance sheet of cash and cash equivalents, accounts receivables and accounts payable approximates fair value at December 31, 2000 due to the short-term maturities of these instruments.

SAFE HARBOR STATEMENT UNDER THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995: STATEMENTS CONTAINED IN THE FOLLOWING, ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS, THAT ARE NOT HISTORICAL FACTS MAY BE FORWARD-LOOKING STATEMENTS THAT ARE SUBJECT TO A VARIETY OF RISKS AND UNCERTAINTIES. THERE ARE A NUMBER OF IMPORTANT FACTORS THAT COULD CAUSE THE ACTUAL RESULTS TO DIFFER MATERIALLY FROM THOSE EXPRESSED IN ANY FORWARD-LOOKING STATEMENTS MADE BY AVANT. THESE FACTORS INCLUDE, BUT ARE NOT LIMITED TO: (I) OUR ABILITY TO SUCCESSFULLY COMPLETE PRODUCT RESEARCH AND DEVELOPMENT, INCLUDING PRE-CLINICAL AND CLINICAL STUDIES, AND COMMERCIALIZATION; (II) OUR ABILITY TO OBTAIN SUBSTANTIAL ADDITIONAL FUNDING; (III) OUR ABILITY TO OBTAIN REQUIRED GOVERNMENTAL APPROVALS; (IV) OUR ABILITY TO ATTRACT MANUFACTURING, SALES, DISTRIBUTION AND MARKETING PARTNERS AND OTHER STRATEGIC ALLIANCES; AND (V) OUR ABILITY TO DEVELOP AND COMMERCIALIZE OUR PRODUCTS BEFORE OUR COMPETITORS.

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

AVANT's principle activity since our inception has been research and product development conducted on our own behalf, as well as through joint development programs with several pharmaceutical companies. We were incorporated in the State of Delaware in December 1983.

A significant portion of AVANT's revenue has consisted of payments by others to fund sponsored research, milestone payments under joint development agreements, license fees, payments for material produced for pre-clinical and clinical studies, and sales of test kits and antibodies. Certain portions of the collaborative payments are received in advance, recorded as deferred revenue and recognized when earned in later periods.

Inflation and changing prices have not had a significant effect on continuing operations and are not expected to have any in the near future.

OVERVIEW

We are engaged in the discovery, development and commercialization of products that harness the human immune response to prevent and treat disease. Our products derive from a broad set of complementary technologies with the ability to inhibit the complement system, regulate T and B cell activity, and enable the creation and delivery of preventative and therapeutic vaccines. We are using these technologies to develop vaccines and immunotherapeutics that prevent or treat disease caused by

infectious organisms, and drugs and treatment vaccines that modify undesirable activity by the body's own proteins or cells.

ACQUISITIONS

MEGAN HEALTH, INC.: On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan Health, Inc. ("Megan"), a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies (see Note 14 of Notes to Consolidated Financial Statements). We issued approximately 1,841,200 shares of AVANT's common stock in exchange for all of the outstanding capital stock of Megan, on the basis of 0.763542977 shares of AVANT common stock for each share of Megan preferred stock and 0.08115304 shares of AVANT common stock for each share of Megan common stock. We also assumed all of the outstanding options to purchase common stock of Megan under Megan's stock option plan. The purchase price of $17,332,000 consisted of (i) the issuance of 1,841,200 shares of AVANT common stock valued at $15,803,400, (ii) cash distributed to certain Megan shareholders in lieu of AVANT common stock totaling $236,700, (iii) the issuance of fully vested options to purchase AVANT common stock valued at $239,400 and (iv) severance and transaction costs totaling $1,052,500. As of the date of the acquisition of Megan, AVANT had identified all significant actions to be taken to terminate certain Megan employees. Severance costs totaled approximately $164,200, were recognized upon consummation of the merger and are included in the $1,052,500 referenced above.

The acquisition of Megan has been accounted for as a purchase. Consequently, the purchase price was allocated to the acquired assets and assumed liabilities based upon their fair value at the date of acquisition. The excess of the purchase price over the tangible assets acquired was assigned to acquired intangible assets, the components of which include core technology, developed technology, strategic partner agreement and assembled work force. These acquired intangible assets are being amortized on a straight-line basis over their estimated lives which range from 5 to 17 years. An allocation of $9,012,300 was made to in-process research and development ("IPR&D"), which represented purchased in-process technology which had not yet reached technological feasibility and had no alternative future use. The amount was charged as an expense in our financial statements during the fourth quarter of 2000.

As of the date of the acquisition, Megan was engaged in three significant research and development projects. See our discussion of these projects in the section entitled "Animal Health and Food Safety Vaccine Programs" on page 10. The value of IPR&D was determined by estimating the costs to develop the purchased in-process technology into commercially viable products, estimating the net cash flows from such projects and discounting the net cash flows back to their present values. The probability of success and discount rates used for each project take into account the uncertainty surrounding the successful development and commercialization of the purchased in-process technology. The resulting net cash flows for these projects were based on our best estimates of revenue, cost of sales, research and development costs, selling, general and administrative costs, and income taxes for each project, and the net cash flows reflect assumptions that would be used by market participants.

Substantial additional research and development will be required prior to reaching technological feasibility on any of these products. In addition, each product needs to successfully complete a series of clinical trials and to receive USDA or other regulatory approval prior to commercialization. We are also dependent upon the activities of our collaborators in developing and marketing our products. There can be no assurance that these projects will ever reach feasibility or develop into products that can be marketed profitably, nor can there be assurance AVANT and our collaborators will be able to develop and commercialize these products before our competitors. If these products are not successfully developed and do not become commercially viable, our financial condition and results of operations could be materially adversely affected.

VIRUS RESEARCH INSTITUTE, INC.: On August 21, 1998 AVANT acquired VRI, a company engaged in the discovery and development of systems for the delivery of vaccines and immunotherapeutics, and novel vaccines for adults and children. We issued 14,036,400 shares of AVANT's common stock and warrants to purchase 1,811,200 shares of AVANT's common stock in exchange for all of the outstanding common stock of VRI, on the basis of 1.55 shares of our common stock and .20 of an AVANT warrant for each share of VRI common stock. The acquisition has been accounted for as a purchase. Consequently, the purchase price was allocated to the acquired assets and assumed liabilities based upon their fair value at the date of acquisition. The excess of the purchase price over the tangible assets acquired was assigned to collaborative relationships, work force and goodwill and is being amortized on a straight-line basis over 12 to 60 months. An allocation of $44,630,000 was made to IPR&D, which represented purchased in-process technology which had not yet reached technological feasibility and had no alternative future use. The amount was charged as an expense in our financial statements during the third quarter of 1998.

As of the date of the acquisition, VRI was engaged in six significant research and development projects. As of December 31, 2000, technological feasibility had not yet been reached on any of the major projects acquired, and no significant departures from the assumptions included in the valuation analysis had occurred. Substantial additional research and development will be required prior to reaching technological feasibility on any of these projects. In addition, each project will need to successfully complete a series of clinical trials and will need to receive FDA approval prior to commercialization. There can be no assurance that these projects will ever reach feasibility or develop into products that can be marketed profitably, nor can there be assurance that AVANT and our collaborators will be able to develop and commercialize these products before our competitors. If these products are not successfully developed and do not become commercially viable, our financial condition and results of operations could be harmed.

The acquisitions of Megan and VRI represent the only purchases of historical IPR&D by AVANT to date. As of December 31, 2000, we have no immediate plans to acquire additional IPR&D, although we expect to raise additional capital, as required, through licensing of technology programs with existing or new collaborative partners, possible business combinations, or the issuance of common stock via private placement or public offering.

NEW DEVELOPMENTS

COMPLEMENT INHIBITORS: In 1997, we entered into an agreement with Novartis relating to the development of TP10 for use in xenotransplantation (animal organs into humans) and allotransplantation (human organs into humans). We granted Novartis a two-year option to license TP10 with exclusive worldwide marketing rights (except Japan) in the fields of xenotransplantation and allotransplantation. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. In December 1999, the Novartis agreement was amended to include marketing rights for Japan. The decision to license TP10 resulted in a $6 million equity investment and license payment by Novartis which was received by AVANT in January 2000. Under the agreement, we may receive additional milestone payments of up to $14 million upon attainment of certain development and regulatory goals. We will also be entitled to royalties on product sales under the agreement.

We have elected to independently develop and commercialize TP10 for pediatric cardiac surgery. In September 1999, we initiated an open-label, Phase I/II trial of TP10 in infants undergoing cardiac surgery for congenital heart defects. The trial evaluated the ability of TP10 to mitigate the injury to the heart and other organs that occurs when patients are placed on cardiopulmonary bypass circuits. TP10 was well tolerated in the study population and results of this Phase I/II trial were presented at the Society of Cardiovascular Anesthesiologists Annual Meeting in May 2000 and at the American Heart Annual Association's Meeting in November 2000. In March 2000, we received orphan drug designation for TP10 in infants undergoing cardiac surgery.

AVANT expects to complete two Phase IIb studies of its lead complement inhibitor, TP10, in pediatric cardiac surgery utilizing cardiopulmonary bypass in a total of 40-70 patients before moving to a pivotal Phase III trial. The first study, which was initiated at the end of 2000, is enrolling babies born with hypoplastic left heart syndrome who often have high morbidity and mortality after heart surgery. The second study, which is being conducted in a lower risk infant population, is planned to begin shortly and will allow us to further define our clinical endpoints. We are looking to the results of these trials to support a mortality endpoint for the high risk infant population in the larger pivotal Phase III study and to allow for a possible broadening of the product label for TP10 to cover all babies under one year requiring cardiac surgery to repair congenital heart defects.

In addition, in November 2000, AVANT initiated a placebo-controlled Phase II trial in approximately 600 adult patients undergoing cardiac surgery utilizing cardiopulmonary bypass. This 30-center study is a dose-ranging study that will allow us to further define our clinical endpoints in the adult patient population before moving ahead to a number of pivotal clinical trials. This adult study is intended to investigate the efficacy and safety in a population known to be at high risk of medically important adverse outcomes that have a real effect on the long-term health of a substantial population. AVANT may partner the adult program when additional clinical data becomes available.

CHOLESTEROL TREATMENT VACCINE: We are developing a therapeutic vaccine against endogenous cholesteryl ester transfer protein (CETP), which may be useful in reducing risks associated with atherosclerosis. CETP is a key intermediary in the balance of HDL and LDL. We are developing a vaccine (CETi-1) to stimulate an immune response against CETP, which we believe may improve the ratio of HDL to LDL cholesterol and reduce the progression of atherosclerosis. We have conducted preliminary studies of rabbits, which have demonstrated the ability of CETi-1 vaccine to elevate HDL and reduce the development of blood vessel lesions. In September 1999, we initiated a double-blind placebo controlled, Phase I clinical trial of our CETi-1 vaccine in adult volunteers. The object of the study is to demonstrate the safety of single administrations of the vaccine at four different dosage strengths. Patient enrollment in this Phase I trial was completed in February 2000 and we announced trial results in January 2001.

The vaccine was very well tolerated in the 48 adult volunteers who participated in the study. The only serious adverse reaction reported during the study (allergic reaction to shower gel) was not related to study medication. There were no differences in the safety profiles of placebo groups and active vaccine groups. In addition there was limited evidence of an immune response in one subject treated with the highest dose. In addition, AVANT recently announced preliminary results from a double-blinded placebo controlled extension of the earlier completed Phase I trial of our CETP vaccine (CETi-1) in healthy adult volunteers. CETi-1 is being developed for the management of patients with low levels of HDL (high-density lipoprotein) cholesterol. Results from the extension study showed measurable antibody titers in all dose groups treated with study medication, suggesting a dose-response relationship. These data will be extremely helpful in designing a Phase II study, which we plan to begin in the summer of 2001. As clinical data becomes available, we plan to seek a corporate partner to complete development and to commercialize the vaccine.

CHOLERA VACCINE: We are developing a single dose, oral cholera vaccine using a live, genetically attenuated cholera strain. Based on this technology, developed in academia, we have developed the vaccine through early Phase II trials. We then negotiated a collaboration agreement under which a Phase IIb trial will be performed and funded by the Walter Reed Army Institute of Research (WRAIR) and the National Institute of Health (NIH). This trial, started in October 2000, will test the safety, immunogenecity and protective capacity of the vaccine against a challenge with live virulent cholera. If results from this study are positive, we will move rapidly to complete the manufacture of cGMP grade clinical material in 2001 and to initiate a pivotal challenge trial in the first half of 2002. Development of a safe, effective cholera vaccine is the first step in establishing AVANT's travelers' vaccine franchise. AVANT has also conducted initial clinical studies of our single dose, oral typhoid vaccine and has a

shigella vaccine in pre-clinical development. With the acquisition of Megan Health Inc., AVANT has gained access to technologies for developing vaccines against CAMPYLOBACTER and E. COLI, two additional causes of serious diarrheal diseases worldwide.

ROTAVIRUS VACCINE: Rotavirus is a major cause of diarrhea and vomiting in infants and children. No vaccine against rotavirus is currently on the market. In 1997, we licensed our oral rotavirus vaccine to SmithKline. In 1999, after our Phase II study demonstrated 89% protection in a study involving 215 infants, SmithKline paid us an additional license fee and assumed full responsibility for funding and performing all remaining clinical development. SmithKline has initiated Phase I/II bridging studies in Europe using its newly manufactured rotavirus vaccine, called Rotarix-TM-, and is now planning to start Phase III safety and efficacy studies in the second half of 2001, after review with health authorities. Assuming product development and commercialization continues satisfactorily, we expect that SmithKline will pay us additional milestones and a royalty based on sales.

ADJUMER-REGISTERED TRADEMARK-: AVANT is a party to two license agreements with Aventis pursuant to which Aventis has been granted the exclusive and co-exclusive right (exclusive, except for the right of AVANT or one other person licensed by AVANT) to make, use and sell certain of our vaccines. We received a milestone payment of $600,000 from our collaborator Aventis in the fourth quarter of 1998. The milestone payment relates to a Phase I clinical trial using our Adjumer-Registered Trademark--formulated Respiratory Syncytial Virus (RSV) vaccine initiated by Aventis in 1998.

RESULTS OF OPERATIONS

FISCAL YEAR ENDED DECEMBER 31, 2000 COMPARED WITH FISCAL YEAR ENDED DECEMBER 31, 1999

AVANT reported a net loss of $21,975,000, or $0.42 per share, for the year ended December 31, 2000, compared to a net loss of $11,309,100, or $0.26 per share, for the year ended December 31, 1999. The net loss for the year ended December 31, 2000 includes a charge of $9,012,300 for purchased in-process research and development related to the acquisition of Megan in December 2000. Excluding the charge for purchased in-process research and development, the net loss for 2000 increased $1,653,600, or 14.6%, to $12,962,700, or $0.25 per share, compared to a net loss of $11,309,100, or $0.26 per share, for 1999. The weighted average common shares outstanding used to calculate the net loss per common share was 52,438,100 in 2000 and 44,076,400 in 1999.

OPERATING REVENUE

Total operating revenue decreased $720,300, or 48.6%, to $763,200 in 2000 from $1,483,500 in 1999.

Product development and licensing revenue decreased $753,700, or 50.8%, to $729,800 in 2000 from $1,483,500 in 1999. In 2000, we recognized $729,800 in the amortization of nonrefundable license fees from Novartis and Pfizer in product development and licensing revenue. In 1999, product development and licensing revenue consisted primarily of $750,000 in the amortization of a nonrefundable option fee associated with our agreement with Novartis, a milestone payment of $500,000 from SmithKline and $193,500 received in connection with our SBIR grants.

Product sales for 2000 totaled $33,400 and were derived from sales of our Megan-Registered Trademark-Vac 1 product, a vaccine for use in chickens for protection against multiple strains of SALMONELLA bacteria, which we acquired in connection with our acquisition of Megan. There were no product sales recorded in 1999.

OPERATING EXPENSE

Total operating expense for 2000 was $24,716,300 compared to $13,427,800 for 1999. Operating expense for 2000 included a charge of $9,012,300 for purchased in-process research and development in connection with the acquisition of Megan in December 2000. Excluding the purchased in-process

research and development charge, operating expense increased $2,276,200, or 17.0%, to $15,104,000 for 2000 compared to $13,427,800 for 1999. The increase in total operating expense for 2000 compared to 1999 is primarily due to increased clinical trials costs and clinical materials costs incurred in connection with AVANT's TP10 and CETi-1 clinical programs. These cost increases were offset in part by the receipt in 2000 of legal settlement payments totaling $500,000 and a reduction in the charge for amortization of acquired intangible assets.

Research and development expense increased $2,902,400, or 36.9%, to $10,774,200 in 2000 from $7,871,800 in 1999. The increase in 2000 compared to 1999 is primarily due to costs associated with conducting clinical trials of CETi-1 and TP10, and an increase in expense associated with the manufacture of clinical materials.

Selling, general and administrative expense increased $528,100, or 12.3%, to $4,808,300 in 2000 compared to $4,280,200 in 1999. Included in selling, general and administrative expense in 2000 and 1999 are charges of $69,600 and $105,900 for the write-off of certain capitalized patent costs associated with our complement and SMIR programs, respectively. Excluding the write-off of patent costs in 2000 and 1999, selling, general and administrative expense increased $564,400, or 13.5%, to $4,738,700 for 2000 compared to $4,174,300 for 1999. The increase in expense in 2000 compared to 1999 is primarily attributed to higher consultant, investor relations and personnel costs.

NON-OPERATING INCOME, NET

Interest income increased $1,342,900, or 211%, to $1,978,100 for 2000 compared to $635,200 for 1999. The increase in interest income is primarily due to higher average cash balances in 2000.

FISCAL YEAR ENDED DECEMBER 31, 1999 COMPARED WITH FISCAL YEAR ENDED DECEMBER 31, 1998

AVANT reported a net loss of $11,309,100, or $0.26 per share, for the year ended December 31, 1999, compared to a net loss of $51,799,700, or $1.56 per share, for the year ended December 31, 1998. The net loss for the year ended December 31, 1998 includes a charge of $44,630,000 for purchased in-process research and development related to the acquisition of VRI in August 1998. Excluding the charge for purchased in-process research and development in 1998, the net loss for 1999 increased 57.7% to $11,309,100, or $0.26 per share, compared to a net loss of $7,169,700, or $0.22 per share, for 1998. The weighted average common shares outstanding used to calculate the net loss per common share was 44,076,400 in 1999 and 33,177,200 in 1998.

OPERATING REVENUE

Total operating revenue decreased $666,900, or 31.0%, to $1,483,500 in 1999 from $2,150,400 in 1998.

Product development and licensing revenue decreased $611,000, or 29.2%, to $1,483,500 in 1999 from $2,094,500 in 1998. Product development and licensing revenue in 1999 consisted primarily of a $750,000 nonrefundable option fee associated with our agreement with Novartis, a milestone payment of $500,000 from SmithKline and $193,500 received in connection with our SBIR grants. In 1998, we recognized $1,000,000 of a nonrefundable option fee from Novartis in product development and licensing revenue, milestone payments totaling $600,000 from Aventis and $494,500 received in connection with our SBIR grants.

There were no product sales recorded in 1999. Product sales for 1998 totaled $55,900 and were derived from sales of our TRAx-Registered Trademark- test kits. In August 1999, we sold the TRAx-Registered Trademark- line of diagnostic products and the TRAx-Registered Trademark- technology.

OPERATING EXPENSE

Total operating expense for 1999 was $13,427,800 compared to $54,544,300 for 1998. Operating expense for 1998 included a charge of $44,630,000 for purchased in-process research and development in connection with the acquisition of VRI in August 1998. Excluding the purchased in-process research and development charge in 1998, operating expense increased $3,513,500, or 35.4%, to $13,427,800 for 1999 compared to $9,914,300 for 1998. The increase in total operating expense for 1999 compared to 1998 is primarily due to: (i) a full year of operations of VRI in 1999 versus four months in 1998, combined with an increase of goodwill amortization expense of $729,400; (ii) an increase in clinical trials cost; and (iii) an increase in expense associated with the manufacture of clinical materials for AVANT-funded clinical studies.

Research and development expense increased $2,168,700, or 38.0%, to $7,871,800 in 1999 from $5,703,100 in 1998. The increase in 1999 compared to 1998 is primarily due to a full year of operations of VRI in 1999 versus four months in 1998, costs associated with conducting the Phase I clinical trial of CETP and the Phase I/II clinical trial of TP10, both ongoing in 1999, and an increase in expenses associated with the manufacture of clinical materials.

General and administrative expense increased $472,100, or 12.4%, to $4,280,200 in 1999 compared to $3,808,100 in 1998. Included in general and administrative expense in 1999 and 1998 are charges of $105,900 and $294,500 for the write-off of certain capitalized patent costs associated with our SMIR program and our TRAx-Registered Trademark- technology, respectively. Excluding the write-off of patent costs in 1999 and 1998, general and administrative expense increased $660,700, or 18.8%, to $4,174,300 for 1999 compared to $3,513,600 for 1998. The increase in 1999 compared to 1998 is primarily due to a full year of operations of VRI in 1999 versus four months in 1998.

NON-OPERATING INCOME, NET

Non-operating income, net increased $41,000, or 6.9%, to $635,200 for 1999 compared to $594,200 in 1998. Interest income increased $63,300, or 11.1%, to $635,200 for 1999 compared to $571,900 for 1998. The increase in interest income is primarily due to higher average cash balances in 1999.

LIQUIDITY AND CAPITAL RESOURCES

AVANT's cash, cash equivalents and marketable securities at December 31, 2000 was $50,177,000 compared to $13,619,000 at December 31, 1999. Cash used in operations was $4,431,900 in 2000 compared $8,539,100 in 1999 and $8,852,000 in 1998.

Concurrent with our acquisition of Megan, we entered into a licensing agreement with Pfizer whereby Pfizer made an initial license payment of $2.5 million together with a $3 million equity investment in AVANT. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. The decision to license TP10 resulted in a $6 million payment by Novartis which was received by AVANT in January 2000.

On July 17, 2000, we completed a private placement of 4,650,900 newly issued shares of common stock at $7.85 per share which generated net proceeds totaling approximately $34,481,000 after deducting all associates expenses. In September 1999, we completed a private placement of 5,459,400 shares of common stock to institutional investors at a price of $1.92 per share. Net proceeds from the common stock issuance totaled approximately $9,838,900. In March 1998, we completed a private placement of 2,043,500 shares of common stock to institutional investors at a price of $1.90 per share. Net proceeds from the common stock issuance totaled approximately $3,699,800.

In November 1997, AVANT reached a settlement in a lawsuit with our former landlord and the landlord's mortgagee. As part of the settlement, we agreed to pay $858,800 in cash on November 17, 1997 and issue a total of 1,500,000 shares of our common stock. In addition, we signed a note for

$750,000, due on November 16, 1998, secured by $750,000 cash and a note for $750,000 due November 15, 1999, secured by 132,500 shares of our common stock. The total settlement, valued at $6,108,800, is comprised of the cash and notes totaling $2,358,800 and our common stock valued at $3,750,000 as of October 31, 1997. The common stock is subject to restrictions on transfer in accordance with the settlement agreement and limits the number of shares that may be sold over a given period of time. In May 1998, in accordance with the settlement agreement, we elected to secure the note for $750,000 due November 15, 1999 by $750,000 cash in exchange for the return of 66,250 shares or one half of the common stock originally used to secure the note. The cash collateral is recorded as short-term restricted cash at December 31, 1998. In November 1999, the note was paid in full.

During 1994, we entered into an agreement providing us with the right to lease up to $2,000,000 of equipment for up to a five-year term. The lease arrangement contains certain restrictive covenants, determined at the end of each fiscal quarter. In accordance with the lease agreement, in September 1995 we pledged as collateral cash equal to the amount outstanding on the lease, which is to remain in a certificate of deposit until the end of the lease, or as otherwise agreed by the lessor and AVANT. In March 2000, the lessor released us from the requirement to maintain cash collateral.

AVANT believes that cash inflows from existing grants and collaborations, interest income on invested funds and our current cash and cash equivalents will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2001 and into the first half of 2002. The working capital requirements of AVANT are dependent on several factors including, but not limited to, the costs associated with research and development programs, pre-clinical and clinical studies, manufacture of clinical and commercial grade materials and the scope of collaborative arrangements. During 2001, we expect to take steps to raise additional capital including, but not limited to, licensing of technology programs with existing or new collaborative partners, possible business combinations, or the issuance of common stock via private placement or public offering. There can be no assurance that such efforts will be successful.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT ACCOUNTANTS

To The Board of Directors and Shareholders of

AVANT Immunotherapeutics, Inc.

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of operations, stockholders' equity and cash flows present fairly, in all material respects, the financial position of AVANT Immunotherapeutics, Inc. and its subsidiaries (the "Company") at December 31, 2000 and 1999, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2000, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with auditing standards generally accepted in the United States of America, which 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, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

PricewaterhouseCoopers LLP

Boston, Massachusetts
February 2, 2001

AVANT IMMUNOTHERAPEUTICS, INC.

CONSOLIDATED BALANCE SHEET

	DECEMBER 31, 2000	DECEMBER 31, 1999
ASSETS		
Current Assets:		
Cash and Cash Equivalents	$ 50,177,000	$ 13,619,000
Accounts Receivable	153,500	--
Inventories	59,200	--
Current Portion Lease Receivable	395,700	431,700
Prepaid and Other Current Assets	1,021,200	439,000
Total Current Assets	51,806,600	14,489,700
Property and Equipment, Net	1,037,900	1,256,800
Restricted Cash	--	217,000
Long-Term Lease Receivable	--	395,700
Intangible and Other Assets	10,718,500	3,523,500
Total Assets	$ 63,563,000	$ 19,882,700
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts Payable	$ 902,300	$ 575,300
Accrued Expenses	2,681,600	1,331,500
Current Portion Deferred Revenue	1,539,600	--
Current Portion Lease Payable	274,500	293,700
Total Current Liabilities	5,398,000	2,200,500
Long-Term Deferred Revenue	4,233,000	--
Long-Term Lease Payable	--	269,200
Commitments and Contingent Liabilities (Notes 3 and 13)		
Stockholders' Equity:		
Common Stock, $.001 Par Value 75,000,000 Shares Authorized; 57,144,200 Issued and Outstanding at December 31, 2000; 48,127,400 Issued and Outstanding at December 31, 1999	57,100	48,100
Additional Paid-In Capital	209,195,300	150,710,300
Accumulated Deficit	(155,320,400)	(133,345,400)
Total Stockholders' Equity	53,932,000	17,413,000
Total Liabilities and Stockholders' Equity	$ 63,563,000	$ 19,882,700

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

AVANT IMMUNOTHERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF OPERATIONS

	YEAR ENDED DECEMBER 31, 2000	YEAR ENDED DECEMBER 31, 1999	YEAR ENDED DECEMBER 31, 1998
OPERATING REVENUE:			
Product Development and Licensing Agreements	$ 729,800	$ 1,483,500	$ 2,094,500
Product Sales	33,400	--	55,900
Total Operating Revenue	763,200	1,483,500	2,150,400
OPERATING EXPENSE:			
Research and Development	10,774,200	7,871,800	5,703,100
Selling, General and Administrative	4,808,300	4,280,200	3,808,100
Cost of Product Sale	3,500	--	22,300
Charge for Purchased In-Process Research & Development	9,012,300	--	44,630,000
Legal Settlement	(500,000)	--	(165,600)
Amortization of Acquired Intangible Assets	618,000	1,275,800	546,400
Total Operating Expense	24,716,300	13,427,800	54,544,300
Operating Loss	(23,953,100)	(11,944,300)	(52,393,900)
Non-Operating Income, Net	1,978,100	635,200	594,200
Net Loss	$(21,975,000)	$(11,309,100)	$(51,799,700)
Basic and Diluted Net Loss Per Common Share	$ (0.42)	$ (0.26)	$ (1.56)
Weighted Average Common Shares Outstanding	52,438,100	44,076,400	33,177,200

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

AVANT IMMUNOTHERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY

	SHARES	COMMON STOCK PAR VALUE	ADDITIONAL PAID-IN CAPITAL	TREASURY STOCK COST	ACCUMULATED DEFICIT	TOTAL STOCKHOLDERS' EQUITY
BALANCE AT DECEMBER 31, 1997.....	26,487,400	$26,500	$ 76,561,400	$(35,800)	$ (70,236,600)	$ 6,315,500
Shares Issued upon Exercise of Stock Options.....	11,400	--	15,300	--	--	15,300
Employee Stock Purchase Plan Issuance.....	--	--	(10,700)	22,000	--	11,300
Returned Shares from Settlement of Litigation at $2.50 per Share.....	(66,300)	--	(165,600)	--	--	(165,600)
Net Proceeds from Stock Issuance.....	2,043,500	2,000	3,697,800	--	--	3,699,800
Shares Issued for Acquisition of Virus Research Institute, Inc.....	14,036,400	14,000	60,679,000	--	--	60,693,000
Net Loss for the Year Ended December 31, 1998.....	--	--	--	--	(51,799,700)	(51,799,700)
BALANCE AT DECEMBER 31, 1998.....	42,512,400	$42,500	$140,777,200	$(13,800)	$(122,036,300)	$ 18,769,600
Shares Issued upon Exercise of Stock Options.....	152,100	100	102,000	--	--	102,100
Employee Stock Purchase Plan Issuance.....	3,500	--	(2,200)	13,800	--	11,600
Net Proceeds from Stock Issuance.....	5,459,400	5,500	9,833,300	--	--	9,838,800
Net Loss for the Year Ended December 31, 1999.....	--	--	--	--	(11,309,100)	(11,309,100)
BALANCE AT DECEMBER 31, 1999.....	48,127,400	$48,100	$150,710,300	$ --	$(133,345,400)	$ 17,413,000
Shares Issued upon Exercise of Stock Options.....	738,800	700	2,114,800	--	--	2,115,500
Shares Issued upon Exercise of Warrants.....	55,000	100	313,600	--	--	313,700
Employee Stock Purchase Plan Issuance.....	5,500	--	11,000	--	--	11,000
Net Proceeds from Stock Issuance.....	6,376,300	6,400	39,509,500	--	--	39,515,900
Shares Issued for Acquisition of Megan Health, Inc.....	1,841,200	1,800	16,536,100	--	--	16,537,900
Net Loss for the Year Ended December 31, 2000.....	--	--	--	--	(21,975,000)	(21,975,000)
BALANCE AT DECEMBER 31, 2000.....	57,144,200	$57,100	$209,195,300	$ --	$(155,320,400)	$ 53,932,000

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

AVANT IMMUNOTHERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF CASH FLOWS

INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	YEAR ENDED DECEMBER 31, 2000	YEAR ENDED DECEMBER 31, 1999	YEAR ENDED DECEMBER 31, 1998
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net Loss	$(21,975,000)	$(11,309,100)	$(51,799,700)
Adjustments to Reconcile Net Loss to Cash Used by Operating Activities:			
Depreciation and Amortization	1,310,800	1,988,600	989,800
Write-off of Capitalized Patent Costs	69,600	105,900	337,000
Non-Cash Portion of Litigation Settlement	--	--	(165,600)
Gain on Sale of Equipment	--	--	(22,300)
Charge for Purchased In-Process Research and Development	9,012,300	--	44,630,000
Changes in Assets and Liabilities, Net of Acquisition:			
Current Portion Restricted Cash	--	750,000	--
Accounts Receivable	(8,100)	--	--
Inventories	2,400	--	--
Prepaid and Other Current Assets	(541,900)	190,700	(1,529,900)
Accounts Payable and Accrued Expenses	1,787,900	358,400	(1,291,300)
Deferred Revenue	5,772,600	(750,000)	--
Lease Receivable	431,700	395,600	--
Lease Payable	(294,200)	(269,200)	--
Net Cash Used in Operating Activities	(4,431,900)	(8,539,100)	(8,852,000)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Acquisition of Property and Equipment	(177,200)	(688,500)	(294,800)
Proceeds from the Sale of Equipment	--	--	25,200
Redemption of Marketable Securities	--	4,903,100	4,463,000
Increase in Patents and Licenses	(282,000)	(344,200)	(426,000)
Decrease in Long-Term Restricted Cash, Net	217,000	148,000	160,000
Cash Paid for Acquisition of Megan Health, Inc	(724,000)	--	--
Cash Received from Acquisition of Virus Research Institute, Inc	--	--	4,391,500
Payment of Notes Payable	--	(750,000)	(750,000)
Other	--	--	57,600
Net Cash Provided by (Used in) Investing Activities	(966,200)	3,268,400	7,626,500
CASH FLOWS FROM FINANCING ACTIVITIES:			
Net Proceeds from Stock Issuance	39,515,900	9,850,400	3,711,100
Proceeds from Exercise of Stock Options and Warrants	2,440,200	102,100	15,300
Net Cash Provided by Financing Activities	41,956,100	9,952,500	3,726,400
Increase in Cash and Cash Equivalents	36,558,000	4,681,800	2,500,900
Cash and Cash Equivalents at Beginning of Period	13,619,000	8,937,200	6,436,300
Cash and Cash Equivalents at End of Period	$ 50,177,000	$ 13,619,000	$ 8,937,200

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

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(A) NATURE OF BUSINESS

AVANT Immunotherapeutics, Inc. ("AVANT") is a biopharmaceutical company engaged in the discovery, development and commercialization of products that harness the human immune response to prevent and treat disease. We develop and commercialize products on a proprietary basis and in collaboration with established pharmaceutical partners, including Novartis Pharma AG, Aventis Pasteur, GlaxoSmithKline plc and Pfizer Inc.

In July 2000, we completed a private placement of approximately 4,650,900 shares of common stock to institutional investors at a price of $7.85 per share which generated net proceeds totaling approximately $34,481,000. In September 1999, we completed a private placement of 5,459,400 shares of common stock to institutional investors at a price of $1.92 per share. Net proceeds from the common stock issuance totaled approximately $9,838,800.

On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan Health, Inc. ("Megan"), a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies (see Note 14). On August 21, 1998, AVANT acquired all of the outstanding capital stock of Virus Research Institute, Inc. ("VRI"), a company engaged in the discovery and development of (i) systems for the delivery of vaccines and immunotherapeutics and (ii) novel vaccines (see Note 15).

AVANT's cash and cash equivalents at December 31, 2000 was $50,177,000. Our working capital at December 31, 2000 was $46,408,600. We incurred a loss of $21,975,000 for the year ended December 31, 2000. AVANT believes that cash inflows from existing grants and collaborations, interest income on invested funds and our current cash and cash equivalents will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2001. The working capital requirements of AVANT are dependent on several factors including, but not limited to, the costs associated with research and development programs, pre-clinical and clinical studies and the scope of collaborative arrangements. During 2001, we expect to take steps to raise additional capital, including, but not limited to, licensing of technology programs with existing or new collaborative partners, possible business combinations, or the issuance of common stock via private placement or public offering. There can be no assurances that such efforts will be successful.

In December 2000, Pfizer Inc. made an equity investment of $3,000,000 for 285,900 shares of our common stock and paid a license fee of $2,500,000 as a result of our acquisition of Megan Health, Inc. (see Note 9).

In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. The decision to license TP10 resulted in a $6 million payment by Novartis which was received by AVANT in January 2000. The payment included an equity investment of $2,307,700 for 1,439,500 shares of our common stock at $1.60 per share and a license fee of $3,692,300.

(B) BASIS OF PRESENTATION

The consolidated financial statements include the accounts of AVANT Immunotherapeutics, Inc. and our wholly owned subsidiaries Megan Health, Inc. and Polmerix, Inc. All intercompany transactions have been eliminated.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

(C) CASH AND CASH EQUIVALENTS

Cash and cash equivalents consist of cash and short-term investments with original maturities of three months or less. Cash and cash equivalents are stated at cost, which approximates fair value.

We invest our non-operating cash in debt instruments of financial institutions, government entities and corporations, and mutual funds. We have established guidelines relative to credit ratings, diversification and maturities that maintain safety and liquidity.

(D) FAIR VALUE OF FINANCIAL INSTRUMENTS

AVANT enters into various types of financial instruments in the normal course of business. Fair values for cash, cash equivalents, short-term investments, accounts and notes receivable, accounts and notes payable and accrued expenses approximate carrying value at December 31, 2000 and 1999, due to the nature and the relatively short maturity of these instruments.

(E) REVENUE RECOGNITION

AVANT has entered into various license and development agreements with pharmaceutical and biotechnology companies. Nonrefundable revenue derived from such agreements is recognized over the specified development period as research and development or discovery activities are performed. Milestone payments are recognized as revenue upon receipt, if we have no continuing involvement in accordance with the related agreement. Option fees are recognized over the related option period. Payments received in advance of activities being performed is recorded as deferred revenue. Revenues from product sales are recorded when the product is shipped providing no significant post-delivery obligations remain and collection of the related receivable is reasonably assured.

The adoption of Staff Accounting Bulletin 101 "Revenue Recognition in Financial Statements" has no impact on our financial statements.

(F) RESEARCH AND DEVELOPMENT COSTS

Research and development costs are expensed as incurred.

(G) INVENTORIES

Inventories are stated at the lower of cost or market. Inventories consist of finished products at December 31, 2000. Cost is determined using the first-in, first-out (FIFO) method.

(H) PROPERTY AND EQUIPMENT

Property and equipment is stated at cost and depreciated over the estimated useful lives of the related assets using the straight-line method. Laboratory equipment and office furniture and equipment are depreciated over a five year period and computer equipment is depreciated over a three year period. Leasehold improvements are amortized over the shorter of the estimated useful life or the noncancelable term of the related lease.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

(I) LICENSES, PATENTS AND TRADEMARKS

Included in other assets are some costs associated with purchased licenses and some costs associated with patents and trademarks which are capitalized and amortized over the shorter of the estimated useful lives or ten years using the straight-line method. We periodically evaluate the recoverability of these assets in accordance with Statement of Financial Accounting Standards No. 121 ("SFAS 121"), "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of".

(J) LOSS PER SHARE

In February 1997, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 128 ("SFAS 128"), "Earnings per Share", which changed the method of calculating earnings per share. SFAS 128, which we adopted in the fourth quarter of 1997, requires the presentation of "basic" earnings per share and "diluted" earnings per share. As a result of our net loss, both basic and diluted earnings per share are computed by dividing the net loss available to common shareholders by the weighted average number of shares of common stock outstanding.

(K) COMPREHENSIVE INCOME

AVANT adopted Statement of Financial Accounting Standards No. 130 "Reporting Comprehensive Income," effective January 1, 1998. The statement requires a full set of general purpose financial statements to be expanded to include the reporting of "comprehensive income." Comprehensive income is comprised of two components, net income and other comprehensive income. For the years ended December 31, 1999 and 2000, the Company had no other comprehensive income.

(L) STOCK COMPENSATION

AVANT's employee stock compensation plans are accounted for in accordance with Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees." We adopted the disclosure requirements of Statement of Financial Accounting Standards No. 123 ("SFAS 123"), "Accounting for Stock-Based Compensation". All stock based awards to non-employees are accounted for at their fair value as prescribed by SFAS 123 and ETIF 96-18, "Accounting for Equity Instruments that are issued to other than Employees for Acquiring, or in conjunction with Selling, Goods and Services" (see Note 7).

(M) USE OF ESTIMATES

The preparation of the financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect reported amounts and disclosures. Actual results could differ from those estimates.

(N) SEGMENTS

AVANT is engaged principally in one industry segment that represents all revenues. AVANT follows the requirements of Statement of Accounting Standards No. 131, "Disclosures About Segments of an Enterprise and Related Information."

2. SHORT-TERM INVESTMENTS AND RESTRICTED CASH

AVANT invests in high quality, short-term investments which are considered highly liquid and are available to support current operations. We also invest in high quality, debt securities which are classified as held-to-maturity. At December 31, 2000 and 1999, our investments that met the definition of cash equivalents were recorded at cost, which approximated fair value.

Pursuant to the terms of an operating lease, AVANT pledged as collateral $217,000 at December 31, 1999 (see Note 3). In March 2000, the lessor released us from the requirement to maintain cash collateral.

3. PROPERTY, EQUIPMENT AND LEASES

Property and equipment includes the following:

	DECEMBER 31, 2000	DECEMBER 31, 1999
Laboratory Equipment	$ 2,800,500	$ 2,595,400
Office Furniture and Equipment	1,355,600	1,176,800
Leasehold Improvements	962,200	938,100
Property and Equipment, Total	5,118,300	4,710,300
Less Accumulated Depreciation	(4,080,400)	(3,453,500)
	$ 1,037,900	$ 1,256,800

Depreciation expense related to equipment and leasehold improvements was approximately $524,200, $543,100 and $267,600 for the years ended December 31, 2000, 1999 and 1998, respectively.

In May 1996, we entered into a six-year lease for laboratory and office space in Needham, Massachusetts. The lease replaced two-year lease and sublease agreements entered into in March 1995 for the same location and increased the amount of office and laboratory space available.

In 1994, we entered into a lease agreement providing AVANT with the right to lease up to $2,000,000 of equipment for up to a five-year term. The lease agreement contains specified restrictive covenants determined at the end of each fiscal quarter which, for the quarter ended September 30, 1995, included a minimum cash, cash equivalents and short-term investments balance of $10,000,000. At September 30, 1995 our cash and cash equivalents balance was below $10,000,000. As a result, in accordance with the lease agreement, we pledged cash as collateral to the lessor equal to the amount outstanding on the lease, which is to remain in a certificate of deposit until the end of the lease or as otherwise agreed by the lessor and AVANT. We have recorded $217,000 as long-term restricted cash at December 31, 1999. In March 2000, the lessor released us from the requirement to maintain cash collateral.

3. PROPERTY, EQUIPMENT AND LEASES (CONTINUED)

Obligations for base rent, net of sublease income, under these and other noncancelable operating leases as of December 31, 2000 are approximately as follows:

YEAR ENDING DECEMBER 31,	
2001	$1,210,800
2002	377,400
2003	24,500
2004	23,800
2005 and thereafter	19,800
Total minimum lease payments	$1,656,300

Our total rent for all operating leases (including rent expense net of sublease income) was approximately $1,159,300, $804,900 and $909,500 for the years ended December 31, 2000, 1999 and 1998, respectively.

4. OTHER ASSETS

Other assets include the following:

	DECEMBER 31, 2000	DECEMBER 31, 1999
Capitalized Patent Costs	$ 2,322,900	$ 2,101,300
Accumulated Amortization	(883,900)	(715,300)
Capitalized Patent Costs, Net	1,439,000	1,386,000
Acquired Intangible Assets:		
Goodwill	2,275,700	2,275,700
Collaborative Relationships	1,090,000	1,090,000
Assembled Workforce	625,400	470,000
Core Technology	1,786,900	--
Developed Technology	3,263,100	--
Strategic Partner Agreement	2,563,900	--
Accumulated Amortization	(2,440,300)	(1,822,200)
Acquired Intangible Assets, Net	9,164,700	2,013,500
Other Non Current Assets	114,800	124,000
	$10,718,500	$ 3,523,500

In December 2000 and 1999, we evaluated and subsequently wrote off approximately $69,600 and $105,900 of capitalized patent costs relating to certain abandoned patent applications in our complement program and our SMIR program, respectively. These write-offs were included in operating expense as general and administrative expense for the years ended December 31, 2000 and 1999.

Amortization expense for the years ended December 31, 2000, 1999 and 1998 relating to the capitalized costs of purchased licenses, patents and trademarks was approximately $168,600, $169,700

4. OTHER ASSETS (CONTINUED)
and $175,800, respectively. Amortization expense for goodwill and acquired intangible assets for the years ended December 31, 2000, 1999 and 1998 was approximately $618,000, $1,275,800 and $546,400, respectively.

5. ACCRUED EXPENSES

Accrued expenses include the following:

	DECEMBER 31, 2000	DECEMBER 31, 1999
Accrued License Fees	$ 201,800	$ 8,300
Accrued Payroll and Employee Benefits	294,600	333,200
Accrued Clinical Trials	1,286,000	409,200
Accrued Legal	165,000	138,100
Other Accrued Expenses	734,200	442,700
	$2,681,600	$1,331,500

6. INCOME TAXES

	YEAR ENDED DECEMBER 31,		
	2000	1999	1998
Income tax benefit (provision):			
Federal	$ 4,954,600	$ 3,628,500	$ 17,640,500
State	(572,000)	189,000	3,141,500
	4,382,600	3,817,500	20,782,000
Deferred tax assets valuation allowance	(4,382,600)	(3,817,500)	(20,782,000)
	$ --	$ --	$ --

Deferred tax assets are comprised of the following:

	DECEMBER 31, 2000	DECEMBER 31, 1999
Net Operating Loss Carryforwards	$ 45,841,000	$ 39,851,000
Tax Credit Carryforwards	5,276,000	4,742,000
Other	2,937,000	645,000
Gross Deferred Tax Assets	54,054,000	45,238,000
Deferred Tax Assets Valuation Allowance	(54,054,000)	(45,238,000)
	$ --	$ --

6. INCOME TAXES (CONTINUED)

Reconciliation between the amount of reported income tax expenses and the amount computed using the U.S. Statutory rate of 34% follows:

	2000	1999	1998
Loss at Statutory Rates	$(7,471,500)	$(3,866,800)	$(17,612,200)
Research and Development Credits	(500,500)	(200,000)	(218,700)
State tax provision (benefit), net of federal tax liabilities	572,000	(747,200)	(514,000)
Other	(393,600)	438,300	190,400
Expiration of State NOLS	339,000	558,200	170,800
In Process R&D	3,072,000	--	15,174,200
Benefit of losses and credits not recognized, increase in valuation allowance	4,382,600	3,817,500	2,809,500
	$ --	$ --	$ --

AVANT has provided a full valuation allowance for deferred tax assets as management has concluded that it is more likely than not that we will not recognize any benefits from our net deferred tax asset. The timing and amount of future earnings will depend on numerous factors, including our future profitability. We will assess the need for a valuation allowance as of each balance sheet date based on all available evidence.

At December 31, 2000, we had U.S. net operating loss carryforwards of $123,000,000, U.S. capital loss carryforwards of $1,852,000, and U.S. tax credits of $4,236,800 which expire at various dates through 2020. Under the Tax Reform Act of 1986, substantial changes in our ownership could result in an annual limitation on the amount of net operating loss carryforwards, research and development tax credits, and capital loss carryforwards which could be utilized. Approximately $3,638,000 of the net operating loss carryforwards relate to the exercise of non-qualified stock options and disqualifying dispositions of incentive stock options, the tax benefit from which, if realized, will be credited to additional paid-in capital.

7. STOCKHOLDERS' EQUITY

(A) PUBLIC AND PRIVATE STOCK OFFERINGS

On July 17, 2000, we completed a private placement of 4,650,900 newly issued shares of common stock which generated net proceeds totaling approximately $34,481,000 after deducting all associated expenses.

On September 22, 1999, we completed a private placement of 5,459,400 newly issued shares of common stock. Net proceeds were approximately $9,838,800 after deducting all associated expenses.

(B) PREFERRED STOCK

At December 31, 2000 and 1999, AVANT had authorized preferred stock comprised of 1,163,102 shares of convertible Class B and 3,000,000 shares of convertible Class C of which

7. STOCKHOLDERS' EQUITY (CONTINUED)
350,000 shares has been designated as Class C-1 Junior Participating Cumulative, the terms of which are to be determined by our Board of Directors. There was no preferred stock outstanding at December 31, 2000 and 1999.

(C) WARRANTS

AVANT has issued warrants to purchase common stock in connection with the acquisition of VRI on August 21, 1998. The warrants are exercisable at $6.00 per share and expire August 22, 2003. In connection with the acquisition of VRI, we also assumed the obligations of VRI with respect to each outstanding warrant to purchase VRI common stock (a "VRI Warrant"). Each VRI Warrant assumed by AVANT, which will continue to have, and be subject to, the terms and conditions of the applicable warrant agreements and warrant certificates, has been adjusted consistent with the ratio at which our common stock was issued in exchange for VRI common stock in the acquisition.

Warrants outstanding at December 31, 2000 are as follows:

SECURITY	NUMBER OF SHARES	EXERCISE PRICE PER SHARE	EXPIRATION DATE
Common stock.....	35,657	$ .62	February 9, 2004
Common stock.....	72,682	1.26	December 14, 2005
Common stock.....	17,050	6.19	April 12, 2001
Common stock.....	1,774,484	6.00	August 22, 2003

(D) STOCK COMPENSATION AND EMPLOYEE STOCK PURCHASE PLANS

STOCK COMPENSATION

On May 6, 1999, AVANT's 1999 Stock Option and Incentive Plan (the "1999 Plan") was adopted. The 1999 Plan replaced the Amended and Restated 1991 Stock Compensation Plan, which was an amendment and restatement of our 1985 Incentive Option Plan. The 1999 Plan permits the granting of incentive stock options (intended to qualify as such under Section 422A of the Internal Revenue Code of 1986, as amended), non-qualified stock options, stock appreciation rights, performance share units, restricted stock and other awards of restricted stock in lieu of cash bonuses to employees, consultants and outside directors.

The 1999 Plan allows for a maximum of 2,000,000 shares of common stock to be issued prior to May 6, 2009. The Board of Directors determines the term of each option, option price, number of shares for which each option is granted and the rate at which each option vests. The term of each option cannot exceed ten years (five years for options granted to holders of more than 10% of the voting stock of AVANT) and the exercise price of stock options cannot be less than the fair market value of the common stock at the date of grant (110% of fair market value for options granted to holders of more than 10% of the voting stock of AVANT).

In connection with the acquisition of Megan, we assumed the obligations of Megan under Megan's Stock Option Plan (the "Megan Plan") and each outstanding option to purchase Megan common stock (a "Megan Stock Option") granted under the Megan Plan. Each Megan Stock Option assumed by AVANT is deemed to constitute an option to acquire, on the same terms and conditions as were applicable under the Megan Plan, shares of AVANT's common stock which has been adjusted

7. STOCKHOLDERS' EQUITY (CONTINUED)

consistent with the ratio at which our common stock was issued in exchange for Megan's common stock in the acquisition. As of the date the acquisition was completed we assumed options to acquire 31,910 shares of our common stock at a weighted average exercise price of $4.39. The Megan Stock Options are fully vested as of December 1, 2000 and the term of each option cannot exceed ten years from the date of grant.

In connection with the acquisition of VRI, we assumed the obligations of VRI under VRI's 1992 Equity Incentive Plan (the "VRI Plan") and each outstanding option to purchase VRI common stock (a "VRI Stock Option") granted under the VRI Plan. Each VRI Stock Option assumed by AVANT is deemed to constitute an option to acquire, on the same terms and conditions as were applicable under the VRI Plan, shares of AVANT's common stock which has been adjusted consistent with the ratio at which our common stock was issued in exchange for VRI's common stock in the acquisition. As of the date the acquisition was completed we assumed options to acquire 1,532,055 shares of our common stock at a weighted average exercise price of $2.34. The VRI Stock Options vest over four years and the term of each option cannot exceed ten years from the date of grant.

EMPLOYEE STOCK PURCHASE PLAN

The 1994 Employee Stock Purchase Plan (the "1994 Plan") was adopted on June 30, 1994. All full time employees of AVANT are eligible to participate in the 1994 Plan. A total of 150,000 shares of common stock are reserved for issuance under this plan. Under the 1994 Plan, each participating employee may contribute up to 15% of his or her compensation to purchase up to 500 shares of common stock per year in any public offering and may withdraw from the offering at any time before stock is purchased. Participation terminates automatically upon termination of employment. The purchase price per share of common stock in an offering is 85% of the lower of its fair market value at the beginning of the offering period or the applicable exercise date.

7. STOCKHOLDERS' EQUITY (CONTINUED)

A summary of stock option activity for the years ended December 31, 2000, 1999 and 1998 is as follows:

	2000		1999		1998	
	SHARES	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE	SHARES	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE	SHARES	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE
Outstanding at January 1,.....	3,138,559	$2.34	3,354,708	$2.65	1,773,242	$3.20
Granted.....	1,060,350	4.66	557,500	1.60	638,250	1.99
Assumed in acquisition.....	31,910	4.39	--	--	1,532,055	2.34
Exercised.....	(738,642)	2.86	(152,056)	0.67	(11,355)	1.34
Canceled.....	(282,888)	2.80	(621,593)	3.76	(577,484)	2.82
Outstanding at December 31,.....	3,209,289	$2.96	3,138,559	$2.34	3,354,708	$2.65
At December 31,						
Options exercisable.....	1,667,566		2,091,562		2,542,950	
Available for grant.....	934,674		2,833,818		1,095,206	
Weighted average fair value of options granted during year.....		$2.49		$0.83		$1.10

The following tables summarize information about the stock options outstanding at December 31, 2000:

	OPTIONS OUTSTANDING		
RANGE OF EXERCISE PRICES	NUMBER OUTSTANDING AT DECEMBER 31, 2000	WEIGHTED AVERAGE REMAINING CONTRACTUAL LIFE	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE
$0.30 - 1.31.....	693,131	5.33	$0.8913
1.41 - 1.97.....	689,722	7.11	1.7701
1.97 - 2.50.....	779,569	7.87	2.3784
2.52 - 6.13.....	673,074	6.03	3.9159
6.20 - 24.64.....	373,793	9.11	8.5117
$0.30 - 24.64.....	3,209,289	6.92	$2.9633

7. STOCKHOLDERS' EQUITY (CONTINUED)

	OPTIONS EXERCISABLE	
RANGE OF EXERCISE PRICES	NUMBER EXERCISABLE AT DECEMBER 31, 2000	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE
$0.30 - 1.31	505,069	$0.7346
1.41 - 1.97	410,348	1.7279
1.97 - 2.50	234,132	2.4820
2.52 - 6.13	472,574	3.8523
6.20 - 24.64	45,443	7.6117
$0.30 - 24.64	1,667,566	$2.2953

FAIR VALUE DISCLOSURES

Had compensation costs for AVANT's stock compensation plans been determined based on the fair value at the grant dates, consistent with SFAS 123, our net loss, and net loss per share for the years ending December 31, 2000, 1999 and 1998 would be as follows:

	2000	1999	1998
Net Loss:			
As reported	$21,975,000	$11,309,100	$51,799,700
Pro forma	22,925,300	11,416,700	52,150,800
Basic and Diluted Net Loss Per Share:			
As reported	$ 0.42	$ 0.26	$ 1.56
Pro forma	0.44	0.26	1.57

The fair value of the option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following assumptions:

	2000	1999	1998
Expected dividend yield	0%	0%	0%
Expected stock price volatility	109%	63%	63%
Risk-free interest rate	5.0% - 6.5%	5.0% - 6.1%	4.5% - 5.6%
Expected option term	2.5 Years	2.5 Years	2.5 Years

Because the determination of the fair value of all options granted includes an expected volatility factor in addition to the factors detailed in the table above, and because additional option grants are expected to be made each year, the above pro forma disclosures are not representative of pro forma effects of reported net income for future years.

(E) SHAREHOLDER RIGHTS PLAN

On November 10, 1994, AVANT's Board of Directors declared a dividend of one preferred share purchase right for each share of common stock outstanding. Each right entitles the holder to purchase

7. STOCKHOLDERS' EQUITY (CONTINUED)

from AVANT one-one thousandth of a share of Series C-1 Junior Participating Cumulative Preferred Stock (a "Unit"), par value $0.01 at a price of $16.00 per one-one thousandth of a share, subject to specified adjustments. The Units are exercisable only if a person or a group acquires 15% or more of the outstanding common stock of AVANT or commences a tender offer which would result in the ownership of 15% or more of our outstanding common stock. Once a Unit becomes exercisable, the plan allows our shareholders to purchase common stock at a substantial discount. Unless earlier redeemed, the Units expire on November 10, 2004. AVANT is entitled to redeem the Units at $0.01 per Unit subject to adjustment for any stock split, stock dividend or similar transaction.

As of December 31, 2000 and 1999, we have authorized the issuance of 350,000 shares of Series C-1 Junior Participating Cumulative Preferred Stock for use in connection with the shareholder rights plan.

(F) ACQUISITION OF MEGAN HEALTH, INC.

AVANT issued 1,841,200 shares of its common stock and fully vested options to purchase 31,900 shares of its common stock on December 1, 2000, in exchange for all of the outstanding capital stock and options of Megan, respectively (see Note 14).

(G) ACQUISITION OF VIRUS RESEARCH INSTITUTE, INC.

AVANT issued 14,036,400 shares of our common stock and warrants to purchase approximately 1,811,200 shares of our common stock on August 21, 1998, in exchange for all of the outstanding common stock of VRI (see Note 15).

8. RESEARCH AND LICENSING AGREEMENTS

AVANT has entered into licensing agreements with several universities and research organizations. Under the terms of these agreements, we have received licenses or options to license technology, specified patents or patent applications. We have made required payments of nonrefundable license fees and royalties, which amounted to approximately $307,500, $221,500 and $100,000 for the years ended December 31, 2000, 1999 and 1998, respectively.

9. PRODUCT DEVELOPMENT AND LICENSING AGREEMENTS

Our revenue from product development and licensing agreements was received from contracts with different organizations. Total revenue received by us in connection with these contracts for the years ended December 31, 2000, 1999 and 1998 were approximately $692,400, $1,483,500 and $2,094,500, respectively. A summary of these contracts follows:

(A) NOVARTIS PHARMA AG

In 1997, we entered into an option agreement with Novartis Pharma AG ("Novartis"), a worldwide pharmaceutical company headquartered in Basel, Switzerland, relating to the development of TP10 for use in xenotransplantation (animal organs into humans) and allotransplantation (human to human). Under the agreement, we received annual option fees and supplies of TP10 for clinical trials in return for granting Novartis a two-year option to license TP10 with exclusive worldwide (except Japan) marketing rights. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. The decision to license TP10 resulted in a $6 million equity investment and license fee payment by Novartis which was received by AVANT in January 2000. Under the agreement, we may receive additional milestone payments based upon attainment of specified development and regulatory goals, which has an approximate aggregate value of up to $14 million. We may also receive funding for research as well as royalty payments on eventual product sales.

(B) GLAXOSMITHKLINE PLC

During 1997, AVANT entered into an agreement with GlaxoSmithKline plc ("SmithKline") to collaborate on the development and commercialization of our oral rotavirus vaccine. Under the terms of the agreement, SmithKline received an exclusive worldwide license to commercialize AVANT's rotavirus vaccine. We were responsible for continuing the Phase II clinical efficacy study of the rotavirus vaccine, which was completed in August 1998. Subject to the development by SmithKline of a viable manufacturing process, SmithKline is required to assume responsibility for all subsequent clinical trials and all other development activities. SmithKline made an initial license payment in 1997 upon execution of the agreement and has agreed to make further payments upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of the rotavirus vaccine. In June 1999, we received a milestone payment of $500,000 from SmithKline for the successful completion of the Phase II clinical efficacy study and the establishment of a commercially viable process for manufacture of the vaccine.

(C) AVENTIS PASTEUR

In 1994, AVANT entered into a license agreement with Aventis Pasteur ("Aventis") which granted Aventis the exclusive right to make, use and sell Adjumer-Registered Trademark--formulated vaccines for prevention of influenza, Lyme disease and diseases caused by meningococcus and the co-exclusive right (exclusive, except for the right of AVANT or one other person licensed by AVANT) to make, use and sell Adjumer-Registered Trademark--formulated vaccines directed against five other pathogens, including pneumococcus and RSV. We have retained rights to make, use, sell and license Adjumer-Registered Trademark--formulated vaccines against the subject infections in most of the Far East, including China and Japan, subject to geographical extension rights available to Aventis. In December 1998, we received a milestone payment of $600,000 from Aventis upon commencement of the first Phase I clinical trial of the Adjumer-Registered Trademark--formulated vaccine for RSV.

9. PRODUCT DEVELOPMENT AND LICENSING AGREEMENTS (CONTINUED)
(D) PFIZER INC.

In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer Inc., Animal Health Division ("Pfizer"), whereby Pfizer has licensed Megan's technology for the development of animal health and food safety vaccines. Upon execution of the agreement, Pfizer made an initial license payment of $2,500,000 together with a $3,000,000 equity investment. For accounting treatment, we have allocated a portion of the equity investment to the license fee as the fair market value of the equity investment was determined to be $2,727,300. Under the agreement, we may receive additional milestone payments based upon attainment of specified milestones. We will also receive research and development funding for up to two years as well as royalty payments on eventual product sales.

10. NON-OPERATING INCOME

Non-operating income includes the following:

	YEAR ENDED DECEMBER 31,		
	2000	1999	1998
Interest and Dividend Income	$1,978,100	$635,200	$571,900
Gain on Sale of Equipment	--	--	22,300
	$1,978,100	$635,200	$594,200

11. DEFERRED SAVINGS PLAN

Under section 401(k) of the Internal Revenue Code of 1986, as amended, the Board of Directors adopted, effective May 1990, a tax-qualified deferred compensation plan for employees of AVANT. Participants may make tax deferred contributions up to 15%, or $10,000, of their total salary in 2000. AVANT may, at its discretion, make contributions to the plan each year matching up to 1% of the participant's total annual salary. AVANT contributions amounted to $29,200, $30,100 and $20,100 for the years ended December 31, 2000, 1999 and 1998, respectively.

12. FOREIGN SALES

Product sales were generated geographically as follows:

NET PRODUCT SALES FOR THE TWELVE MONTHS ENDED	EUROPE	USA	ASIA	OTHER	TOTAL
December 31, 2000	$ --	$33,400	$ --	$ --	$33,400
December 31, 1999	--	--	--	--	--
December 31, 1998	5,000	31,000	--	20,000	56,000

13. LITIGATION

In December 1994, AVANT filed a lawsuit in the Superior Court of Massachusetts against the landlord of our former Cambridge, Massachusetts headquarters to recover the damages incurred by AVANT resulting from the evacuation of the building due to air quality problems, which caused skin

13. LITIGATION (CONTINUED)
and respiratory irritation to a significant number of employees. The landlord defendant filed counterclaims, alleging we breached our lease obligations. In a separate lawsuit, the landlord's mortgagee filed claims against AVANT for payment of the same rent alleged to be owed. In August 1997, the Superior Court of Massachusetts entered findings of fact and conclusions of law on the limited trial of AVANT's lawsuit against the landlord. In its findings, the Court concluded that we had not proved our claims and were not justified in terminating our lease. In November 1997, AVANT reached a settlement of the litigation with our former landlord and the landlord's mortgagee. We agreed to pay $858,800 in cash on November 17, 1997 and issue a total of 1,500,000 shares of our common stock. In addition, we signed a note for $750,000 payable on November 16, 1998, secured by $750,000 cash collateral and a note for $750,000 due November 15, 1999, secured by 132,500 shares of common stock. The total settlement, valued at $6,108,800, is comprised of the cash and notes totaling $2,358,800 and common stock valued at $3,750,000 as of October 31, 1997. The common stock issued is subject to restrictions on transfer per the settlement and limits the number of shares that may be sold over a given period of time.

In May 1998, we used cash as collateral for a $750,000 note due November 15, 1999 issued in connection with the settlement agreement with our former landlord and the landlord's mortgagee. In accordance with the settlement agreement, 66,250 shares of our common stock issued to secure the note were returned to AVANT. The common stock was valued at $165,600 as of October 31, 1997 and its return is included as a reduction of operating expense in 1998. In November 1999, the note was paid in full.

14. ACQUISITION OF MEGAN HEALTH, INC.

On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan, a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies. We issued approximately 1,841,200 shares of AVANT's common stock in exchange for all of the outstanding capital stock of Megan, on the basis of 0.763542977 shares of AVANT common stock for each share of Megan preferred stock and 0.08115304 shares of AVANT common stock for each share of Megan common stock. The purchase price of $17,332,000 consisted of (i) the issuance of approximately 1,841,200 shares of AVANT common stock valued at $15,803,400, (ii) cash distributed to certain Megan shareholders in lieu of AVANT common stock totaling $236,700, (iii) the issuance of fully vested options to purchase AVANT common stock valued at $239,400 for all of the outstanding options to purchase Megan common stock assumed by us, and (iv) severance and transaction costs totaling $1,052,500. As of the date of the acquisition of Megan, AVANT had identified all significant actions to be taken to terminate certain Megan employees. The severance costs associated with this plan totaled approximately $164,200, were recognized upon consummation of the merger and are included in the $1,052,500 referenced above.

The acquisition has been accounted for as a purchase. Consequently, the operating results of Megan from December 2, 2000 to December 31, 2000 have been included in our consolidated results of

14. ACQUISITION OF MEGAN HEALTH, INC. (CONTINUED)
operations. The purchase price was allocated to the acquired assets and assumed liabilities, based upon their fair value at the date of acquisition, as follows:

Net tangible assets acquired	$ 550,400
Intangible assets acquired:	
Assembled Workforce	155,400
Core Technology	1,786,900
Developed Technology	3,263,100
Strategic Partner Agreement	2,563,900
In-process Technology	9,012,300
Total	$17,332,000

The values assigned to the intangible assets acquired, including the IPR&D, were determined based on fair market value using a risk adjusted discounted cash flow approach. Megan was a development stage biotechnology enterprise and its resources were substantially devoted to research and development at the date of acquisition. Management is responsible for determining the fair value of the acquired IPR&D.

Each of Megan's three significant research and development projects in-process were valued through detailed analysis of product development data concerning the stage of development, time and resources needed to complete the project, expected income-generating ability and associated risks. The value of IPR&D was determined by estimating the costs to develop the purchased in-process technology into commercially viable products, estimating the net cash flows from such projects and discounting the net cash flows back to their present values. The probability of success and discount rates used for each project take into account the uncertainty surrounding the successful development and commercialization of the purchased in-process technology. The resulting net cash flows for these projects were based on our best estimates of revenue, cost of sales, research and development costs, selling, general and administrative costs, and income taxes for each project, and the net cash flows reflect assumptions that would be used by market participants.

The significant assumptions underlying the valuations included potential revenues, costs of completion, the timing of product approvals and the selection of appropriate probability of success and discount rates. None of Megan's projects have reached technological feasibility nor do they have any alternative future use. Consequently, in accordance with generally accepted accounting principles, the amount allocated to IPR&D was charged as an expense in the AVANT consolidated financial statements for the year ended December 31, 2000. The remaining acquired intangible assets arising from the acquisition are being amortized on a straight line basis over their estimated lives which range from 5 to 17 years.

A discussion of the in-process research and development projects identified at the time of acquisition and assumptions used in the valuation analysis follows. The projected costs to complete the projects represent costs to be incurred by AVANT and do not include any costs to be expended by our collaborators. (i) MEGAN-REGISTERED TRADEMARK-EGG VACCINE.
Megan-Registered Trademark-Egg is derived from the same master seed as Megan-Registered Trademark-Vac 1, the poultry health and food safety vaccine presently marketed by Megan. Megan-Registered Trademark-Vac 1 is a double gene-deleted modified vaccine for use in chickens for protection against multiple species and/or strains

14. ACQUISITION OF MEGAN HEALTH, INC. (CONTINUED)
of Salmonella bacteria. Megan-Registered Trademark-Egg is being developed with titer, dosage recommendations, and product configuration specifically targeted for the egg layer market. This development program is required to gain the label clearance needed to make advertising claims about the effectiveness of Megan-Registered Trademark-Vac in eliminating Salmonella on eggs in mature laying chickens. Field safety studies of the vaccine in egg laying chickens, scale-up of manufacturing for the vaccine by our contract manufacturer, MBL, and registration efforts by both us and MBL must be completed prior to filing an application for USDA licensure of Megan-Registered Trademark-Egg. USDA licensure is expected in 2002. The estimated cost to complete the project and commercialize Megan-Registered Trademark-Egg exceeds $300,000. A 90% probability of success adjustment has been applied to the project to reflect its late stage of development and low technological risk. A discount rate of 18% was utilized in determining the IPR&D value of $3,340,700 which was assigned to the Megan-Registered Trademark-Egg project. (ii) ANTIPATH-TM- VACCINE. AntiPath-TM- is a SALMONELLA TYPHIMURIUM strain containing both chromosomal and plasmid genes derived from pathogenic E. COLI. AntiPath-TM- will be labeled for prevention of airsacculitis, perihepatitis, and pericarditis (and possibly cellulitis) caused by E. COLI infection in poultry. In addition, certain strains of E. COLI are important causes of diarrheal disease in humans and humans are often infected through their food supply, including chickens. We have selected three E. COLI serotypes (078, 01 and 02) as targets for poultry vaccine development. Development work for safety and efficacy studies and licensing will be completed in 2001 and 2002. Additional work is required by AVANT prior to commercialization. USDA licensure is expected in 2003. The estimated cost to complete the project and commercialize AntiPath-TM- exceeds $1,025,000. An 85% probability of success adjustment has been applied to the project to reflect its stage of development and technological risk. A discount rate of 18% was utilized in determining the IPR&D value of $5,360,800 which was assigned to the AntiPath-TM- project. (iii) MEGAN-REGISTERED TRADEMARK-VAC "KENTUCKY" VACCINE. Megan-Registered Trademark-Vac "Kentucky" is in the research stage and is focused on the broiler processing plant, where over 30% of the SALMONELLA SPP. found on broiler carcasses are the SALMONELLA KENTUCKY strain. While Megan-Registered Trademark-Vac 1 does reduce some type C salmonellae, efficacy against SALMONELLA KENTUCKY is inadequate in some cases.
Megan-Registered Trademark-Vac "Kentucky" is an important extension of the Megan-Registered Trademark-Vac line and is required to make significant inroads into the broiler market in those geographic areas where SALMONELLA KENTUCKY is a problem. With current vaccine strains under development, USDA licensure is expected in 2004. The estimated cost to complete the project and commercialize Megan-Registered Trademark-Vac "Kentucky" exceeds $400,000. A 75% probability of success adjustment has been applied to the project to reflect its stage of development and technological risk. A discount rate of 18% was utilized in determining the IPR&D value of $310,800 which was assigned to the Megan-Registered Trademark-Vac "Kentucky" project at the time of acquisition.

As of December 31, 2000, the technological feasibility of the projects had not yet been reached and no significant departures from the assumptions included in the valuation analysis had occurred. Substantial additional research and development will be required prior to reaching technological feasibility. In addition, each product needs to successfully complete a series of clinical trials and to receive USDA or other regulatory approval prior to commercialization. We are also dependent upon the activities of our collaborators in developing and marketing our products. There can be no assurance that these projects will ever reach feasibility or develop into products that can be marketed profitably, nor can there be assurance AVANT and our collaborators will be able to develop and commercialize these products before our competitors. If these products are not successfully developed and do not become commercially viable, our financial condition and results of operations could be materially affected.

14. ACQUISITION OF MEGAN HEALTH, INC. (CONTINUED)

The following unaudited pro forma financial summary is presented as if the operations of AVANT and Megan were combined as of January 1, 2000 and 1999, respectively. The unaudited pro forma combined results are not necessarily indicative of the actual results that would have occurred had the acquisition been consummated at that date, or of the future operations of the combined entities. Nonrecurring charges, such as the acquired in-process research and development charge of $9,012,300, are not reflected in the following pro forma financial summary.

YEAR ENDED DECEMBER 31,	2000	1999
Operating revenue	$ 1,839,700	$ 3,462,500
Net loss	(15,662,400)	(13,688,100)
Basic and diluted net loss per share	(0.29)	(0.25)

15. ACQUISITION OF VIRUS RESEARCH INSTITUTE, INC.

On August 21, 1998, AVANT acquired all of the outstanding capital stock of VRI, a company engaged in the discovery and development of (i) systems for the delivery of vaccines and immunotherapeutics and (ii) novel vaccines. We issued approximately 14,036,400 shares of AVANT's common stock and warrants to purchase approximately 1,811,200 shares of AVANT's common stock in exchange for all of the outstanding common stock of VRI, on the basis of 1.55 shares of AVANT's common stock and .20 of an AVANT warrant for each share of VRI common stock. The purchase price of $63,004,700 consisted of (i) the issuance of 14,036,400 shares of AVANT common stock valued at $51,686,800 and 1,811,200 AVANT warrants valued at $4,980,700 for all outstanding VRI capital stock, (ii) the issuance of AVANT warrants valued at $387,600 in exchange for all of the outstanding VRI warrants, (iii) the issuance of options to purchase AVANT common stock valued at $3,637,900 for all of the outstanding options to purchase VRI common stock assumed by us, and (iv) severance and transaction costs totaling $2,311,700. As of the date of the acquisition of VRI, we had already begun to formulate a plan to assess which activities of VRI to continue and to identify all significant actions to be taken to terminate a number of VRI employees and to relocate the remaining employees from the VRI facility in Cambridge, MA (which was to be closed) to our facility in Needham, MA. The costs associated with this plan, including severance costs of approximately $243,000, were recognized upon consummation of the merger and are included in the $2,311,700 referenced above. The plan was finalized and implemented during 1998 and the first quarter of 1999. Actual costs were not materially different from those accrued at the acquisition date and were paid in 1998 and early 1999.

The acquisition has been accounted for as a purchase. Consequently, the operating results of VRI from August 22, 1998 to December 31, 2000 have been included in our consolidated results of

15. ACQUISITION OF VIRUS RESEARCH INSTITUTE, INC. (CONTINUED)
operations. The purchase price was allocated to the acquired assets and assumed liabilities, based upon their fair value at the date of acquisition, as follows:

Net tangible assets acquired	$14,539,000
Intangible assets acquired:	
Workforce	470,000
Collaborative Relationships	1,090,000
Goodwill	2,275,700
In-process Technology	44,630,000
Total	$63,004,700

The values assigned to the intangible assets acquired, including the IPR&D, were determined based on fair market value using a risk adjusted discounted cash flow approach. VRI was a development stage biotechnology enterprise and its resources were substantially devoted to research and development at the date of acquisition. Management is responsible for determining the fair value of the acquired IPR&D.

Each of VRI's six research and development projects in-process was valued through detailed analysis of product development data concerning the stage of development, time and resources needed to complete the project, expected income-generating ability and associated risks. The significant assumptions underlying the valuations included potential revenues, costs of completion, the timing of product releases and the selection of an appropriate discount rate. None of VRI's projects have reached technological feasibility nor do they have any alternative future use. Consequently, in accordance with generally accepted accounting principles, the amount allocated to IPR&D was charged as an expense in the AVANT consolidated financial statements for the year ended December 31, 1998. The remaining intangible assets arising from the acquisition are being amortized on a straight line basis over 12 months and 60 months.

A discussion of the in-process research and development projects identified at the time of acquisition follows. The projected costs to complete the projects represent costs to be incurred by AVANT and do not include any costs to be expended by our collaborators. (i) ADJUMER-REGISTERED TRADEMARK- VACCINE DELIVERY SYSTEM. Adjumer-Registered Trademark- is being developed as an adjuvant to enhance the immune response to injected vaccines. AVANT and our collaborator, Aventis, are conducting research on the development of Adjumer-Registered Trademark--formulated vaccines utilizing a variety of Aventis' antigens, including influenza, lyme disease, pneumococcus, meningococcus, RSV and hepatitis B. As of the acquisition date, with projected release dates ranging from 2001 to 2004, the estimated cost to complete the project for all antigens exceeded $9,500,000. In addition, substantial additional work is required by Aventis prior to commercialization. Discount rates ranging from 42.5% to 47.5% were used in determining the IPR&D value of $15,450,000 which was assigned to the Adjumer-Registered Trademark- vaccine delivery system. (ii) MICROMER-REGISTERED TRADEMARK- VACCINE DELIVERY SYSTEM. Micromer-Registered Trademark- is a proprietary vaccine delivery system designed to facilitate the mucosal (intranasal or oral) delivery of antigens and stimulate both the systemic and mucosal branches of the immune system. AVANT is conducting research on a number of Micromer-Registered Trademark--formulated vaccines, including influenza and RSV. As of the acquisition date, the estimated cost to complete the development of Micromer-Registered Trademark--formulated vaccines for influenza and RSV exceeded $3,300,000 with projected release dates of 2002 and 2004, respectively. A discount rate of 45% was utilized in determining the IPR&D

15. ACQUISITION OF VIRUS RESEARCH INSTITUTE, INC. (CONTINUED)
value of $3,260,000 which was assigned to Micromer-Registered Trademark-. (iii) VIBRIO VEC-TM- VACCINE DELIVERY SYSTEM. Vibrio Vec-TM- is a proprietary vaccine and immunotherapeutic system that uses a bacterial vector for the oral delivery of antigens. AVANT is conducting research on a number of antigens proposed to be delivered by Vibrio Vec-TM-, including, in conjunction with our collaborators, Pasteur Merieux-Oravax and CSL, Ltd., a vaccine targeting H. pylori. At the acquisition date, the projected product release date was 2003 and the approximate research and development cost required to complete the Vibrio Vec-TM- project totaled approximately $900,000. A discount rate of 45% was used in determining the IPR&D value of $2,450,000 which was assigned to Vibrio Vec-TM- at the time of acquisition. (iv) ROTAVIRUS VACCINE. A collaboration with SmithKline was established by AVANT to develop and commercialize our novel, proprietary vaccine against rotavirus infection, a major cause of diarrhea and vomiting in infants. At the acquisition date, a project release date was projected of 2002, with $1,200,000 in additional research and development expenditures anticipated. In addition, substantial work is required to be completed by SmithKline prior to commercialization of the rotavirus vaccine. An IPR&D value of $3,120,000 was assigned to the rotavirus vaccine utilizing a discount rate of 45%. (v) HERPES VACCINE. The herpes vaccine is a proprietary vaccine for the prevention of genital herpes (HSV2). At the time of acquisition, the vaccine was in a pre-clinical development stage with a projected product release date of 2007 and an estimated cost to complete of $1,600,000. A discount rate of 45% was utilized in determining the IPR&D value of $2,240,000 which was assigned to the herpes vaccine. (vi) THERAPORE-TM-. AVANT was granted an exclusive worldwide license from Harvard for Therapore-TM-, a novel technology for the development of immunotherapeutics. We are conducting pre-clinical research to evaluate this system for the treatment of persistent viral infections, such as Hepatitis B, Hepatitis C and HIV, and some forms of cancer including melanoma. The first release date for a Therapore-TM- product is estimated to be in 2004 and the projected research and development cost to complete all indications of Therapore-TM- approximated $41,200,000 at the acquisition date. A discount rate of 50% was utilized in determining the IPR&D value of $18,110,000 which was assigned to Therapore-TM-.

As of December 31, 2000, the technological feasibility of the projects had not yet been reached and no significant departures from the assumptions included in the valuation analysis had occurred. Substantial additional research and development will be required prior to reaching technological feasibility. In addition, each product needs to successfully complete a series of clinical trials and to receive FDA approval prior to commercialization. We are also dependent upon the activities of our collaborators in developing and marketing our products. There can be no assurance that these projects will ever reach feasibility or develop into products that can be marketed profitably, nor can there be assurance AVANT and our collaborators will be able to develop and commercialize these products before our competitors. If these products are not successfully developed and do not become commercially viable, our financial condition and results of operations could be materially affected.

The following unaudited pro forma financial summary is presented as if the operations of AVANT and VRI were combined as of January 1, 1998. The unaudited pro forma combined results are not necessarily indicative of the actual results that would have occurred had the acquisition been consummated at that date, or of the future operations of the combined entities. Nonrecurring charges,

15. ACQUISITION OF VIRUS RESEARCH INSTITUTE, INC. (CONTINUED)
such as the acquired in-process research and development charge of $44,630,000, are not reflected in the following pro forma financial summary.

YEAR ENDED DECEMBER 31,	1998
Operating revenue	$ 2,206,500
Net loss	(13,389,800)
Basic and diluted net loss per share	(0.32)

16. SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)

2000	Q1 2000	Q2 2000	Q3 2000	Q4 2000
Total operating revenue	$ 153,800	$ 153,900	$ 153,900	$ 301,600
Net loss	(2,123,400)	(2,723,900)	(3,633,600)	(13,494,100)
Basic and diluted net loss per common share	(0.04)	(0.05)	(0.08)	(0.25)

1999	Q1 1999	Q2 1999	Q3 1999	Q4 1999
Total operating revenue	$ 337,900	$ 847,900	$ 297,700	$ --
Net loss	(2,741,800)	(2,356,200)	(2,552,000)	(3,659,100)
Basic and diluted net loss per common share	(0.06)	(0.06)	(0.06)	(0.08)

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

None.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

The information under the Sections "Proposal 2 -- Election of Directors" in the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 10, 2001, is hereby incorporated by reference.

ITEM 11. EXECUTIVE COMPENSATION

The information under the Section "Compensation of Directors and Executive Officers" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 10, 2001, is hereby incorporated by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The information under the Section "Principal and Management Stockholders" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 10, 2001, is hereby incorporated by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information under the Sections "Proposal 2 -- Election of Directors" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 10, 2001, is hereby incorporated by reference.

PART IV

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

(A) The following documents are filed as part of this Form 10-K:

(1) Financial Statements:

See "Index to Consolidated Financial Statements" at Item 8.

(2) Financial Statement Schedules:

Schedules are omitted since the required information is not applicable or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the Consolidated Financial Statements or Notes thereto.

(3) Exhibits:

NO.	DESCRIPTION	PAGE NO.
2.1	Agreement and Plan of Merger, dated as of May 12, 1998, by and among the Company, TC Merger Corp., Virus Research Institute, Inc.	Incorporated by reference to Exhibit 2.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
2.2	Agreement and Plan of Merger, dated as of November 20, 2000, by and among AVANT, AVANT Acquisition Corp., and Megan Health, Inc.	Incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K filed December 12, 2000
2.3	First Amendment to Agreement and Plan of Merger, dated as of November 20, 2000, by and among AVANT, AVANT Acquisition Corp., and Megan Health, Inc.	Incorporated by reference to Exhibit 2.2 of the Company's Current Report on Form 8-K filed December 12, 2000
3.1	Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16,1998
3.2	Certificate of Amendment of Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.3	Certificate of Designation for series C-1 Junior Participating Cumulative Preferred Stock	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.4	Second Certificate of Amendment of Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.2 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998

NO.	DESCRIPTION	PAGE NO.
3.5	Amended and Restated By-Laws of the Company as of November 10, 1994	Incorporated by reference to Exhibit 3.3 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
4.1	Shareholder Rights Agreement dated November 10, 1994 between the Company and State Street Bank and Trust Company as Rights Agent	Incorporated by reference to Exhibit 4.1 of the Company's Annual Report on Form 10-K filed March 28, 2000
4.2	Form of Stock Purchase Agreement dated March 20, 1998 relating to the Company's private placement of Common Stock	Incorporated by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-3 (Reg. No. 333-56755), filed July 16, 1998
10.1	1994 Employee Stock Purchase Plan	Incorporated by reference to the Company's Registration Statement on Form S-8 filed June 8, 1994
10.2	Megan Health, Inc. Stock Option Plan	Incorporated by reference to the Company's Registration Statement on Form S-8 (Reg. No. 333-52796), filed December 27, 2000
10.3	AVANT Immunotherapeutics, Inc. 1999 Stock Option and Incentive Plan	Incorporated by reference to Exhibit A to the Company's Proxy Statement on Schedule 14A filed on April 1, 1999
10.4	Virus Research Institute, Inc. 1992 Equity Incentive Plan as amended and restated	Incorporated by reference to Exhibit 10.4 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.5	Performance Plan of the Company	Incorporated by reference to Exhibit 10.5 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.6	Form of Agreement relating to Change of Control	Incorporated by reference to Exhibit 10.6 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.7	Amended and Restated Employment Agreement between the Company and Una S. Ryan, Ph.D. dated August 20, 1998.	Incorporated by reference to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1998
10.8	Commercial Lease Agreement of May 1, 1997 between the Company and Fourth Avenue Ventures Limited	Incorporated by reference to the Company's report on Form 10-Q for the quarterly period ended September 30, 1996

NO.	DESCRIPTION	PAGE NO.
10.9	Option Agreement by and between the Company and Novartis Pharma AG dated as of October 31, 1997, portions of which are subject to a request for confidential treatment	Incorporated by reference to the Company's report on Form 10-Q/A for the quarterly period ended September 30, 1997
10.10	Settlement Agreement between the Company and Forest City 38 Sidney Street, Inc.; Forest City Management, Inc.; and Forest City Enterprises, Inc.	Incorporated by reference to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1997
10.11	Agreement between Lonza Biologics plc and the Company dated as of April 19, 2000, portions of which are subject to a request for confidential treatment	Filed herewith
10.12	Stock Purchase Agreement dated December 1, 2000 by and between the Company and Pfizer Inc.	Filed herewith
10.13	License and Royalty Agreement by and between Pfizer Inc., the Company and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to a request for confidential treatment	Filed herewith
10.14	Amendment to License and Royalty Agreement by and between Pfizer Inc., the Company and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to a request for confidential treatment	Filed herewith
10.15	Collaborative Research and Development Agreement by and between Pfizer Inc. and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to a request for confidential treatment	Filed herewith
21.0	List of Subsidiaries	Filed herewith
23.0	Consent of Independent Accountants	Filed herewith

(B) Reports on Form 8-K.

We filed a Current Report on Form 8-K on December 12, 2000, which we amended on January 30, 2001.

SIGNATURES

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

AVANT IMMUNOTHERAPEUTICS, INC.	DATE
By: /s/ UNA S. RYAN Una S. Ryan PRESIDENT AND CHIEF EXECUTIVE OFFICER	March 20, 2001

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

SIGNATURE	TITLE	DATE
/s/ J. BARRIE WARD J. Barrie Ward	Chairman	March 20, 2001
/s/ UNA S. RYAN Una S. Ryan	President, Chief Executive Officer, and Director	March 20, 2001
/s/ AVERY W. CATLIN Avery W. Catlin	Senior Vice President, Chief Financial Officer and Treasurer	March 20, 2001
/s/ FREDERICK W. KYLE Frederick W. Kyle	Director	March 20, 2001
/s/ JOHN W. LITTLECHILD John W. Littlechild	Director	March 20, 2001
/s/ THOMAS R. OSTERMUELLER Thomas R. Ostermueller	Director	March 20, 2001
/s/ HARRY H. PENNER, JR. Harry H. Penner, Jr.	Director	March 20, 2001
/s/ PETER A. SEARS Peter A. Sears	Director	March 20, 2001
/s/ KAREN S. LIPTON Karen S. Lipton	Director	March 20, 2001

AGREEMENT

BETWEEN

LONZA BIOLOGICS PLC

AND

AVANT IMMUNOTHERAPEUTICS INC

Confidential Treatment Requested As To Certain Information Contained In This Exhibit

THIS AGREEMENT is made the _____ day of _____, 2000 BETWEEN

1. LONZA BIOLOGICS PLC, the registered office of which is at 228 Bath Road, Slough, Berkshire SL1 4DY, England ("LB"), and

2. AVANT IMMUNOTHERAPEUTICS INC, of 119 Fourth Avenue, Needham MA 024942725, USA, ("the Customer").

WHEREAS

A. Customer is the proprietor of the *** Confidential Treatment Requested as to this information *** expressing *** Confidential Treatment Requested as to this information *** protein and owns certain intellectual property rights in relation thereto, and

B. LB has expertise in the development of processes for and manufacture of products from similar cell lines, and

C. Customer wishes to contract with LB for Services to develop a Process for and manufacture Product from its proprietary cell line; and

D. LB is prepared to perform such Services for Customer on the terms and conditions set out herein.

NOW THEREFORE it is agreed as follows:

1. In this Agreement, its recitals and the schedules hereto, the words and phrases defined in Schedule 4 hereto and in the Standard Terms for Contract Services set out in Schedule 5 hereto shall have the meanings set out therein.

2. Subject to the Standard Terms for Contract Services set out in Schedule 5 and any Special Terms; LB agrees to perform the Services and the Customer agrees to pay the Price together with any additional costs and expenses that fall due hereunder.

3. 3.1 Any notice or other communication to be given under this Agreement shall be delivered personally or sent by facsimile transmission, or if facsimile transmission is not available, by first class pre-paid post addressed as follows:

3.1.1 if to LB to:

Lonza Biologics plc
228 Bath Road
Slough Berkshire SL14DY

Facsimile: 01753 777001
For the attention of the President

3.1.2 if to the Customer to:

Avant Immunotherapeutics Inc
119 Fourth Avenue
Needham MA 02494-2725
USA

Facsimile: 001 781433 0262
For the attention of the President;

or to such other destination as either party hereto may hereafter notify to the other in accordance with the provisions of this clause.

3.2 All such notices or other communications shall be deemed to have been served as follows:

3.2.1 if delivered personally, at the time of such delivery;

3.2.2 if sent by facsimile, upon receipt of the transmission confirmation slip showing completion of the transmission;

3.2.3 if sent by first class pre-paid post, ten (10) business days (Saturdays, Sundays and Bank or other public holidays excluded) after being placed in the post.

AS WITNESS the hands of the duly authorised representatives of the parties hereto the day and year first above written.

Signed for and on behalf of

LONZA BIOLOGICS PLC

TITLE

Signed for and on behalf of

AVANT IMMUNOTHERAPEUTICS INC

TITLE

SCHEDULE 1

For the purposes of this document:

"Cell Line" shall mean the *** Confidential Treatment Requested as to this information *** created by the Customer expressing Product.

"Product" shall mean *** Confidential Treatment Requested as to this information *** from the Cell Line.

A. DRAFT SPECIFICATION FOR BULK PURIFIED PRODUCT

Lonza Biologics and the Customer will agree a draft Specification for the Bulk product * to be manufactured in Stage 8. Test parameters to be included in the Specification could be:

Confidential Treatment Requested as to this information

Note: Lonza will release bulk Product against this draft Specification as outlined above.

A. DRAFT SPECIFICATION FOR VIALLED PRODUCT

Lonza Biologics and the Customer will agree a draft Specification for the vialled product. Test parameters to be included in the Specification could be:

Confidential Treatment Requested as to this information

Note: Lonza will release vialled Product against this draft Specification as outlined above.

B. SPECIFICATION FOR A MASTER AND WORKING CELL BANK

STARTING MATERIAL DEFINITION

Master or Working Cell Bank of a cryopreserved ***Confidential Treatment Requested as to this information*** prepared from a pooled culture and stored in individual ampoules in liquid nitrogen refrigerators.

GENERAL MASTER CELL BANK SPECIFICATION

1. The acceptance criteria for tests performed on ampoules from the cell bank

Confidential Treatment Request as to this information

2. Tests carried out on an ampoule of the cell bank or ort an ampoule of a cell stock linearly related to the cell bank, for example the Customer Stock. (The acceptance criteria to release the cells to Lonza's GMP facility are given in parentheses).

Confidential Treatment Request as to this information

SCHEDULE 2 SERVICES

CONTENTS

1. SUPPLY OF CUSTOMER MATERIALS AND CUSTOMER KNOW HOW

Customer shall supply to Lonza the following:

i) Sufficient information on the Cell Line and the Product to allow a risk assessment as required by the `Genetically Modified Organisms (Contained Use)' Regulations 1992 and a safety assessment by Lonza's Biological Safety Committee.

ii) At least 10 identical ampoules of viable frozen cells from the Cell line (Customer's Stock) containing approximately 5 x 106 cells/ampoule.

iii) If available a sample of purified Product as a reference standard.

iv) A formulation for the Product that will be produced by the Cell Line. The Customer has developed a suitable formulation for the Product. The formulation will be supplied to Lonza Biologics to enable completion of the purification of the pilot material (Stage 6).

v) Detailed information on the purification procedures used to date to purify Product by the Customer.

vi) Protocols for any product specific assays that the Customer will transfer to Lonza such that Lonza can test the Product in Development Laboratories and QC (Stage 4).

vii) Full details including suppliers of up to four commercially available media prior to commencement of Stage 1.

viii) Documents relating to mycoplasma testing performed on the Cell Line.

2. ACTIVITIES TO BE UNDERTAKEN BY LONZA BIOLOGICS

1.0 STAGE 1 - MEDIUM SELECTION, CLONING AND CELL LINE SELECTION

1.1 OBJECTIVES

1.1.1 To assess up to four commercially available *** Confidential Treatment Requested as to this information *** culture media for suitability for use with the incoming Cell Line.

1.1.2 To clone the incoming Cell Line, adapt sub clones to serum free suspension culture and select the most suitable Cell Line for long term production.

1.1.3 To monitor stability of production and growth characteristics of selected Cell Line and one back-up Cell Line.

1.2 ACTIVITIES

SUBSTAGE 1 a - MEDIUM SELECTION

1.2.1 Receive details from the Customer on the cell culture process conditions used to date to grow the Cell Line.

1.2.2 Receive details including suppliers of up to four commercially available media. Source media and components if required from approved suppliers.

1.2.3 Receive documents from Customer detailing Cell Line virus and mycoplasma testing data. Receive ampoules of the Cell Line from the tested cell bank.

1.2.4 Review documentation from 1.2.3 and confirm that the Cell Line is negative for mycoplasma. Revive cells from an ampoule of the incoming Cell Line and grown in suspension in up to four different commercially available *** Confidential Treatment Requested as to this information *** culture media. Establish criteria for routine subculture of the Cell Line.

Note: 5uM methotrexate will be included in all cell culture media used for culture expansion. Methotrexate will not be included in media used in cell cultures which are allowed to overgrow (until cell viability decreases).

1.2.5 Estimate cloning efficiency (by limiting dilution) of the Cell Line in the four different commercially available serum free media used in 1.2.4 supplemented with appropriate concentrations of serum.

1.2.6 For those media that support good cell growth allow shake flask cultures to overgrow (until cell viability decreases) and measure Product accumulation by assays established under Stage 4.

Note: These shake flask cultures will be fed with glucose.

Deliver samples of cell culture supernatant (approximately 10ml) from the cultures taken at intervals during 1.2.6 to the Customer to enable the Customer to confirm Product concentrations and Product quality.

Note: If there is a delay in completion of these analyses by the Customer at this point, there may be a delay in completion of the Services

EVALUATION POINT
Evaluate and report the performance of the cell line in the commercially available *** Confidential Treatment Requested as to this information *** culture medium.

Agree with the Customer which medium is selected to progress with for the remaining Stages.

Discuss and agree with the Customer a series of laboratory scale fermentations to be performed in Stage 2.

SUBSTAGE 1b - CLONING AND CELL LINE SELECTION

1.2.7 Revive cells from an ampoule of the incoming Cell Line and perform a single round of cloning using the capillary aided cell cloning technique. The Cell Line will be cultured and plated in the selected medium supplemented with an appropriate concentration of serum.

The capillary aided cell cloning technique involves the use of a capillary which delivers a droplet of a cell suspension to each well of a 48 or 96 well plate. The droplet is then examined under a microscope to confirm the presence of a single cell before medium is added and the confirmed clones grown on.

1.2.8 Adapt up to 15 clones to serum free culture medium. Perform an assessment of the productivity of the Cell Lines in shake flask cultures by allowing the cultures to grow to maximum cell concentration at high viability and measure Product accumulation by assays established under Stage 4.

Deliver samples of cell culture supernatant (approximately 10ml) from the cultures to the Customer to enable the Customer to confirm Product concentrations and Product quality.

Note: If there is a delay in completion of these analyses by the Customer at this point, there may be a delay in completion of the Services.

Select 3 candidate cloned Cell Lines for further development.

At this point the Customer and Lonza will agreed on the Lead Cell Line.

1.2.9 Cryopreserve pre-seed stocks (PSS) of 12 ampoules of cells from each of the 3 candidate Cell Lines selected in 1.2.8.

Cryopreserve 2 ampoules of all other serum free adapted Cell Lines.

1.2.10 Establish criteria for routine subculture of the Cell Line. Assess the stability of production of the selected Cell Line and one back-up Cell Line in suspension culture for 60 generations beyond the PSS in cell culture media with and without methotrexate.

Deliver samples of cell culture supernatant (approximately 10ml) taken from the culture at appropriate intervals to the Customer to enable the Customer to confirm Product concentrations and Product quality.

1.2.11 Issue a report of activities to Customer. This report shall include the following:

- Details of the key experimental data generated in Stage 1.
- An assessment of the performance of the Cell Line at laboratory scale.

Note: In all reports to the Customer any techniques or reagents used . which are proprietary to Lonza will be described in outline only.

1.3 TIMESCALE

Stage 1 shall be complete with the issue of the report of activities and it is estimated that this report will be issued *** Confidential Treatment Requested as to this information *** from the start of Stage 1.

Stage 2 (Cell Banking) can commence at the Customer's request any time after activity 1.2.9 is complete.

2.1 STAGE 2 - FERMENTATION STUDIES

2.2 OBJECTIVES

2.2.1 To assess the key fermentation parameters for the Customer's Cell Line.

2.2.2 To determine production kinetics in laboratory scale fermenters *** Confidential Treatment Requested as to this information ***

2.2.3 To test if Lonza's generic fermentation Process is appropriate for production of the Product in the selected medium.

SUBSTAGE 2a - FERMENTATIONS USING CUSTOMER'S MEDIUM

2.2 ACTIVITIES

2.2.1 Receive fermentation process details, medium and relevant safety information from the Customer to enable Substage to commence.

2.2.2 Revive cells from an ampoule of the Cell Line received from the Customer in the medium supplied by Customer.

2.2.3 Carry out a time course of cell growth and Product accumulation in duplicate laboratory scale stirred and airlift ferementers *** Confidential Treatment Requested as to this information *** using the medium supplied by the Customer and fermentation conditions supplied by the Customer.

2.2.4 Measure Product concentration using methods established under Stage 4a.

2.2.5 Harvest the cell culture supernatants and purify using S-Sepharose.

2.2.6 Deliver the material to the Customer to enable the Customer to determine product quality.

2.2.7 Issue a summary report of results to Customer.

SUBSTAGE 2b - FERMENTATIONS USING MEDIUM SELECTED UNDER STAGE 1

2.2.8 Revive cells from an ampoule of the Cell Line received from the Customer in the medium selected in Stage 1 (1.2.6).

2.2.9 Perform up to 4 pairs of laboratory scale *** Confidential Treatment Requested as to this information *** fermentations using the Cell Line received from the Customer. These studies will be agreed with the Customer and will assess the key fermentation parameters for this Cell Line and Product for example:

- An evaluation of Lonza's generic fermentation Process operating conditions.

- An assessment of whether adjustment to the medium formulation will be required to produce Product of similar quality to previous Customer fermentations, e.g. effect of sodium bicarbonate concentration, effect of feeding regimes.

2.2.10 Deliver samples of the cell culture supernatants (10ml) from 2.2.8 to the Customer to enable the Customer to confirm Product concentrations and Product quality.

2.2.11 Assess Product concentrations and Product quality using assays established under Stage 4.

2.2.12 Review the results from 2.2.10 with the Customer and select the optimum fermentation Process.

2.2.13 Using the PSS of the lead Cell Line (1.2.9) perform up to two pairs of laboratory scale fermentations. Monitor cell growth and Product accumulation to determine the optimum point to harvest culture supernatant.

2.2.14 Deliver samples of the cell culture supernatant (10ml) to the Customer to enable the Customer to confirm Product concentrations and Product quality.

2.2.15 Assess Product concentrations and Product quality using assays established under Stage 4.

2.2.16 Issue a report of activities to Customer. This report shall include the following:

- Details of the key experimental data generated in Stage 2.
- An assessment of the performance of the Cell Line at laboratory scale.
- A preliminary estimate of the expected productivity of the Cell Line at production scale.

EVALUATION POINT
At this point the Customer and Lonza Biologics will assess whether the selected medium is suitable to proceed with the Services. If it is agreed that the selected medium is unsuitable to proceed with the Services, then Lonza and the Customer will agree an alternative work programme.

2.3 TIMESCALE

Stage 2 shall be complete on the issue of the report of activities and it is estimated that this report will be issued *** Confidential Treatment Requested as to this information *** from the start of Stage 2.

3.0 STAGE 3 - MASTER AND WORKINQ CELL BANK PREPARATION AND ANALYSIS

3.1 OBJECTIVES

3.1.1 To test the PSS created under Stage 1 (1.2.9) such that sufficient test information is available for rapid transfer of the Cell Line to Lonza's GMP manufacturing facility. Testing for potential adventitious agents is required so that all cell line and products are protected for customers.

3.1.2 To create and characterise a master cell bank (MCB) and a working cell bank (WCB).

3.2 ACTIVITIES

3.2.1 Send an ampoule of the PSS (1.2.9) of the Lead Cell line and two backup candidate Cell Lines to a testing laboratory to be tested by assay for mycoplasma.

3.2.2 Send ampoules of the Cell Line to Testing Laboratories to be tested by:

a) Assay for viruses:
*** Confidential Treatment Requested as to this information ***
b) Isoenzyme analysis

3.2.3 Prepare GMP documentation, for the preparation of the cell banks from the selected Cell Line.

3.2.4 Establish a 200 ampoule MCB and a 250 ampoule WCB according to the principles of GMP. The MCB will be derived from one ampoule of the PSS and the WCB will be derived from one ampoule of the MCB. Methotrexate will be used in the cell culture medium. The cell banking system has been designed with reference to the "Points to Consider in the Characterisation of Cell line used to Produce Biologicals" (1993 -CBER, Food and Drug Administration), and the"Production and Quality Control of Monoclonal Antibodies" (1995, Commission of the European Communities).

3.2.5 Establish standard maintenance, storage and release procedures for the MCB and WCB at two separate Lonza sites.

3.2.6 Characterise the MCB and WCB :-

- Assess sterility (21 CFR 610.12) and mycoplasma (FDA PTC 1993) status.
- Assess cell bank viability from 5 ampoules distributed through the bank.

- Evaluate growth of cells from the MCB and WCB following Lonza's generic inoculum regime to measure doubling time, cell growth and split ratios.

3.2.7 Issue report of activities to Customer. The report shall include:

- a description of preparation of the cell banks;
- details of the history of the Cell Line at Lonza;
- mycoplasma and sterility test results on the cell banks;
- details of cell growth characteristics for the Cell Line i.e. doubling time, cell concentration, split ratios, viability;
- details of materials and methods used for activities under sections 3.2.4; 3.2.5 and 3.2.6;
- a summary of Lonza's storage and control procedures for the cell banks;
- Testing Laboratory results.

3.3 CELL BANK CHARACTERISATION (VIRUS TESTING)

Additional viral characterisation of the cell banks will be required in order to support regulatory applications to conduct clinical trials, or market a product, including testing of a post-production cell bank (PPCB) as prepared in Stage 8 of these Services. Lonza can arrange for such testing at Lonza's approved contractors on Customer's behalf on terms to be agreed or alternatively deliver ampoules of the Cell Line to Customer for performance of this testing.

Note: THIS PROPOSAL MAKES PROVISION FOR TESTING OF THE PSS TO ENABLE RAPID TRANSFER OF THE CELL LINE INTO LONZA'S MANUFACTURING FACILITY. THESE TESTS ON THE PSS ENABLE THE CELL BANKS TO MEET THE CELL BANK SPECIFICATION (SCHEDULE 1). HOWEVER FOR INITIATION OF PHASE I CLINICAL TRIALS THE CELL BANKS ALSO NEED TO BE TESTED.

3.4 TIMESCALE

Stage 3 shall be complete with the issue of the report of activities and it is estimated that this report will be issued *** Confidential Treatment Requested as to this information *** from the start of Stage 3. It is estimated that he 200 ampoule MCB will be established *** Confidential Treatment Requested as to this information *** from the start of Stage 3 the 250 ampoule WCB will be established *** Confidential Treatment Requested as to this information *** from the start of Stage 3 and the report will be complete *** Confidential Treatment Requested as to this information *** from the start of Stage 3. The duration of cell bank virus testing will depend on the range of tests chosen by the Customer and on the Testing Laboratory that is selected.

4.0 STAGE 4 - ASSAY TRANSFER AND VALIDATION

SUBSTAGE 4a - PRODUCT ELISA ASSAY TRANSFER

4.1 OBJECTIVES

4.1.1 To transfer an assay for measurement of Product concentration in cell culture supernatants, to be used as an assay in the Lonza development laboratories to support the work programme.

4.2 ACTIVITIES

4.2.1 Receive protocols from the Customer for the Product ELISA assay to be used in development. Key reagents will be provided if they are not readily available commercially.

4.2.2 Assess the performance of the assay on cell culture supernatants from the Cell Line. Compare data to data generated by the Customer.

4.2.3 Validate the assay for working range, accuracy and precision.

4.2.4 Issue a report on the activities in Stage 4a to the Customer.

4.3 TIMESCALE

Substage 4a can commence as soon as protocols and reagents and reference standards are received from the Customer. It is estimated that Stage 4 will take *** Confidential Treatment Requested as to this information *** to complete.

SUBSTAGE 4b - ASSAY TRANSFER AND VALIDATION

4.4 OBJECTIVES

4.4.1 To establish and where appropriate validate assays for determination of Product quality during the development programme and for draft Specification testing.

4.4.2 To agree with the Customer which assays to apply at which stages of the work programme.

4.4.3 To evaluate the performance of Lonza's standard QC assays for the Product/Process.

4.4.4 To establish assays as required for testing of new GMP raw materials.

4.5 ACTIVITIES

4.5.1 Receive protocols from the Customer for the assays to be used in development and QC. Key reagents will be provided if they are not readily available commercially.

4.5.2 Assess the performance of these Customer assays with Product.

4.5.3 Evaluate the performance of Lonza Biologics' QC assays with Product as appropriate.

4.5.4 Perform validation as appropriate to this phase of the clinical programme according to ICH requirements.

4.5.5 Transfer the assays to Lonza Biologics Quality Department.

4.5.6 Issue a report on the activities in Substage 4b to the Customer.

Note: The timescale for this programme are estimates only and make assumptions on the number of assays to be transferred and that the assays are transferred smoothly and no unexpected issues arise.

4.6 TIMESCALE

Substage 4b can commence as soon as protocols and reagents and reference standards are received from the Customer. The timescale for Substage 4b will be discussed and agreed with the Customer.

5.0 STAGE 5 - PURIFICATION PROCESS TRANSFER

5.1 OBIECTIVES

5.1.1 To transfer to Lonza a one step (S-Sepharose) sample purification method for use in the assessment of Product quality.

5.1.2 To establish purification process suitable for manufacture of the Product at *** Confidential Treatment Requested as to this information ***.

5.1.3 To design a purification process as close as possible to the Customer's process that will fit with Lonza's equipment and procedures.

5.1.4 To provide a sample of Product purified using the selected process to the Customer for evaluation.

5.2 ACTIVITIES

5.2.1 Receive complete information from the Customer on performance of the purification process at the Customer's facility. Source and qualify new raw materials as required. Identify changes that can be made to the existing purification process.

5.2.2 Observe the purification process at the Customer's laboratories.

Note: If at this point difficulties in supply or adaptation to Lonza's equipment and procedures are identified, these will be discussed with the Customer. Extra costs may be incurred if specialist equipment or resins have to be sourced.

5.2.3 Under Stage 2 of the Services provide cell culture supernatant from cell cultures.

5.2.4 Purify Product from the bulk supernatant using the procedure provided by the Customer, modified to fit Lonza's large scale equipment.

5.2.5 Measure yield after each purification step.

5.2.6 Analyse selected in Process samples and final Product for purity by methods to be established under Stage 4b.

5.2.7 Deliver a sample of the Product to the Customer for evaluation.

EVALUATION POINT
At this point the Customer and Lonza Biologics will assess the capability of the adapted purification process to produce GMP Product that meets the draft Specification. Agree with the Customer any additional work which may be needed to produce such Product. Any further work will be carried out at a price to be agreed.

5.2.8 Issue report of activities to Customer. This report shall include:

- step yields for each chromatography and buffer exchange operation; copies of analytical results; details of materials and methods used for activities under Stage 5;
- an outline of the recommended manufacturing process including an estimate of the expected yield of Product at the chosen production scale.
- a recommendation of any process modifications that might be required to purify Product to meet the draft Specification.

5.3 TIME SCALE

Stage 5 shall be complete with the issue of the, report of activities and it is estimated that this report will be issued *** Confidential Treatment Requested as to this information *** from the start of Stage 5.

Stage 5 shall commence as soon as cell culture supernatant is available from Stage 2.

6.0 STAGE 6 - DEVELOPMENT PILOT BATCH

6.1 OBJECTIVES

6.1.1 To carry out a development pilot fermentation at *** Confidential Treatment Requested as to this information ***

6.1.2 To evaluate the ability of the process to produce Product meeting the purity limits included in the draft Specification eg *** Confidential Treatment Requested as to this information *** if appropriate

6.1.3 To produce bulk purified non-GMP Product that the Customer may use for non-clinical studies.

6.2 ACTIVITIES

6.2.1 Recover one vial from the PSS (Stage 1) and expand culture to inoculate a *** Confidential Treatment Requested as to this information ***

6.2.1 Carry out *** Confidential Treatment Requested as to this information *** using process established in Stage 2.

6.2.3 Clarify culture broth and concentrate supernatant.

Refine key operational parameters of this primary recovery process, including the intermediate filtration step.

6.2.4 Purify bulk concentrate by procedure established during Stage 5.

6.2.5 Test Product purity eg *** Confidential Treatment Requested as to this information *** if appropriate, and the *** Confidential Treatment Requested as to this information *** will also be carried out on this development batch.

6.2.6 Review requirements (if any) for process modifications that may be needed following this study before Stage 8. Any such process modifications are subject to agreement.

6.2.7 Deliver remainder of bulk purified Product produced from the development batch to the Customer.

6.2.8 Report on the pilot fermentation and primary recovery investigations, including an estimate of the expected yield from the Cell Line at production scale in the Stage 2 report. Report on the pilot purification and testing results in the Stage 5 report

If requested by the Customer carry out further pilot fermentations.

6.3 TIMESCALE

Stage 6 shall be complete upon delivery of Product from the development batch. It is estimated that such Product will be delivered *** Confidential Treatment Requested as to this information *** from commencement of Stage 6. Stage 6 can commence as soon as the purification process transfer programme is complete (Stage 5) and the PSS is available (Stage i). If the Customer requires the Product can be shipped prior to completion of testing (6.2.5).

7.0 STAGE 7 - GMP DOCUMENTATION

7.1 OBJECTIVE

7.1.1. To prepare GMP documentation for use in manufacture of Product at *** Confidential Treatment Requested as to this information ***

7.2 ACTIVITIES

7.2.1 Prepare GMP documentation. The documentation shall cover:

- Inoculum, fermentation, primary recovery and purification process manufacturing directions, and in-process controls contained in the manufacturing directions.
- Materials specifications (as required).
- Sampling protocols.
- Product specifications.

7.3 TIMESCALE

It is estimated that Stage 7 will take *** Confidential Treatment Requested as to this information *** from the commencement of work and will be complete on notification by Lonza to the Customer that the documentation has been approved by Lonza's QA Department. Stage 7 will be scheduled such that it is not a rate limiting activity.

8.0 STAGE 8 - PRODUCTION OF CLINICAL MATERIAL AT *** Confidential Treatment Requested as to this information ***

8.1 OBJECTIVES

8.1.1 To manufacture clinical grade Product at *** Confidential Treatment Requested as to this information *** (depending on Customer requirement) in an *** Confidential Treatment Requested as to this information *** in accordance with the principles of Good Manufacturing Practice (GMP).

8.1.2 To further evaluate the ability of the Process to produce Product meeting the draft Specification.

8.2 ACTIVITIES

8.2.1 After receiving adequate virus testing data on the PSS and sterility, viability and mycoplasma testing data on the MCB (Stage 3), recover one vial from the MCB and expand culture to inoculate a fermenter.

8.2.2 Carry out *** Confidential Treatment Requested as to this information ***.

8.2.3 Prepare a post-production cell bank (PPCB) from the fermentation. This bank is available for testing as required by the Customer.

8.2.3 Clarify culture supernatant and concentrate by the procedure established in Stage 6.

8.2.4 Purify concentrate by procedure established during Stage 5.

8.2.5 Test Product against the draft Specification.

8.2.6 Undertake quality assurance review of lot documentation and issue a Certificate of Analysis.

8.2.7 Review requirements (if any) for process modifications in order to meet Specification for manufacture of subsequent lots. Any such process modifications are subject to agreement.

8.2.8 Deliver Product to the Customer.

8.3 TIMESCALE

Stage 8 shall commence as soon as adequate virus testing data and the sterility viability and mycoplasma testing data is available on the MCB (Stage 3).

Stage 8 shall lid complete upon delivery of Product. It is estimated that Product will be delivered *** Confidential Treatment Requested as to this information *** from commencement of Stage 8.

Note: PRODUCT CAN BE SHIPPED IN QUARANTINE WITH THE CERTIFICATE OF ANALYSIS TO FOLLOW IN ORDER TO FACILITATE THE QUICKEST DELIVERY OF PRODUCT. A LETTER IS REQUESTED BY LONZA BIOLOGICS FROM THE CUSTOMER STATING THAT THE PRODUCT WILL NOT BE USED IN HUMAN STUDIES UNTIL THE CERTIFICATE OF ANALYSIS IS ISSUED BY LONZA BIOLOGICS. THE CUSTOMER MUST INFORM LONZA BIOLOGICS OF THE EXTENT OF LONZA BIOLOGICS' IN HOUSE TESTING REQUIRED TO BE COMPLETE BEFORE THE PRODUCT IS TO BE SHIPPED IN QUARANTINE.

9.0 STAGE 9 - REGULATORY DOCUMENTATION/SUPPORT

9.1 OBJECTIVES

9.1.1 To prepare regulatory documentation and regulatory support as required by the Customer to support Phase III Studies.

9.2 ACTIVITIES

9.2.1 To provide regulatory documentation covering work under all stages of these Services in a format appropriate for the country of application and as requested by the Customer.

9.2.2 To attend Customer and regulatory agency meetings as required by the Customer.

9.2.3 To advise on additional studies that may be required for regulatory Applications.

9.3 TIMESCALE

The duration of Stage 9 will depend on the extent of regulatory support requested by the Customer. Lonza will aim to complete the regulatory work as soon as possible after receiving all the relevant data from these Services, in anticipation of the Customer requiring the earliest possible filing date.

10.0 STAGE 10 - EVALUATION OF VIRUS CLEARANCE

10.1 OBJECTIVES

10.1.1 To obtain data for clearance of one model virus by the column chromatography and virus inactivation steps used in the purification of bulk Product.

10.2 ACTIVITIES

10.2.1 Design a scaled down process for each column chromatography and inactivation step. The scaled down process will mimic as closely as reasonably possible the manufacturing scale process.

10.2.2 Prepare a GLP study protocol and agree the model virus with the Customer.

10.2.3 Collect column load samples from the appropriate steps of the full scale manufacturing process during Stage 8 of the Services.

10.2.4 Carry out the scaled down process for appropriate chromatography steps without the virus spike. Compare the elution profile, Product yield and purity with the full scale manufacturing process. This is designed to demonstrate that the scaled down process does mimic the manufacturing process and to generate control samples to test for cytotoxicity in the virus assay.

10.2.5 Repeat the scaled down process for each column step, each spiked separately with the selected virus. The virus will be prepared and assayed by a suitable Testing Laboratory. The column chromatography and inactivation studies will be carried out by Lonza staff working in the laboratories of the Testing Laboratory.

10.2.6 Assay infectious virus recovered in Product containing fractions (to allow calculation of clearance factors) and in selected unbound and wash fractions to determine (where possible) where infectious virus is removed and hence identify critical steps in the process.

10.2.7 Measure the rate of inactivation of virus by treating the selected model virus in the inactivation steps, developed in Stage 5 in the purification process for Product.

10.2.8 Measure the clearance of the virus across the virus removing filter step, if included in the process. i

10.2.9 Calculate virus clearance factors for each step by dividing total infectious virus applied by that recovered with purified Product or after treatment at low pH.

10.2.10 Issue an audited report of the activities to the Customer.

10.3 TIMESCALE

Stage 10 shall commence once Product samples are obtained from Stage 8. It is estimated that Stage 10 shall be complete *** Confidential Treatment Requested as to this information *** from commencement.

SCHEDULE 3

PRICE AND TERMS OF PAYMENT

1.0 PRICE

In consideration for Lonza carrying out the Services as detailed in Schedule 2 the Customer shall pay Lonza, as follows :-

	STAGE	PRICE (UK L STERLING)
1.	Substage 1 a - Media Selection	*** Confidential Treatment Requested as to this information ***
	Substage 1 b - Cloning and Cell Line Selection	"
2.	Fermentation Studies	"
	Substage 2a	"
	Substage 2b	"
3.	Master and Working Cell Bank Preparation and Analysis	"
4.	Substage 4a - Product ELISA Assay Transfer	"
	Sybstage 4b - Assay Transfer and Validation	"
5.	Purification Process Transfer	"
6.	Development Pilot Batch	"
7.	GMP Documentation	"
8.	Production of Clinical Material(2)	"
9.	Regulatory Documentation Support	"
10.	Evaluation of Virus Clearance	"

Notes

(1) This Price includes only cell bank testing as specified in Stage 3 activities, sufficient to allow entry of the Cell Line into Lonza's GMP facility.

(2) This prices may be reviewed depending on the cost of the commercial media selected and the costs of the resins used during the purification Process.

(3) These are Lonza's cost prices for GMP batches produced in the early stage of a product development programme. Once a long term supply arrangement is entered into, it is anticipated that considerable price reductions could be offered.

2.0 PAYMENT

Payment by the Customer of the Price for each Stage shall be made against Lonza's invoices as follows:

2.1 For
Substage 1a
*** Confidential Treatment Requested as to this information ***

Substage 1b
*** Confidential Treatment Requested as to this information ***

2.2 For
Stage 2
Substage 2a
*** Confidential Treatment Requested as to this information ***

Substage 2b
*** Confidential Treatment Requested as to this information ***

2.3 For Stage 3
*** Confidential Treatment Requested as to this information ***

2.4 For Stage 4
Substage 4a
*** Confidential Treatment Requested as to this information ***

Substage 4b
Payment schedule to be agreed.

2.5 For Stage 5
*** Confidential Treatment Requested as to this information ***

2.6 For Stage 6
*** Confidential Treatment Requested as to this information ***

2.7 For Stage 7
*** Confidential Treatment Requested as to this information ***

2.8 For Stage 8
*** Confidential Treatment Requested as to this information ***

2.9 For Stage 9
*** Confidential Treatment Requested as to this information ***

2.10 For Stage 10
*** Confidential Treatment Requested as to this information ***

SCHEDULE 4

1. LB and Customer may negotiate in good faith amendments to the scope of the activities set out in Schedule 2 in the event that:

   a. Customer determines that additional activities to the Services are required to meet its objectives or to accelerate where possible performance of the proposed services. Customer acknowledges that LB may have regard to its other third party commitments, and

   b. Customer's requirements change resulting in certain activities to the Services no longer being required to meet Customer's objectives, Customer having regard to its obligations under Clause 4.3 and Clause 9.2 of. Schedule 5.

2. The parties recognise that it may become necessary or desirable for Customer to manufacture *** Confidential Treatment Requested as to this information *** itself or through another manufacturer. LB is willing to effect a process transfer on commercially reasonable terms. *** Confidential Treatment Requested as to this information ***

SCHEDULE 5
STANDARD TERMS FOR CONTRACT SERVICES
AVANT IMMUNOTHERAPEUTICS INC

1. INTERPRETATION

1.1 In these Standard Terms, unless the context requires otherwise

1.1.1 "Affiliate" means any Company, partnership or other entity which directly or indirectly controls, is controlled by or is under common control with the relevant party to this Agreement. "control" means the ownership of more than fifty per cent (5096) of the issued share capital or the legal power to direct or cause the direction of the general management and policies of the party in question.

1.1.2 "Agreement" means any contract between LB and a Customer incorporating these Standard Terms.

1.1.3 "Cell Line" means the cell line, particulars of which are set out in Schedule 1.

1.1.4 "cGMP" means Good Manufacturing Practices and General Biologics Products Standards as promulgated under the US Federal Food Drug and Cosmetic Act at 21CFR (Chapters 210, 211, 600 and 610) and the Guide to Good Manufacturing Practices for Medicinal Products as promulgated under European Directive 91/356/EEC. LB's operational quality standards are defined in internal GMP policy documents. Additional product-specific development documentation and validation work may be required to support regulatory applications to conduct clinical trials or market a product.

1.1.5 "Customer" includes any person to whom a Proposal is issued by LB.

1.1.6 "Customer information" means all technical and other information not known to LB or in the public domain relating to the Cell Line, the Process and the Product, from time to time supplied by the Customer to LB.

1.1.7 "Customer Materials" means the Materials supplied by Customer to LB (if any) and identified as such by Schedule 1 hereto.

1.1.8 "Customer Tests" means the tests to be carried out on the Product immediately following receipt of the Product by the Customer, particulars of which are set out in Schedule 1.

1.1.9 "ex works" means LB has fulfilled its obligation to deliver when it has made the object of delivery available at its premises to the Customer or the Customer's agent (or to LB's carrier if the provisions of Clause 5.1 of this Schedule 5 apply). For the avoidance of doubt, unless otherwise agreed in writing, LB is not responsible for loading the object of delivery on to the vehicle provided by the Customer or the Customers agent (or to LB's nominated carrier if Clause 5.1 of this Schedule 5 applies) or for delaying the object of delivery for export.

1.1.10 "LB Know-How" means all technical and other information relating to the Process known to LB from time to time other than confidential Customer Information and information in the public domain.

1.1.11 "Patent Rights" means all patents and patent applications of any kind throughout the world relating to the Process which from time to time LB Is the owner of or is entitled to use.

1.1.12 "Price" means the price specified in Schedule 3 for the Services.

1.1.13 "Process" means the process for the production of the Product from the Cell Line, including any improvements thereto from time to time.

1.1.14 "Product" means all or any part of the product (including any sample thereof), particulars of which are set out in Schedule 1.

1.1.15 "Proposal" means any proposal or quotation issued by LB.

1.1.16 "Services" means all or any part of the services the subject of the Agreement or Proposal (including, without limitation, cell culture evaluation, purification evaluation, master, working and extended cell bank creation, and sample and bulk production), particulars of which are set out In Schedule 2.

1.1.17 "Special Term" means any term additional or supplemental to these Standard Terms from time to time agreed In writing between LB and the Customer. Particulars of any Special Terms at the date of the Agreement are set out in Schedule 4.

1.1.18 "Specification" means the specification for Product, particulars of which are set out in Schedule 1. '

1.1.19 "Terms of Payment" means the terms of payment specified in Schedule 3.

1.1.20 "Terms means any third party instructed by LB to cant' out tests on the Cell Line or the Product.

1.2 Unless the context requires otherwise, words and phrases defined in any other part of the Agreement shall bear the same meanings in these Standard Terms, references to the singular number include the plural and vice versa, references to Schedules are references to schedules to the Agreement, and references to Clauses are references to clauses of these Standard Terms.

1.3 In the event of a conflict between a Special Term and these Standard Terms, the Special Term shall prevail.

2. APPLICABILITY OF STANDARD TERMS

2.1 Unless agreed otherwise, these Standard Terms shall apply to every Proposal and Agreement, and to any services additional to the Services requested by a Customer: LB shall not be bound by any terms which may be inconsistent with these Standard Terms and the Special Terms. No variation of or addition to these Standard Terms and the Special Terms or any other term of an Agreement shall be effective unless in writing and signed for and on behalf of LB and Customer. For the avoidance of doubt, amendments to the draft Specification or Specification for Product shall be effective if reduced to writing and signed by the regulatory representative of both Parties, which regulatory representative shall be nominated from time to time by the parties.

2.2 Unless previously withdrawn, a Proposal is open for acceptance within the period stated therein. Where no period is stated, the Proposal shall be open for acceptance within thirty (30) days from the date it is issued unless withdrawn in the meantime. Any acceptance by a Customer of a Proposal shall not create a binding contract.

2.3 A binding contract shall only be created when LB has accepted in writing an offer placed by a Customer.

3. SUPPLY BY CUSTOMER

3.1 Prior to or immediately following the date of the Agreement the Customer shall supply to LB the Customer Information, together with full details of any hazards relating to the Cell Line and/or the Customer Materials, their storage 'and use. On review of this Customer Information, the Cell Line and/or the Customer Materials shall be provided to LB at LB's request. Property in the Cell Line and/or the Customer Materials supplied to LB shall remain vested in the Customer.

3.2 The Customer hereby grants LB the non-exclusive right to use the Cell Line, the Customer Materials and the Customer Information for the purpose of the Agreement. LB hereby undertakes not to use the Cell Line, the Customer Materials or the Customer Information (or any part thereof) for any other purpose.

3.3 LB shall:

3.3.1 at all times use all reasonable endeavours to keep the Cell Line and/or the Customer Materials secure and safe from loss and damage in such manner as LB stores its own material of similar nature;

3.3.2 not part with possession of the Cell Line and/or the Customer Materials or the Product, save for the purpose of tests at the Testing Laboratories; and

3.3.3 procure that all Testing Laboratories are subject to obligations of confidence substantially in the form of those obligations of confidence imposed on B under these Standard Terms.

3.4 The Customer warrants to LB that

3.4.1 the Customer is and shall at all times throughout the duration of the Agreement remain entitled to supply the Cell Line, the Customer Materials and Customer Information to LB;

3.4.2 to the best of the Customer's knowledge and belief the use by LB of the Cell Line, the Customer Materials or and the Customer Information for the Services will not infringe any rights (including, without limitation, any Intellectual or industrial property rights) vested in any third party; and

3.4.3 the Customer will notify LB, in writing, immediately it knows or ought to know that it is no longer entitled to supply the Cell Line, the Customer Materials and/or the Customer Information to LB or that the use by LB of the Cell Line, the Customer Materials or the Customer Information for the Services infringes or is alleged to infringe any rights (including, without limitation, any intellectual or industrial property rights) vested in any third party.

3.5 The Customer undertakes to indemnify and to maintain LB promptly indemnified against any loss, damage, costs and expenses of any nature (including court costs and legal fees on a full indemnity basis), whether direct or consequential, and whether or not foreseeable or in the contemplation of LB or the Customer, that LB may suffer arising out of or incidental to any breach of the warranties given by the Customer under Clause 3.4 above or any claims alleging LB's use of the Cell Line, the Customer Materials or the Customer Information infringes any rights (including, without limitation, any intellectual or industrial property rights)

vested in any third party (whether or not the Customer knows or ought to have known about the same).

3.6 The obligations pf the Customer under this Clause 3 shall survive the termination for whatever reason of the Agreement.

4. PROVISION OF THE SERVICES

4.1 LB shall diligently carry out the Services as provided in Schedule 2 and shall use all reasonable efforts to achieve the estimated timescales therefor.

4.2 Due to the unpredictable nature of the biological processes involved in the Services, the timescales set down for the performance of the Services (including without limitation the dates for production and delivery of Product) and the quantities of Product for delivery set out in Schedule 2 are estimated only.

4.3 Subject to Clause 4.1. the Customer shall not be entitled to cancel any unfulfilled part of the Services or to refuse to accept the Services on grounds of late performance, late delivery or failure to produce the estimated quantities of Product for delivery. LB shall not be liable for any loss, damage, costs or expenses of any nature, whether direct or consequential, occasioned by 4.3.1 any delay in performance or delivery howsoever caused; or 4.3.2 any failure to produce the estimated quantities of Product for delivery.

4.4 LB shall comply with the regulatory requirements from time to time applicable to the Services as set out in Schedule 2 hereto. If the Customer requests LB to comply with any other regulatory or similar legislative requirements LB shall use all reasonable commercial endeavours to do so provided that:

4.4.1 the Customer shall be responsible for informing LB in writing of the precise foreign requirements which the Customer is requesting LB to observe;

4.4.2 such foreign requirements do not conflict with any mandatory requirements under the laws of England;

4.4.3 LB shall be under no obligation to ensure that such written information complies with the applicable requirements of any foreign jurisdiction; and

4.4.4 all costs and expenses incurred by LB in complying with such foreign requirements shall be charged to the Customer in addition to the Price.

4.5 Delivery of Product shall be ex-works LB's premises (Incoterms 1990). Risk in and title to Product shall pass on delivery. Transportation of Product, whether or not under any arrangements made by LB on behalf of the Customer. shall be made at the sole risk and expense of the Customer.

4.6 Unless otherwise agreed, LB shall package and label Product for delivery ex-works in accordance with its standard operating procedures. It shall be the responsibility of the Customer to inform LB in writing in advance of any special packaging and labelling requirements for Product. All additional costs and expenses of whatever nature incurred by LB in complying with such special requirements shall be charged to the Customer in addition to the Price.

5. TRANSPORTATION OF PRODUCT AND CUSTOMER TESTS

5.1 If requested by the Customer, LB will (acting as agent of the Customer for such purpose) arrange the transportation of Product on issue of certificate of analysis or otherwise whichever is the earlier to occur from LB's premises to the destination indicated by the Customer together with insurance cover for Product in transit at its invoiced value. All additional costs and expenses of whatever nature incurred by LB in arranging such transportation and insurance shall be charged to the Customer in addition to the Price.

5.2 Where LB has made arrangements for the transportation of Product, the Customer shall diligently examine the Product as soon as practicable after receipt. Notice of all claims (time being of the essence) arising out of:

5.2.1 damage to or total or partial loss of Product in transit shall be given in writing to LB and the carrier within three (3) working days of delivery; or

5.2.2 non-delivery shall be given in writing to LB within ten (10) days after the date of LB's despatch notice.

5.3 The Customer shall make damaged Product available for inspection and shall comply with the requirements of any insurance policy covering the Product notified by LB to the Customer. LB shall offer the Customer all reasonable assistance (at the cost and expense of the Customer) in pursuing any claims arising out of the transportation of Product.

5.4 Promptly following receipt of Product, the Customer shall carry out the customer Tests.

PROVIDED ALWAYS the Specification for such Product is not stated to be in draft form, if the Customer Tests show that the Product fails to meet Specification, the Customer shall give LB written notice thereof within forty-five (45) days from the date of delivery of the Product ex works and shall return such Product to LB's premises for further testing. In the absence of such written notice Product shall be deemed to have been accepted by the Customer as meeting Specification. If LB Is satisfied that Product returned to LB fails to meet Specification and that such failure Is not due (in whole or in part) to acts or omissions of the Customer or any third party after delivery of such Product ex-works, LB shall at Customer's discretion refund that part of the Price that relates to the production of such Product or replace such Product at its own cost and expense. In the event Customer requires LB to replace such Product, LB shall be entitled to have regard to its commercial commitments to third parties in the timing of such replacement. Customer acknowledges that there may, therefore, be a delay in the timing of the replacement of such Product.

FOR THE AVOIDANCE OF DOUBT, WHERE THE SPECIFICATION IS STATED TO BE IN DRAFT FORM LB SHALL BE OBLIGED ONLY TO USE ITS REASONABLE ENDEAVORS TO PRODUCE PRODUCT THAT MEETS SPECIFICATION.

5.5 If there is any dispute concerning whether Product returned to LB fails to meet Specification or whether such failure Is due (in whole or in part) to acts or omissions of the Customer or any third party after delivery of such Product ex-works. such dispute shall be referred for decision to an independent expert (acting as an expert and not as an arbitrator) to be appointed by agreement between LB

and the Customer or, in the absence of agreement by the President for the time being of the Association of the British Pharmaceutical Industry. The costs of such independent expert shall be borne equally between LB and the Customer. The decision of such independent expert shall be in writing and, save for manifest error on the face of the decision, shall be binding on both LB and the Customer.

5.6 The provisions of Clauses 5.4 and 5.5 shall be the sole remedy available to the Customer in respect of Product that fails to meet Specification.

6. PRICE AND TERMS OF PAYMENT

6.1 The Customer shall pay the Price in accordance with the Terms of Payment.

6.2 Unless otherwise indicated in writing by LB, all prices and charges are exclusive of Value Added Tax or of any other applicable taxes, levies, imposts, duties and fees of whatever nature imposed by or under the authority of any government or public authority, which shall be paid by the Customer (other than taxes on LB's income). All invoices are strictly net and payment must be made within thirty (30) days of date of invoice. Payment shall be made without deduction, deferment, set-off, lien or counterclaim of any nature.

6.3 In default of payment on due date:

6.3.1 interest shall accrue on any amount overdue at the rate of two per cent (2%) above the base lending rate from time to time of HSBC Bank plc, interest to accrue on a day to day basis both before and after judgment; and

6.3.2 LB shall, at its sole discretion, and without prejudice to any other of its accrued rights, be entitled to suspend the provision of the Services or to treat the Agreement as repudiated by notice in writing to the Customer exercised at any time thereafter.

7. WARRANTY AND LIMITATION OF LIABILITY

7.1 LB warrants that:

7.1.1 the Services shall be performed in accordance with Clause 4.1; and

7.1.2 the Product shall meet Specification, save where the Specification is stated to be in draft form when LB shall be obliged only to use its reasonable endeavors to produce Product that meets Specification.

7.2 Clause 7.1 is in lieu of all conditions, warranties and statements in respect of the Services and/or the Product whether expressed or implied by statute, custom of the trade or otherwise (including but without limitation any such condition, warranty or statement relating to the description or quality of the Product, its fitness for a particular purpose or use under any conditions whether or not known to LB) and any such condition, warranty or statement is hereby excluded.

7.3 Without prejudice to the terms of Clauses 5.6, 7.1, 7.2, 7.4 and 7.6. the liability of LB for any loss or damage suffered by the Customer as a direct result of any breach of the Agreement or of any other liability of LB (including misrepresentation and negligence) in respect of the Services (including without limitation the production and/or supply of the Product) shall be limited to the payment by LB of damages which shall not exceed pounds sterling one million four hundred and thirty four thousand (L1,434,000). The aforementioned financial

cap in respect of LB's liability shall not apply where damages are incurred due to willful misconduct or gross negligence on the part of LB.

7.4 Subject to Clause 7.6, LB shall not be liable for the following loss or damage howsoever caused (even if foreseeable. or in the contemplation of LB or the Customer)

7.4.1 loss of profits, business or revenue whether suffered by the Customer or any other person; or

7.4.2 special, indirect or consequential loss, whether suffered by the Customer or any other person; and

7.4.3 any loss arising from any claim made against the Customer by any other person.

7.5 The Customer shall indemnify and maintain LB promptly indemnified against all claims, actions, costs, expenses (including court costs and legal fees on a full indemnity basis) or other liabilities whatsoever in respect of

7.5.1 any liability under the Consumer Protection Act 1987, unless such liability is caused by the negligent act or omission of LB in the production and/or supply of the Product; and

7.5.2 any product liability (other than that referred to in Clause 7.5.1) in respect of Product, unless such liability is caused by the negligent act or omission of LB in the production and/or supply of Product; and

7.5.3 any negligent or willful act or omission of the Customer in relation to the use, processing, storage or sale of the Product.

7.6 Nothing contained In these Standard Terms shall purport to exclude or restrict any liability for death or personal injury resulting directly from negligence by LB in carrying out the Services or any liability for breach of the implied undertakings of LB as to title.

7.7 The obligations of the Customer under this Clause 7 shall survive the termination for whatever reason of the Agreement.

8. CUSTOMER INFORMATION, LB KNOW-HOW AND PATENT RIGHTS

8.1 The Customer acknowledges that LB Know-How and LB acknowledges that Customer ' Information with which it is supplied by the other pursuant to the Agreement is supplied, subject to Clause 8.4, in circumstances imparting an obligation of confidence and each agrees to keep such LB Know-How or such Customer Information secret and confidential and to respect the other's proprietary rights therein and not at any time for any reason whatsoever to disclose or permit such LB Know-How or such Customer Information to be disclosed to any third party save as expressly provided herein.

8.2 The Customer and LB shall each procure that all their respective employees, consultants and contractors having access to confidential LB Know-How or confidential Customer Information shall be subject to the same obligations of confidence as the principals pursuant to Clause 8.1 and shall enter into secrecy agreements in support of such obligations. Insofar as this is not reasonably practicable, the principals shall take all reasonable steps to ensure that any such employees, consultants and contractors are made aware of such obligations.

8.3 LB and the Customer each undertake not to disclose or permit to be disclosed to any third party, or otherwise make use of or permit to be made use of, any trade

secrets or confidential information relating to the technology, business affairs or finances of the other, any subsidiary, holding company or subsidiary or any such holding company of the other, or of any suppliers, agents, distributors, licensees or other customers of the other which comes into its possession under this Agreement.

8.4 The obligations of confidence referred to in this Clause 8 shall not extend to any information which

8.4.1 is or becomes generally available to the public otherwise than by reason of a breach by the recipient party of the provisions of this Clause 8;

8.4.2 is known to the recipient party and is at its free disposal prior to its receipt from the other;

8.4.3 is subsequently disclosed to the recipient party without being made subject to an obligation of confidence by a third party; or

8.4.4 LB or the Customer may be required to disclose under any statutory, regulatory or similar legislative requirement, subject to the imposition of obligations of secrecy wherever possible in that relation.

8.5 The Customer acknowledges that

8.5.1 LB Know-How and the Patent Rights are vested in LB or LB is otherwise entitled thereto; and

8.5.2 the Customer shall not at any time have any right, title, license or interest In or to LB Know-How, the Patent Rights or any other intellectual property rights relating to the Process which are vested in LB or to which LB is otherwise entitled.

8.6 LB acknowledges that

8.6.1 Customer has undertaken that the Customer Information is vested in the Customer or the Customer is otherwise entitled thereto and LB has no right to use the same save to the extent those granted by Customer to LB under Clause 3.2;

8.6.2 save as provided herein LB shall not at any time have any right, title, license or interest in or to the Customer Information or any other Intellectual Property rights vested in Customer or to which the Customer is entitled; and

8.6.3 LB will provide to the Customer such information relating to the Process and Product as contained in the Batch record as requested by the Customer for the performance of Customer's regulatory requirements subject to the obligations of confidentiality outlined in Clause 8.

8.7 The obligations of LB and the Customer under this Clause 8 shall survive the termination for whatever reason of the Agreement.

9. TERMINATION

9.1 If it becomes apparent to either LB or the Customer at any stage in the provision of the Services that it will not be possible to complete the Services for scientific or technical reasons, a sixty (60) day period shall be allowed for discussion to resolve such problems. If such problems are not resolved within such period, LB and the Customer shall each have the right to terminate the Agreement forthwith by notice in writing. In the event of such termination, the Customer shall pay to LB -a termination sum calculated by reference to all the Services performed by

!,B prior to such termination (including a pro rata proportion of the Price for any stage of the Services which Is in process at the date of termination) and all expenses reasonably incurred by LB in giving effect to such termination, including the costs of terminating any commitments' entered into under the Agreement, such termination sum not to exceed the Price.

9.2 Customer shall be entitled to terminate this Agreement at any time for any reason by sixty (60) days' notice to LB in writing. In the event of Customer serving notice to terminate this Agreement which notice is expressed to be given pursuant to this Clause 9.2. Customer shall

9.2.1 pay LB a termination sum calculated in accordance with the principles of Clause 9.1 above, and

9.2.2 i. in the event notice to terminate this Agreement pursuant to this Clause 9.2 is issued to LB within four (4) months of LB's then estimated start date for any stage of the Services which includes cGMP fermentation activities, Customer shall pay LB a sum equal to forty percent (40%) of the full Price of that stage, or those stages, in question which payment shall fall due to LB on or before the date of termination of the Services.

ii. in the event notice to terminate this Agreement pursuant to this Clause 9.2 is issued to LB within one (1) month of LB's then estimated start date for any stage of the Services which includes cGMP fermentation activities, Customer shall pay LB a sum equal to eighty percent (80%) of the full Price of that stage, or those stages, in question which payment shall fall due to LB on or before the date of termination of the Services.

iii. in the event notice to terminate this Agreement pursuant to this Clause 9.2 is issued to LB after the start of a stage or stages of the Services which includes cGMP fermentation activities, Customer shall pay LB a sum equal to one hundred percent (100%) of the full Price of that stage, or those stages, in question which payment shall fall due to LB on or before the date of termination of the Services.

For the avoidance of doubt activities relating to cGMP fermentation shall be deemed to commence with the date of removal of the vial of cells for the performance of the fermentation from frozen storage.

9.3 In the event that notice to terminate is served by Customer under Clause 9.2 and LB Is successful In allocating Customer's production slot to a third party customer the provisions of Clause 9.2.2. shall not apply.

9.4 LB and the Customer may each terminate the Agreement forthwith by notice in writing to the other upon the occurrence of any of the following events

9.4.1 if the other commits a breach of the Agreement which (in the case of a breach capable of remedy) is not remedied within thirty (30) days of the receipt by the other of notice identifying the breach and requiring its remedy; or

9.4.2 if the other ceases for any reason to carry on business or compounds with or convenes a meeting of its creditors or has a receiver or manager

appointed in respect of all or any part of its assets or is the subject of an application for an administration order or of any proposal for a voluntary arrangement or enters into liquidation (whether compulsorily or voluntarily) or undergoes any analogous act or proceedings under foreign law

9.5 Upon the termination of the Agreement for whatever reason

9.5.1 LB shall promptly return all Customer Information to the Customer and shall dispose of or return to the Customer the Customer Materials (and where supplied by Customer the Cell Line) and any materials therefrom, as directed by the Customer;

9.5.2 the Customer shall promptly return to LB all LB Know-How it has received from LB;

9.5.3 the Customer shall not thereafter use or exploit the Patent Rights or the LB Know-How in any way whatsoever;

9.5.4 LB may thereafter use or exploit the Patent Rights or the LB Know-How in any way whatsoever without restriction; and

9.5.5 LB and the Customer shall do all such acts and things and shall sign and execute all such deeds and documents as the other may reasonably require to evidence compliance with this Clause 9.5.

9.6 Termination of the Agreement for whatever reason shall not affect the accrued rights of either LB or the Customer arising under or out of this Agreement and all provisions which are expressed to survive the Agreement shall remain in full force and effect.

10. FORCE MAJEURE

10.1 If LB is prevented or delayed in the performance of any of its obligations under the Agreement by Force Majeure and shall give written notice thereof to the Customer specifying the matters constituting Force Majeure together with such evidence as LB reasonably can give and specifying the period for which it is estimated that such prevention or delay will continue, LB shall be excused from the performance or the punctual performance of such obligations as the case may be from the date of such notice for so long as such cause of prevention or delay shall continue.

10.2 The expression "Force Majeure" shall be deemed to include any cause affecting the performance by LB of the Agreement arising from or attributable to acts, events, acts of God, omissions or accidents beyond the reasonable control of LB.

11. GOVERNING, LAW. JURISDICTION AND ENFORCEABILITY

11.1 The construction, validity and performance of the Agreement shall be governed by the laws of England, to the jurisdiction of whose courts LB and the Customer submit.

11.2 No failure or delay on the part of either LB or the Customer to exercise or enforce any rights conferred on it by the Agreement shall be construed or operate as a waiver thereof nor shall any single or partial exercise of any right, power or privilege or further exercise thereof operate so as to bar the exercise or enforcement thereof at any time or times thereafter.

11.3 The illegality or invalidity of any provision (or any part thereof) of the Agreement or these Standard Terms shall not affect the legality, validity or enforceability of the remainder of its provisions or the other parts of such provision as the case may be.

12. MISCELLANEOUS

12.1 Neither party shall be entitled to assign, transfer, charge or in any way make over the benefit and/or the burden of this Agreement without the prior written consent of the other which consent shall not be unreasonably withheld or delayed, save that either party shall be entitled without the prior written consent of the other to assign, transfer, charge, subcontract, deal with or in any other manner make over the benefit and/or burden of this Agreement to an Affiliate or to any 50/50 joint venture company of which the party in question is the beneficial owner or fifty per cent (50%) of the issued share capital thereof or to any company with which the party in question may merge or to any company to which that party may transfer its assets and undertakings.

12.2 The text of any press release or other communication to be published by or in the media concerning the subject matter of the Agreement shall require the prior written approval of LB and the Customer.

12.3 The Agreement embodies the entire understanding of LB and the Customer and there are no promises, terms, conditions or obligations, oral or written, expressed on implied, other than those contained in the Agreement. The terms of the Agreement shall supersede all previous agreements (if any) which may exist or have existed between LB and the Customer relating to the Services.

STOCK PURCHASE AGREEMENT

DATED DECEMBER 1, 2000

BY AND BETWEEN

AVANT IMMUNOTHERAPEUTICS, INC.

AND

PFIZER INC

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THIS STOCK PURCHASE AGREEMENT, dated December 1, 2000 (this "Agreement"), by and between AVANT IMMUNOTHERAPEUTICS, INC., a Delaware corporation, with headquarters located at 119 Fourth Avenue, Needham, MA 02494 (the "Company"), and Pfizer Inc ("Pfizer").

W I T N E S S E T H:

WHEREAS,

(A) Pfizer desires to purchase, and the Company desires to sell, upon the terms and conditions set forth in this Agreement, shares (the "Shares") of common stock, $.001 par value per share, of the Company (the "Common Stock"), that will result in the receipt by the Company of aggregate gross proceeds of approximately $3 million; and

(B) Pfizer wishes to purchase, upon the terms and conditions stated in this Agreement, 285,877 Shares.

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. DEFINITIONS

1.1 The following terms used in this Agreement shall have the following meanings (such meanings to be equally applicable to both the singular and plural forms of the terms defined):

"AMEX" means the American Stock Exchange.

"Closing Date" means 4:00 p.m., Boston time, three (3) days after the date hereof, or such other time and date as the parties hereto may agree on.

"Disclosure Schedule" means the Disclosure Schedule prepared by the Company and furnished to Pfizer prior to the date of execution and delivery of this Agreement by Pfizer. Items disclosed in response to a particular Section of this Agreement in the Disclosure Schedule will be deemed disclosed for purposes of other Sections as applicable without cross-references.

"Executory Agreement" means the agreement entitled same entered into by the Company and Pfizer on November 17, 2000.

"Material Adverse Effect" means any material adverse effect on the business, operations, assets, condition (financial or other) or prospects of the Company and its Subsidiaries taken as a whole.

"Megan Health Transaction" means the Company's merger with Megan Health, Inc.

"Nasdaq" means the Nasdaq Stock Market.

"NYSE" means the New York Stock Exchange.

"1933 Act" means the Securities Act of 1933, as amended.

"1934 Act" means the Securities Exchange Act of 1934, as amended.

"Person" means any natural person, corporation, partnership, limited liability company, trust or unincorporated organization, incorporated government, governmental agency or political subdivision.

"Polmerix" means Polmerix, Inc., a Delaware corporation.

"Registration Statement" means a registration statement with respect to the Shares, together with any necessary amendments or supplements thereto and any prospectus forming a part thereof.

"Rule 144" means Rule 144 under the 1933 Act.

"SEC" means the United States Securities and Exchange Commission.

"SEC Reports" means all periodic and other reports filed by the Company with the SEC pursuant to the 1933 Act and 1934 Act subsequent to January 1, 2000 and prior to the date hereof, in each case as filed with the SEC and including the information and documents (other than exhibits) incorporated therein by reference.

"Securities Laws" means the 1933 Act, the 1934 Act, or any state securities or "blue sky" law.

"Subsidiary" has the meaning set forth in Section 4.1.

2. PURCHASE AND SALE; PURCHASE PRICE

2.1 SALE AND PURCHASE OF THE SHARES. Subject to all of the terms and conditions hereof and in reliance on the representations and warranties set forth or referred to herein, at the Closing the Company agrees to sell to Pfizer and Pfizer hereby agrees to purchase, 285,877 Shares of Common Stock at a price per share of $10.494, representing the average closing price as reported by Nasdaq for the sixty (60) trading days ending on the trading day two (2) days preceding the date of the execution of the Executory Agreement, plus a ten percent (10%) premium, for an aggregate consideration of 2,999,993.20 (the "Purchase Price").

2.2 CLOSING. The closing of the purchase and sale of the Shares (the "Closing") will take place at the offices of Goodwin, Procter & Hoar LLP, Boston, Massachusetts on the Closing Date or at such other place as the parties hereto may agree upon. The Closing shall occur when (a) the Company shall have delivered to Pfizer share certificates representing the Shares to be issued to Pfizer; and (b) Pfizer has delivered an amount equal to the Purchase Price.

3. REPRESENTATIONS, WARRANTIES, COVENANTS, ETC. OF PFIZER

Pfizer represents and warrants to, and covenants and agrees with, the Company as follows:

3.1 DUE AUTHORIZATION. Pfizer has all requisite power and authority, corporate or otherwise, to execute, deliver and perform its obligations under this Agreement and the other agreements executed by Pfizer in connection herewith and to consummate the transactions contemplated hereby and thereby. This Agreement has been duly and validly authorized, duly executed and delivered by Pfizer and, assuming due execution and delivery by the Company, is a valid and binding agreement of Pfizer enforceable in accordance with its terms, except as the enforceability hereof may be limited by bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or other similar laws now or hereafter in effect relating to or affecting creditors' rights generally and general principles of equity, regardless of whether enforcement is considered in a proceeding in equity or at law.

3.2 NON-CONTRAVENTION. The execution, delivery and performance of this Agreement by Pfizer and the consummation of any of the transactions contemplated hereby by Pfizer will not (a) conflict with or result in a breach of any of the terms and provisions of, or constitute a default (or an event which with notice or lapse of time, or both, would constitute a default) under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of Pfizer pursuant to any agreement, instrument, franchise, license or permit to which Pfizer is a party or by which any of its properties or assets may be bound or (b) violate or conflict with any judgment, decree, order, statute, rule or regulation of any court or any public, governmental or regulatory agency or body applicable to Pfizer or any of its properties or assets, other than such breaches, defaults or violations that are not reasonably expected to materially impair the ability of Pfizer to consummate the transactions contemplated by this Agreement. The execution, delivery and performance of this Agreement by Pfizer and

the consummation of the transactions contemplated hereby by Pfizer does not and will not violate or conflict with any provision of the organizational documents of Pfizer, as currently in effect. No consent, approval, authorization, order, registration, filing, qualification, license or permit of or with any court or any government agency or body applicable to Pfizer is required for the execution, delivery and performance of this Agreement or the consummation of the transactions contemplated hereby other than those, if any, which have been obtained on or prior to the Closing Date.

3.3 OWN ACCOUNT. Pfizer is acquiring the Shares for its own account, for investment and not with a view to the distribution thereof in violation of the 1933 Act.

3.4 LEGEND. Pfizer agrees that the Company may place a legend on the stock certificates delivered hereunder stating that the Shares have not been registered under the 1933 Act and, therefore, cannot be offered, sold or transferred unless they are registered under the 1933 Act or an exemption from such registration is available.

3.5. FINANCIAL EXPERIENCE. Pfizer has such knowledge and experience in business and financial matters so as to enable it to understand and evaluate the risks of Pfizer's investment in the Shares and form an investment decision with respect thereto.

3.6 BROKERS AND FINDERS. No agent, broker, investment banker, financial advisor or other firm or person engaged by Pfizer is or will be entitled to any broker's or finder's fee or any other commission or similar fee in connection with any of the transactions contemplated by this Agreement.

4. REPRESENTATIONS, WARRANTIES, COVENANTS, ETC. OF THE COMPANY

The Company represents and warrants to Pfizer that, except as specifically set forth in the Disclosure Schedule, the following matters are true and correct on the date of execution and delivery of this Agreement and will be true and correct on the Closing Date, and the Company covenants and agrees with Pfizer as follows:

4.1 ORGANIZATION AND AUTHORITY. The Company and each of its Subsidiaries (as defined in Rule 405 under the 1933 Act) is a corporation duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation, and has all requisite corporate power and authority to (i) own, lease and operate its properties and to carry on its business as described in the SEC Reports and as currently conducted and (ii) to execute, deliver and perform its obligations under this Agreement and to consummate the transactions contemplated hereby and thereby. The Company is duly qualified to do business as a foreign corporation and is in good standing in all jurisdictions where such qualification is necessary and where failure so to qualify could have a Material Adverse Effect.

4.2 ENFORCEABILITY. The execution, delivery and performance by the Company of this Agreement and the issuance and sale by the Company of the Shares will result in legally binding obligations of the Company, enforceable against it in accordance with the respective

terms and provisions hereof and thereof, except as limited by bankruptcy, insolvency, and other laws affecting the enforcement of creditors' rights generally or by its equitable principles in any action (legal or equitable).

4.3 CAPITALIZATION.

(a) The authorized capitalization of the Company is as set forth in the Disclosure Schedule.

(b) Except as set forth in this Section 4.3, or in the Disclosure Schedule, there are: (i) no outstanding warrants, options, agreements, convertible securities or other commitments or instruments pursuant to which the Company or any Subsidiary is or may become obligated to issue, sell, repurchase or redeem any shares of capital stock or other securities of the Company or any Subsidiary; (ii) no preemptive, contractual or similar rights to purchase or otherwise acquire shares of capital stock of the Company or any Subsidiary pursuant to any provision of law, the Certificate of Incorporation or By-Laws of the Company or any Subsidiary or any agreement to which the Company or any Subsidiary is a party, or otherwise; (iii) no restrictions on the transfer of capital stock of the Company or any Subsidiary imposed by the Certificate of Incorporation or By-Laws of the Company or any Subsidiary, any agreement to which the Company or any Subsidiary is a party, any order of any court or any governmental agency to which the Company or any Subsidiary is subject, or any statute other than those imposed by relevant state and federal securities laws; (iv) no cumulative voting rights for any of the Company's capital stock; (v) no registration rights under the 1933 Act with respect to shares of the Company's capital stock; (vi) no shares of capital stock of the Company reserved for issuance for any purpose; (vii) to the best of the Company's knowledge and belief after due inquiry, no options or other rights to purchase shares of capital stock from stockholders of the Company or any Subsidiary granted by such stockholders; and (viii) no agreements, written or oral, between the Company or any Subsidiary and any holder of its securities, or, to the best of the Company's knowledge and belief, among holders of its securities, relating to the acquisition, disposition or voting of the securities of the Company or any Subsidiary.

(c) Prior to the date of this Agreement, the Company has reserved a number of authorized but unissued shares of Common Stock sufficient for issuance pursuant to this Agreement.

(d) All of the outstanding capital stock of the only Subsidiary, Polmerix, is owned by the Company.

4.4 AUTHORIZATION OF THE SHARES. The issuance, sale and delivery of the Shares to Pfizer have been duly authorized by all requisite action of the Company, and the Shares are authorized, validly issued and outstanding, fully paid and nonassessable and not subject to preemptive or any other similar rights of the stockholders of the Company or others.

4.5 NON-CONTRAVENTION. The execution and delivery of this Agreement by the Company and the consummation by the Company of the offer and sale of the Shares and the other

transactions contemplated by this Agreement do not and will not, with or without the giving of notice or the lapse of time, or both (i) result in any violation of any provision of the Certificate of Incorporation or By-laws of the Company or any of its Subsidiaries; (ii) conflict with or result in a breach by the Company or any of its Subsidiaries of any of the terms or provisions of, or constitute a default under, or result in the modification of, or result in the creation or imposition of any lien, security interest, charge or encumbrance upon any of the properties or assets of the Company or any of its Subsidiaries pursuant to, any indenture, mortgage, deed of trust or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which the Company or any of its Subsidiaries or any of their respective properties or assets are bound or affected; (iii) violate or contravene any applicable law, rule or regulation or any applicable decree, judgment or order of any court, United States federal or state regulatory body, administrative agency or other governmental body having jurisdiction over the Company or any of its Subsidiaries or any of their respective properties or assets; or (iv) violate or contravene any permit, certification, registration, approval, consent, license or franchise necessary for the Company or any of its Subsidiaries to own or lease and operate any of their respective properties and to conduct any of their respective business or the ability of the Company or any of its Subsidiaries to make use thereof.

4.6 CONSENTS AND APPROVALS. No authorization, consent, approval or other order of, or declaration to or filing with, any governmental agency or body (other than filings required to be made under applicable federal and state securities laws, which have been made) or any third party is required for (a) the valid authorization, execution, delivery and performance by the Company of this Agreement or (b) the valid authorization, reservation, issuance, sale and delivery of the Shares by the Company to Pfizer.

4.7 BUSINESS OF THE COMPANY.

(a) Except as provided in the Disclosure Schedule: (i) there are no actions, suits, arbitrations, claims, investigations or legal or administrative proceedings pending or, to the best of the Company's knowledge and belief after due inquiry of the executive officers of the Company, threatened, against the Company or any Subsidiary, whether at law or in equity, before or by any federal, state, municipal or other governmental department, commission, agency, instrumentality, or arbitrator, domestic or foreign; and (ii) there are no judgments, decrees, injunctions, orders or awards of any court, governmental department, commission, agency, instrumentality or arbitrator entered or existing against the Company or any Subsidiary or any of its assets or properties.

(b) The Disclosure Schedule lists each SEC Report filed by the Company with the SEC under the 1933 Act or the 1934 Act since September 30, 1998. The Company has delivered to Pfizer copies of the SEC Reports, other than exhibits and material incorporated by reference which have not been requested by Pfizer. The SEC Reports as filed comply with the applicable requirements of the 1933 Act or the 1934 Act, as the case may be, and the rules and regulations thereunder, and as of the respective dates thereof did not contain an untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. Except as set forth in the Disclosure Schedule, the Company has filed

on a timely basis all SEC Reports, required to be filed by it pursuant to the 1933 Act or the 1934 Act.

(c) Except as set forth in the Disclosure Schedule, since September 30, 1998, there has not been any material adverse change in the business, operations, properties, assets, condition or prospects of the Company or any Subsidiary or any event, condition or contingency that could reasonably be expected to result in such a material adverse change.

4.8 SECURITIES LAWS. Neither the Company nor anyone acting on its behalf has offered securities of the Company for sale to, or solicited any offers to buy the same from, or sold securities of the Company to, any person or organization, in any case so as to subject the Company, its promoters, directors or officers to any liability under the Securities Laws. The offer, sale and issuance of the Shares to Pfizer hereunder is in compliance with the Securities Laws and is exempt from the registration requirements of the 1933 Act.

4.9 INVESTMENTS IN OTHER ENTITIES. Except as set forth in the Disclosure Schedule, (a) neither the Company nor any Subsidiary has made any loan or advance to any person or entity which is outstanding on the date hereof, nor is it committed or obligated to make any such loan or advance, and (b) neither the Company nor any Subsidiary has ever owned or controlled and does not currently own or control any capital stock or other ownership interest, directly or indirectly, in any corporation, association, partnership, trust, joint venture or other entity, other than Polmerix.

4.10 LICENSES AND OTHER RIGHTS; COMPLIANCE WITH LAWS. The Company or the Subsidiary, as the case may be, is in compliance under each franchise, permit, license and other rights and privileges necessary to permit them to own their respective properties and to conduct business as presently conducted, and the transactions contemplated by this Agreement will not cause a violation under any, of such franchises, permits, licenses and other rights and privileges. The Company and the Subsidiary is in compliance with all applicable laws, rules, regulations, orders, judgements, decrees and any bring-downs except when the failure to so comply would not have a Material Adverse Effect.

4.11 RELIANCE; "KNOWLEDGE". The Company understands that the foregoing representations and warranties shall be deemed material and to have been relied upon by Pfizer. No representation or warranty by the Company in this Agreement, and no written statement contained in any document, certificate or other writing delivered by the Company to Pfizer contains any untrue statement of material fact or omits to state any material fact necessary to make the statements herein or therein, in light of the circumstances under which they were made, not misleading.

5. COVENANTS OF THE COMPANY

5.1 NASDAQ; REPORTING STATUS. The Company shall use its best efforts to take all such actions as may be necessary and as soon as practicable and in no event later than 30 days after the Closing Date to file with Nasdaq an application or other document required by Nasdaq for the listing of the Shares with Nasdaq and shall provide evidence of such filing to Pfizer. So long as Pfizer beneficially owns any portion of the Shares, the Company will use its best efforts to maintain the inclusion of the Common Stock on Nasdaq or the listing of the Common Stock on the AMEX or the NYSE; PROVIDED, HOWEVER, that this will not restrict the Company from engaging in any transaction which results in all of the capital stock of the Company being acquired in a business combination or other acquisition transaction.

5.2 STATE SECURITIES LAWS. On or before the Closing Date, the Company shall take such action as shall be necessary to qualify, or to obtain, an exemption for the Shares under such of the securities laws of United States jurisdictions as shall be necessary to qualify, or to obtain an exemption from, the sale of the Shares. The Company shall furnish Pfizer with copies of all filings, applications, orders and grants or confirmations of exemptions relating to such securities laws on or before the Closing Date.

5.3 CONFIDENTIALITY. Except as necessary for governmental notification purposes or to comply with applicable laws and regulations, and except as otherwise agreed to by the parties in writing, the parties agree to keep the existence of this Agreement and the transactions contemplated hereby and thereby, until public disclosure is made pursuant to Section 11.13 hereof, strictly confidential; PROVIDED, HOWEVER that the existence of this Agreement and the transactions contemplated hereby or portions thereof may be disclosed to those third parties who agree to be bound by the terms of this confidentiality provision. In the event that the Company is required by law to provide a copy of this Agreement to any third party, the Company shall ensure that such document is redacted, to the extent permitted by law, to eliminate all confidential information. Pfizer shall have the right to review and approve each such document prior to its submission to any third party

5.4 REMOVAL OF LEGEND. The legend on the stock certificates delivered hereunder which is referenced in Section 3.4 hereof shall be removed and the Company shall issue unlegended certificates to Pfizer if Pfizer provides the Company with an opinion of counsel to Pfizer (which may be in-house counsel) which is reasonably acceptable to the Company to the effect that such legend is no longer required or if Pfizer has met or complied with the conditions for a permissible sale or transfer pursuant to Rule 144 under the 1933 Act (as such rule may be amended from time to time).

6. REGISTRATION

6.1 REGISTRATION STATEMENT COVERING RESALE OF COMMON STOCK. As soon as reasonably practicable after the closing of the Megan Health Transaction, the Company will file a registration statement (the "Shelf Registration Statement") under Rule 415 under the 1933 Act covering the resale of the Shares. Thereupon, the Company shall use commercially reasonable

efforts to cause such Shelf Registration Statement to be declared effective by the SEC for all Shares covered thereby. The Company agrees to use commercially reasonable efforts to keep the Shelf Registration Statement continuously effective, with respect to Pfizer's Shares, until the earlier of (i) the date on which Pfizer has disposed of all of its Shares, or (ii) the date on which Pfizer may sell all of the Shares under Rule 144 of the 1933 Act (the "Terminal Date").

6.2 REGISTRATION OBLIGATIONS. Whenever the Company includes any Shares in a registration statement or similar document pursuant to this Agreement, the Company shall, as expeditiously as reasonably possible:

(a) Prepare and file with the SEC a Registration Statement, and use its best efforts to cause such Registration Statement to become effective;

(b) Notify Pfizer, promptly after the Company receives notice thereof, of the effective date of the Registration Statement, or if any amendment or supplement to the Registration Statement is filed, the date of such filing;

(c) Notify Pfizer promptly of any request by the SEC for additional information or an amendment or supplement to the Registration Statement;

(d) Advise Pfizer of any order by the SEC suspending the effectiveness of the Registration Statement and of the initiation or threat of any proceeding for that purpose, and use its best efforts to prevent the issuance of any stop order and to promptly obtain its withdrawal if such stop order is issued;

(e) Prepare and file with the SEC such amendments and supplements to the Registration Statement as may be necessary to keep the Registration Statement effective until the Terminal Date, and comply with the provisions of the 1933 Act during such period with respect to the disposition of all securities covered by the Registration Statement;

(f) Provide Pfizer with copies of the Registration Statement (including preliminary prospectuses) in conformity with the requirements of the 1933 Act and such other documents as Pfizer may reasonably request in order to facilitate the disposition of the Shares;

(g) Use its commercially reasonable efforts to register and qualify the Shares under the securities and blue sky laws of those jurisdictions selected by Pfizer or any underwriter, and take any and all other action reasonably necessary or advisable to enable Pfizer to sell the Shares in such jurisdictions; PROVIDED, HOWEVER, that the Company shall not be required to qualify to do business or consent to service of process in any jurisdiction in which it is not now so qualified or has not so consented;

(h) Promptly notify Pfizer of the occurrence of any event, the result of which is to cause the Registration Statement to contain an untrue statement of a material fact or to omit to state any material fact required to be reported therein or necessary to make the statements therein not misleading in light of the circumstances then existing, and prepare a supplement or

amendment to the Registration Statement which shall correct such untrue statement or eliminate such omission;

(i) Cause the registered Shares to be listed or approved for trading on each securities exchange or through any facility on which similar securities issued by the Company are then listed or traded;

(j) Provide a transfer agent and registrar for the registered Shares not later than the effective date of the Registration Statement;

(k) In the event of an underwritten public offering, enter into such customary agreements (including an underwriting agreement in customary form) and take such other actions as Pfizer or the underwriters, may reasonably request in order to expedite or facilitate the sale of the Shares;

(l) Make available for inspection by Pfizer, any participating underwriter, attorney, accountant or other agent retained by Pfizer or such underwriter, all financial and other records and pertinent corporate documents of the Company, and cause the Company's officers, directors and employees to supply all information reasonably requested by Pfizer, the underwriter, attorney, accountant or agent in connection with the Registration Statement;

(m) Use its commercially reasonable efforts to obtain cold comfort letters from the Company's independent public accountants, in customary form and covering such matters of the type customarily covered by cold comfort letters, as Pfizer may reasonably request; and

(n) Use its commercially reasonable efforts to cause counsel to the Company to provide legal opinions reasonably requested by Pfizer in connection with the Registration Statement.

6.3 REPORTS. The Company shall at all times timely file all information and reports required to be filed by it under the 1933 Act and the 1934 Act and the rules and regulations adopted by the SEC thereunder. Upon request, the Company shall deliver to Pfizer a written statement as to whether it has complied with such requirements, and the Company shall take such further action as Pfizer may reasonably request, to enable Pfizer to be eligible to sell restricted securities pursuant to Rule 144 under the 1933 Act or any similar rule or regulation hereafter adopted by the SEC.

6.4 INDEMNIFICATION. The Company shall indemnify and hold harmless Pfizer, the officers and directors of Pfizer, and each underwriter of Shares sold by Pfizer pursuant to this Section 6 (and any person who controls Pfizer or the underwriter within the meaning of Section 15 of the 1933 Act) against all claims, losses, damages, liabilities and expenses (including reasonable attorneys' fees) arising out of or based on any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or in any related prospectus, notification or similar document, or from any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading (a "Misstatement or

Omission") except insofar as such Misstatement or Omission is based on information furnished in writing to the Company by Pfizer relating to Pfizer and expressly for use therein, and used in accordance with such writing. Pfizer shall furnish the Company with such information concerning Pfizer and the intended method of disposition of the Shares as shall be necessary to effect the registration of the Shares pursuant to this Section 6. In the event that the Shares are registered pursuant to this Agreement, Pfizer shall indemnify and hold harmless the Company, its officers and directors and each of its underwriters (and any person who controls the Company or such underwriters within the meaning of Section 15 of the 1933 Act) against all claims, losses, damages, liabilities and expenses (including reasonable attorneys' fees) arising out of or based on any Misstatement or Omission, but only insofar as such Misstatement or Omission is based on information furnished in writing to the Company by Pfizer relating to Pfizer and expressly for use in connection with such registration, and used in accordance with such writing. In no event shall the liability of Pfizer under this Section 6.4 be greater in amount than the dollar amount of the proceeds received by Pfizer upon the sale of the Shares giving rise to such indemnification obligation.

7. CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL

Pfizer understands that the Company's obligation to sell the Shares to Pfizer pursuant to this Agreement is conditioned upon satisfaction of the following conditions precedent on or before the Closing Date (any or all of which may be waived by the Company in its sole discretion):

(a) the delivery by Pfizer to the Company of an amount equal to the Purchase Price;

(b) on the Closing Date, no legal action, suit or proceeding shall be pending or threatened which seeks to restrain or prohibit the transactions contemplated by this Agreement;

(c) the representations and warranties of Pfizer contained in this Agreement shall have been true and correct on the date of this Agreement and on the Closing Date as if made on the Closing Date and on or before the Closing Date Pfizer shall have performed all covenants and agreements of Pfizer required to be performed by Pfizer on or before the Closing Date;

(d) the Company and/or Megan and Pfizer shall have entered into a License and Royalty Agreement and a Collaborative Research and Development Agreement; and

(e) the closing of the Megan Health Transaction.

8. CONDITIONS TO PFIZER'S OBLIGATION TO PURCHASE

The Company understands that Pfizer's obligation to purchase the Shares is conditioned upon satisfaction of the following conditions precedent on or before the Closing Date (any or all of which may be waived by Pfizer in its sole discretion):

(a) delivery by the Company to Pfizer of the share certificates representing the Shares in accordance with this Agreement;

(b) on the Closing Date, no legal action, suit or proceeding shall be pending or threatened which seeks to restrain or prohibit the transactions contemplated by this Agreement;

(c) the representations and warranties of the Company contained in this Agreement shall have been true and correct on the date of this Agreement and shall be true and correct on the Closing Date as if given on and as of the Closing Date (except for representations given as of a specific date, which representations shall be true and correct as of such date), and on or before the Closing Date the Company shall have performed all covenants and agreements of the Company contained herein required to be performed by the Company on or before the Closing Date;

(d) the Company shall have delivered to Pfizer its certificate, dated the Closing Date, duly executed by its Chief Executive Officer to the effect set forth in subparagraphs (b) and (c) of this Section 8;

(e) the receipt by Pfizer of a certificate, dated the Closing Date, of the Secretary or Assistant Secretary of the Company certifying (i) the Certificate of Incorporation and By-laws of the Company as in effect on the Closing Date, (ii) all resolutions of the board of directors (and committees thereof) of the Company relating to this Agreement and the transactions contemplated hereby and thereby, (iii) the incumbency of officers and directors of AVANT, and (iv) such other matters as are reasonably requested by Pfizer;

(f) on the Closing Date, Pfizer shall have received an opinion of Goodwin, Procter & Hoar LLP, counsel for the Company, dated the Closing Date, addressed to Pfizer, in form, scope and substance reasonably satisfactory to Pfizer; and

(h) on the Closing Date, (i) trading in securities on the NYSE, Inc., the AMEX or Nasdaq shall not have been suspended or materially limited and (ii) a general moratorium on commercial banking activities in the Commonwealth of Massachusetts shall not have been declared by either federal or state authorities.

9. INDEMNIFICATION

(a) INDEMNIFICATION. The Company shall indemnify, defend and hold Pfizer harmless against any and all claims, losses, damages, liabilities and expenses (including reasonable attorneys' fees) arising out of or based on the untruth, inaccuracy or breach of any statements, representations, warranties or covenants of the Company contained herein.

(b) INDEMNIFICATION PROCEDURE. Any party (the "Indemnified Party") that may be entitled to indemnification under this Agreement shall give notice to the party obligated to indemnify ("Indemnifying Party") reasonably promptly after the assertion by a third party of a claim against the Indemnified Party in respect of which the Indemnified Party intends to seek indemnification, but the delay in notifying the Indemnifying Party shall not relieve it of any obligations hereunder except to the extent that such delay adversely affects the ability of the Indemnifying Party to conduct the defense of such claim. The Indemnified Party shall be entitled to participate in such defense, but shall not be entitled to indemnification with respect to the expenses of such defense incurred after the date the Indemnifying Party shall have assumed the defense of the claim with counsel satisfactory to the Indemnified Party. The Indemnifying Party may not settle any claim without the consent of the Indemnified Party (which consent shall not be unreasonably withheld). If notice is given to an Indemnifying Party of the assertion by a third party of a claim against the Indemnified Party and the Indemnifying Party does not, within ten (10) days after the Indemnified Party's notice is given, give notice to the Indemnified Party of its election to assume the defense thereof, the Indemnified Party may, at the Indemnifying Party's expense, select counsel to defend such claim, and defend such claim in such manner as it may deem appropriate, and the Indemnifying Party shall be bound by any determination made with respect to such claim or any compromise or settlement thereof effected by the Indemnified Party. Notwithstanding the foregoing, if an Indemnified Party determines in good faith that there is a reasonable probability that a claim may adversely affect it other than as a result of monetary damages or that the Indemnified Party may have claims or interests opposed to that of the Indemnifying Party, such Indemnified Party may, by notice to the Indemnifying Party, assume the exclusive right to defend, compromise or settle such claim, but the Indemnifying Party shall not be bound by any determination of a claim so defended or any compromise or settlement thereof effected without its consent (which shall not be unreasonably withheld).

10. MISCELLANEOUS

10.1 GOVERNING LAW. THIS AGREEMENT SHALL BE GOVERNED BY AND INTERPRETED IN ACCORDANCE WITH THE LAWS OF THE COMMONWEALTH OF MASSACHUSETTS OF THE UNITED STATES.

10.2 HEADINGS. The headings and captions used in this Agreement are for convenience of reference and shall not form part of, or affect the interpretation of, this Agreement.

10.3 SEVERABILITY. If any provision of this Agreement shall be invalid or unenforceable in any jurisdiction, such invalidity or unenforceability shall not affect the validity or enforceability of the remainder of this Agreement or the validity or enforceability of this Agreement in any other jurisdiction.

10.4 NOTICES. Any notice or other communication required or permitted to be given or made hereunder shall be in writing in the English language and shall be deemed to have been duly given if sent by registered air mail (return receipt requested), facsimile letter or delivered by hand to the party to whom such notice or communication is required or permitted to be given. Any such notice or other communication, if mailed, shall be considered given or made

when mailed, as evidenced by the postmark at point of mailing. If sent by facsimile letter such notice shall be deemed to have been given on the date that it is sent; provided, that a confirmatory copy of the facsimile letter is mailed on the same day as the facsimile letter is sent to the receiving party. If delivered by hand, any such notice or communication shall be considered given when delivered.

All notices to the Company shall be addressed as follows:

AVANT Immunotherapeutics, Inc.
119 Fourth Avenue
Needham, MA 02194
U.S.A.
Facsimile: (781) 433-3191
Attention: Chief Executive Officer

With a copy to:

Goodwin, Procter & Hoar LLP
Exchange Place
Boston, MA 02109
Facsimile: (617) 523-1231
Attention: Stuart M. Cable, P.C.

All notices to Pfizer shall be addressed as follows:

Pfizer Inc.
Global Research & Development
Eastern Point Road
Groton, CT 06340
Attention: Mark Dellaporta, Esq.

10.5 COUNTERPARTS. This Agreement may be executed in counterparts and by the parties hereto on separate counterparts, each of which shall be deemed to be an original but all of which together shall constitute one and the same instrument. A telephone line facsimile transmission of this Agreement bearing a signature on behalf of a party hereto shall be legal and binding on such party.

10.6 ENTIRE AGREEMENT; BENEFIT. This Agreement together with the Disclosure Schedule, constitute the entire agreement among the parties hereto with respect to the subject matter hereof. There are no restrictions, promises, warranties or undertakings other than those set forth or referred to herein and therein. This Agreement, including the Annexes hereto and Disclosure Schedule, supersede all prior agreements and understandings, whether written or oral, between the parties hereto with respect to the subject matter hereof. This Agreement and the terms and provisions hereof are for the sole benefit of only the Company, Pfizer and their respective successors and permitted assigns.

10.7 WAIVER. Failure of any party to exercise any right or remedy under this Agreement or otherwise, or delay by a party in exercising such right or remedy, or course of dealing between the parties shall not operate as a waiver thereof or an amendment hereof, nor shall any single or partial exercise of any such right or power, or any abandonment or discontinuance of steps to enforce such a right or power, preclude any other or further exercise thereof or exercise of any other right or power.

10.8 AMENDMENT. No amendment, modification, waiver, discharge or termination of any provision of this Agreement or consent to any departure by Pfizer or the Company therefrom shall in any event be effective unless the same shall be in writing and signed by the party to be charged with enforcement, and then shall be effective only in the specific instance and for the purpose for which given. No course of dealing between the parties hereto shall operate as an amendment of this Agreement.

10.9 FURTHER ASSURANCES. Each party to this Agreement will perform any and all acts and execute any and all documents as may be necessary and proper under the circumstances in order to accomplish the intents and purposes of this Agreement and to carry out its provisions.

10.10 ASSIGNMENT. Except as otherwise provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the successors, assigns, heirs, executors and administrators of the parties hereto; PROVIDED, HOWEVER, that the right of Pfizer to purchase Shares shall not be assignable (other than to a wholly-owned subsidiary) without the consent of the Company (such consent not to be unreasonably withheld).

10.11 EXPENSES. Each of the Company and Pfizer shall bear its own expenses in connection with the preparation and negotiation of this Agreement and the consummation of the transactions contemplated hereby.

10.12 SURVIVAL. The respective representations, warranties, covenants and agreements of the Company and Pfizer contained in this Agreement and the documents delivered in connection with this Agreement shall survive the execution and delivery of this Agreement and the closing hereunder and delivery of and payment for the Shares, and shall remain operative and in full force and effect regardless of any investigation made by or on behalf of Pfizer or any Person controlling or acting on behalf of Pfizer or by the Company or any Person controlling or acting on behalf of the Company.

10.13 PUBLIC STATEMENTS, PRESS RELEASES, ETC. The Company and Pfizer shall have the right to approve before issuance any press releases or any other public statements with respect to the transactions contemplated hereby; PROVIDED, HOWEVER, that the Company shall be entitled, without the prior approval of Pfizer, to make any press release or other public disclosure with respect to such transactions as is required by applicable law and regulations, including the 1933 Act and the rules and regulations promulgated thereunder and the rules and regulations of the Nasdaq National Market (although Pfizer and its counsel shall be consulted and provided with a draft press release by the Company in connection with any such press

release or other public disclosure prior to its release and shall be provided with a final copy thereof promptly following the release thereof).

11.14 CONSTRUCTION. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed by their respective officers hereunto duly authorized as of the date first set forth above.

AVANT IMMUNOTHERAPEUTICS, INC.

By: /s/ Una S. Ryan

Name: Una S. Ryan
Title: President and CEO

PFIZER INC

By: /s/ Pfizer Inc

Name:
Title:

FINAL CONFORMED COPY WITH HANDWRITTEN INSERTS IN BOLDFACE ITALIC

Confidential Treatment Requested As To Certain
Information Contained In This Exhibit

LICENSE AND ROYALTY AGREEMENT

This LICENSE AND ROYALTY AGREEMENT is entered into as of DECEMBER 1, 2000 (the "Effective Date") by and between PFIZER INC a Delaware corporation, having an office at 235 East 42nd Street, New York, New York 10017 and its Affiliates ("Pfizer"), AVANT IMMUNOTHERAPEUTICS, INC., ("Avant"), a Delaware corporation, having an office at 119 Fourth Avenue, Needham, MA 02494, and MEGAN HEALTH, INC. ("Megan"), a Delaware corporation, having an office at 3655 Vista Ave., St. Louis, Missouri 63110.

WHEREAS, Megan has developed vaccines to control against organisms associated with diseases in animals and humans; and

WHEREAS, Megan and Pfizer are entering into a research agreement of even date with this Agreement for research involving animal vaccines and therapeutics (the "Research Program");

WHEREAS, Avant is acquiring Megan and is providing various services to Megan to assist Megan to perform under the Research Agreement (as defined below), and in return Megan is assigning the right to receive payments under this Agreement to Avant;

WHEREAS, Pfizer desires to obtain an exclusive license to all of Megan's right, title and interest in certain patent rights so that Pfizer can manufacture, use, sell, offer for sale, and import products for use in animals;

WHEREAS, Megan is willing to grant such license;

NOW, THEREFORE, in consideration of the mutual covenants and promises set forth in this Agreement, the parties agree as follows:

DEFINITIONS. The capitalized terms used in this Agreement and not defined elsewhere in it shall have the meanings specified for such terms in this Section 1 and in the Research Agreement.

1.1 "AFFILIATE" means any corporation or other legal entity owning, directly or indirectly, fifty percent (50%) or more of the voting capital shares or similar voting securities of Pfizer or Megan; any corporation or other legal entity fifty percent (50%) or more of the voting capital shares or similar voting rights of which is owned, directly or indirectly, by Pfizer or Megan or any corporation or other legal entity fifty percent (50%) or more of the voting capital shares or similar voting rights of which is owned, directly or indirectly, by a corporation or other legal entity which owns, directly or indirectly, fifty percent (50%) or more of the voting capital shares or similar voting securities of Pfizer or Megan.

1.2 "CONFIDENTIAL INFORMATION" means any and all information about any element of a party's Technology or Program Technology which is disclosed by such party ("Disclosing Party) to the other (Receiving Party) and either designated "Confidential" in writing by the Disclosing Party at the time of disclosure or, if orally or otherwise disclosed, confirmed within thirty (30) days following disclosure. Confidential Information shall not include information that, as of the date of such disclosure, is (i) known to the Receiving Party other than through a prior confidential disclosure to the Receiving Party by the Disclosing Party; or (ii) disclosed in published literature, or otherwise generally known to the public through no fault or omission of the receiving party; or (iii) obtained from a third party free from any obligation of confidentiality to the disclosing party.

1.3 "EFFECTIVE DATE" is DECEMBER 1, 2000.

1.4 "AREA" means research, development and commercialization with respect to *** Confidential Treatment Requested as to this information *** as further described in the Research Plan.

1.5 "PATENT RIGHTS"

(a) the patents and patent applications listed in Exhibit A of the License Agreement, and patents issuing on them, including any divisional, continuation, continuation-in-part, renewal, extension, reexamination, reissue or foreign counterpart of such patents and patent applications; and

(b) all patent rights in and to inventions *** Confidential Treatment Requested as to this information *** including all the Valid Claims of patent applications, whether domestic or foreign, claiming such patentable inventions, including all continuations, continuations-in-part, divisions, and renewals, all letters patent granted thereon, and all reissues, reexaminations and extensions thereof.

1.6 "PRODUCT" means any *** Confidential Treatment Requested as to this information *** the manufacture, use, sale, offer for sale or import of which would infringe any Valid Claim within Patent Rights in the absence of a license.

1.7 "TECHNOLOGY" means and includes all materials, technology, technical information, know-how, expertise and trade secrets in the Area .

1.7.1 "MEGAN TECHNOLOGY" means Technology that is or was developed by employees of or consultants to Megan alone or jointly with third parties prior to the Effective Date, but, in the case of consultants or third parties, only to the extent Megan has the right to grant rights to such Technology.

1.7.2 "PROGRAM TECHNOLOGY" means Technology that is or was developed in the course of performing the Research Program by employees of or consultants to Pfizer or Megan solely or jointly with each other.

1.7.3 "PFIZER TECHNOLOGY" means Technology that is or was developed by employees of or consultants to Pfizer alone or jointly with third parties prior to the Effective Date, but, in the case of consultants or third parties, only to the extent Pfizer has the right to grant rights to such Technology.

1.8 "VALID CLAIM" means a claim within Patent Rights so long as such claim shall not have been disclaimed by Pfizer (in the case of Patent Rights within the Pfizer Technology) or by Megan (in the case of Patent Rights within the Megan Technology) or both (in the case of Patent Rights within the Program Technology) and shall not have been held invalid in a final decision rendered by a tribunal of competent jurisdiction from which no appeal has been or can be taken.

1.9 *** Confidential Treatment Requested as to this information ***

1.10 "NET SALES" means the gross amount invoiced by Pfizer or any sublicensee of Pfizer for sales to a third party or parties of Products, less normal and customary trade discounts actually allowed, rebates, returns, credits, taxes the legal incidence of which is on the purchaser and separately shown on Pfizer's or any sublicensee of Pfizer's invoices and transportation, insurance and postage charges, if prepaid by Pfizer or any sublicensee of Pfizer and billed on Pfizer's or any sublicensee of Pfizer's invoices as a separate item.

1.11 "RESEARCH AGREEMENT" shall mean the Collaborative Research Agreement between Megan and Pfizer of even date with this Agreement.

1.12 "ROYALTY RATE" has the meaning set forth in Section 3.2 of this Agreement.

1.13 "TERRITORY" means all the countries of the world.

2. GRANT OF LICENSE, TERM, RIGHTS AND OBLIGATIONS.

2.1 LICENSE GRANTED TO PFIZER UNDER THE PATENT RIGHTS. Except as provided in Sections 2.2 and 2.3, Megan hereby grants Pfizer an exclusive license in the Territory, including the right to grant sublicenses, to manufacture, use, sell, offer for sale, and import Products under all its right, title and interest in the Patent Rights (" License").

2.2 MEGAN'S REACQUISITION OF *** Confidential Treatment Requested as to this information ***.

2.2.1 The parties acknowledge that Megan has previously granted an *** Confidential Treatment Requested as to this information ***, including the right to grant sublicenses, to manufacture, use, sell, offer for sale and import *** Confidential Treatment Requested as to this information ***. Megan represents and covenants that within two (2) years of the Effective Date, it shall use commercially reasonable efforts to terminate *** Confidential Treatment Requested as to this information ***. Simultaneously and automatically upon termination of *** Confidential Treatment Requested as to this information ***, the License to Pfizer under section 2.1 shall include all subject matter surrendered under the *** Confidential Treatment Requested as to this information ***

2.2.2 If Megan fails to terminate *** Confidential Treatment Requested as to this information *** as set forth in Section 2.2.1 within the required time period, Megan shall pay to Pfizer the sum of *** Confidential Treatment Requested as to this information *** within two months of such failure but in no event later than twenty-six (26) months after the Effective Date. The foregoing shall constitute Pfizer's sole and exclusive remedy in the event of Megan's failure to terminate the *** Confidential Treatment Requested as to this information ***

2.3 RESERVATION OF CERTAIN RIGHTS BY MEGAN. Megan reserves from the exclusive grant of Section 2.1 a non-exclusive, worldwide right, without the right to sublicense, to manufacture, use, sell, offer for sale, and import the following as they now exist or as set forth in Exhibit B: Megan-Registered Trademark- Vac I, Megan-Registered Trademark- Egg and Megan-Registered Trademark- Vac II, AntiPath. This reservation will not extend to any formulation, combination, or addition to label claims or to any other species other than as set forth on Exhibit B; however, this reservation will include the rights necessary to have such products manufactured and sold through distributors on behalf of Megan. *** Confidential Treatment Requested as to this information ***

2.4 TERM OF LICENSE GRANT AND PAYMENT OF ROYALTIES. Unless terminated earlier as provided below, the License shall commence on the Effective Date and shall terminate on the expiration date of the last to expire of the Patent Rights.

2.5 PFIZER OBLIGATIONS.

2.5.1 Pfizer shall use *** Confidential Treatment Requested as to this information *** to develop, exploit and commercialize Products employing similar effort to that applied to other products similarly situated. Pfizer agrees to keep Megan informed with respect to activities and progress toward further research, development and commercialization of Products. Pfizer agrees to provide to Megan, at least every twelve months, a written summary of such activities and progress. Megan agrees that all such information shall be deemed Pfizer Confidential Information.

2.5.2 If Pfizer grants a sublicense pursuant to Section 2, Pfizer shall guarantee that any sublicense fulfills all of Pfizer's obligations under this Agreement; provided, however, that Pfizer shall not be relieved of its obligations pursuant to this Agreement.

2.5.3 Pfizer will assume responsibility for all Product development and registration activity and expense, excluding those for Megan-Registered Trademark- Vac I, Megan-Registered Trademark- Egg, and Megan-Registered Trademark- Vac II, and AntiPath.

2.5.4 Pfizer will assume responsibility and expenses for Product manufacturing, excluding those for Megan-Registered Trademark- Vac I, Megan-Registered Trademark- Egg, and Megan-Registered Trademark- Vac II, and AntiPath.

2.6 TECHNICAL ASSISTANCE. Megan shall provide to Pfizer or any sublicensee of Pfizer, at Pfizer's request and expense, any technical assistance reasonably necessary to enable Pfizer or such sublicensee to manufacture, use, offer for sale, sell or import the Product and to enjoy fully all the rights granted to Pfizer pursuant to this Agreement; provided, however, that Megan is reasonably capable of providing that assistance without substantial expenditure.

3. ROYALTIES, PAYMENTS OF ROYALTIES, ACCOUNTING FOR RECORDS, MILESTONE PAYMENTS.

3.1 ROYALTY. Pfizer shall pay Megan a royalty based on the Net Sales of each Product. Such royalty shall be paid with respect to each country of the world from the date of the first commercial sale (the date of the invoice) of Pfizer of any Product in each such country until the expiration of the last Patent Right to expire with respect to each such country and each such Product.

3.2 LICENSE FEE AND ROYALTY RATES.

3.2.1 Pfizer shall pay to Avant, within thirty (30) days of execution of this Agreement, a non-refundable payment of two and one half million dollars ($2,500,000.00 U.S dollars) for the License granted under Section 2.1. Pfizer shall pay Avant a royalty for the sale of Product under Section 2.1 as set forth in this Section 3.2.

3.2.2

(a) Subject to 3.2.2 (b), the Royalty Rate paid by Pfizer to Avant shall be *** Confidential Treatment Requested as to this information *** of the Net Sales of each Product for each year during the term of this Agreement. *** Confidential Treatment Requested as to this information ***

(b)(1) *** Confidential Treatment Requested as to this information ***
(b)(2) *** Confidential Treatment Requested as to this information ***
(b)(3) *** Confidential Treatment Requested as to this information ***
(b)(4) *** Confidential Treatment Requested as to this information ***

(c) All adjustments shall be made on a country-by-country and patent-by-patent basis.

3.3 PAYMENT DATES. Royalties shall be paid by Pfizer on Net Sales within sixty (60) days after the end of each calendar quarter in which such Net Sales are made. Such payments shall be accompanied by a statement showing the Net Sales of each Product by Pfizer or any sublicensee of Pfizer in each country, the applicable royalty rate for such Product, and a calculation of the amount of royalty due.

3.4 ACCOUNTING. The Net Sales used for computing the royalties payable to Megan by Pfizer shall be computed and paid in U.S. dollars by wire transfer. For purposes of determining the amount of royalties due, the amount of Net Sales in any foreign currency shall be computed by (a) converting such amount into dollars at a rate equal to the prevailing commercial rate of exchange for purchasing dollars with such foreign currency as published in the Wall Street Journal for the close of the last business day of the calendar quarter for which the relevant royalty payment is to be

made by Pfizer; and (b) deducting the amount of any governmental tax, duty, charge, or other fee actually paid in respect of such conversion into, and remittance of dollars.

3.5 RECORDS. Pfizer shall keep for three (3) years from the date of each payment of royalties complete and accurate records of sales by Pfizer of each Product in sufficient detail to allow the accruing royalties to be determined accurately. Megan shall have the right for a period of three (3) years after receiving any report or statement with respect to royalties due and payable to appoint at its expense an independent certified public accountant reasonably acceptable to Pfizer to inspect the relevant records of Pfizer or its sublicensee to verify such report or statement. Pfizer shall make its records available for inspection by such independent certified public accountant during regular business hours at such place or places where such records are customarily kept, upon reasonable notice from Megan, to verify the accuracy of the reports and payments. Such inspection right shall not be exercised more than once in any calendar year nor more than once with respect to sales in any given period. Megan agrees to hold in confidence all information concerning royalty payments and reports, and all information learned in the course of any audit or inspection, except to the extent necessary for Megan to reveal such information in order to enforce its rights under this Agreement or if disclosure is required by law. The failure of Megan to request verification of any report or statement during said three-year period shall be considered acceptance of the accuracy of such report, and Pfizer shall have no obligation to maintain records pertaining to such report or statement beyond said three-year period. The results of each inspection, if any, shall be binding on both parties.

3.6 MILESTONE PAYMENTS. Pfizer shall pay Megan, within sixty (60) days of the completion of each respective event set forth below ("Event"), the payment listed opposite that Event. Payments shall be made in U.S. dollars by wire transfer.

FOOD SAFETY PRODUCT MILESTONES
*** Confidential Treatment Requested as to this information ***

NON-FOOD SAFETY PRODUCT MILESTONES
*** Confidential Treatment Requested as to this information ***

4. LEGAL ACTION.

4.1 ACTUAL OR THREATENED DISCLOSURE OR INFRINGEMENT. When information comes to the attention of Pfizer to the effect that any Patent Rights relating to a Product have been or are threatened to be unlawfully infringed, Pfizer shall promptly notify Megan. Megan shall have the right at its expense to take such action as it may deem necessary to prosecute or prevent such unlawful infringement, including the right to bring or defend any suit, action or proceeding involving any such infringement; provided, however, Megan shall obtain Pfizer's prior consent to such part of any settlement which requires payment or other action by Pfizer or has a material adverse effect on Pfizer's business. Megan shall notify Pfizer promptly of the commencement of any such suit, action or proceeding. If Megan determines that it is necessary or desirable for Pfizer to join any such suit, action or proceeding, Pfizer shall, at Pfizer's expense, execute all papers and perform such other acts as may be reasonably required to permit Megan to act in Pfizer's name. If Megan brings a suit, it shall have the right first to reimburse itself out of any sums recovered in such suit or in its settlement for all costs and expenses, including attorney's fees, related to such suit or settlement, and *** Confidential Treatment Requested as to this information *** of any funds that shall remain from said recovery shall be paid to Pfizer and the balance of such funds shall be retained by Megan. If Megan does not, within one hundred twenty (120) days after giving notice to Pfizer of the above-described information, notify Pfizer of Megan's intent to bring suit against any infringer, Pfizer shall have the right to bring suit for such alleged infringement, but it shall not be obligated to do so, and may join Megan as party plaintiff, if appropriate, in which event Pfizer shall hold Megan free, clear and harmless from any and all costs and expenses of such litigation, including attorney's fees, and any sums recovered in any such suit or in its settlement shall belong to Pfizer. However, *** Confidential Treatment Requested as to this information

*** of any such sums received by Pfizer, after deduction of all costs and expenses related to such suit or settlement, including attorney's fees paid, shall be paid to Megan. Each party shall always have the right to be represented by counsel of its own selection and at its own expense in any suit instituted by the other for infringement under the terms of this Section. If Megan lacks standing and Pfizer has standing to bring any such suit, action or proceeding, then Pfizer shall do so at the request of Megan and at Megan's expense.

4.2 DEFENSE OF INFRINGEMENT CLAIMS. Megan will cooperate with Pfizer at Pfizer's expense in the defense of any suit, action or proceeding against Pfizer or any sublicensee of Pfizer alleging the infringement of the intellectual property rights of a third party by reason of the use of Patent Rights in the manufacture, use or sale of the Product. Pfizer shall give Megan prompt written notice of the commencement of any such suit, action or proceeding or claim of infringement and will furnish Megan a copy of each communication relating to the alleged infringement. Megan shall give to Pfizer all authority, including the right to exclusive control of the defense of any such suit, action or proceeding and the exclusive right after consultation with Megan, to compromise, litigate, settle or otherwise dispose of any such suit, action or proceeding, information and assistance necessary to defend or settle any such suit, action or proceeding; provided, however, Pfizer shall obtain Megan's prior consent to such part of any settlement which requires payment or other action by Megan or has a material adverse effect on Megan's business. If the parties agree that Megan should institute or join any suit, action or proceeding pursuant to this Section, Pfizer may, at Pfizer's expense, join Megan as a defendant if necessary or desirable, and Megan shall execute all documents and take all other actions, including giving testimony, which may reasonably be required in connection with the prosecution of such suit, action or proceeding.

4.3 THIRD PARTY LICENSES. If the manufacture, use, sale, offer for sale or import by Pfizer of a Product in any country would, in the opinion of both Pfizer and Megan, infringe a patent owned by a third party, Pfizer and Megan shall use

commercially reasonable efforts to attempt to obtain a license under such patent. *** Confidential Treatment Requested as to this information ***

5. REPRESENTATION AND WARRANTY. Megan represents and warrants to Pfizer that it has the right to grant the License granted pursuant to this Agreement, and that the License so granted does not conflict with or violate the terms of any agreement between Megan and any third party.

6. TREATMENT OF CONFIDENTIAL INFORMATION.

6.1 CONFIDENTIALITY.

6.1.1 Pfizer and Megan each recognize that the other's Confidential Information constitutes highly valuable, confidential information. Subject to Pfizer's rights and obligations pursuant to this Agreement, Pfizer and Megan each agree that during the term of the Research Agreement and for five (5) years thereafter, it will keep confidential, and will cause its Affiliates to keep confidential, all Megan Confidential Information or Pfizer Confidential Information, as the case may be, that is disclosed to it or to any of its Affiliates pursuant to this Agreement.

6.1.2 Subject to Pfizer's rights and obligations pursuant to this Agreement, Pfizer and Megan each agree that any disclosure of the other's Confidential Information to any officer, employee or agent of the other party or of any of its Affiliates shall be made only if and to the extent necessary to carry out its responsibilities under this Agreement and shall be limited to the maximum extent possible consistent with such responsibilities. Subject to Pfizer's rights and obligations pursuant to this Agreement, Pfizer and Megan each agree not to disclose the other's Confidential Information to any third parties under any circumstance without written permission from the other party. Each party shall take such action, and shall cause its Affiliates to take such action, to preserve the confidentiality of each other's Confidential Information as it

would customarily take to preserve the confidentiality of its own Confidential Information. Each party, upon the other's request, will return all the Confidential Information disclosed to the other party pursuant to this Agreement, including all copies and extracts of documents, within sixty (60) days of the request upon the termination of this Agreement except for one (1) copy which may be kept for the purpose of complying with continuing obligations under this Agreement.

6.2 PUBLICITY. Except as required by law, neither party may disclose the terms of this Agreement without the written consent of the other party. Notwithstanding the foregoing, the parties shall issue a mutually agreeable press release following execution of this Agreement, and either party may continue to make the same disclosure as included in such initial press release without the consent of the other party.

7. PROVISIONS CONCERNING THE FILING, PROSECUTION AND MAINTENANCE OF PATENT RIGHTS. The following provisions relate to the filing, prosecution and maintenance of Patent Rights during the term of this Agreement:

7.1 FILING, PROSECUTION AND MAINTENANCE BY MEGAN. With respect to Patent Rights in which Megan employees or consultants, alone or together with Pfizer employees, or consultants are named as inventors, Megan shall have the exclusive right and obligation:

(a) to file applications for letters patent on any patentable invention included to Patent Rights; provided, however, that Megan shall consult with Pfizer regarding countries in which such patent applications should be filed and shall file patent applications in those countries where Pfizer requests that Megan file such applications; and, further provided, that Megan, at its option and expense, may file in countries where Pfizer does not request that Megan file such applications;

(b) to prosecute all pending and new patent applications included within Patent Rights;

(c) to respond to oppositions, nullity actions, re-examinations, revocation actions and similar proceedings filed by third parties against the grant of letters patent for such applications; and

(d) to maintain in force any letters patent included in Patent Rights by duly filing all necessary papers and paying any fees required by the patent laws of the particular country in which such letters patent were granted.

7.2 Megan shall notify Pfizer in a timely manner of any decision to abandon a pending patent application or an issued patent included in Patent Rights. Thereafter, Pfizer shall have the option, at its expense, of continuing to prosecute any such pending patent application or of keeping the issued patent in force.

7.2.1 COPIES OF DOCUMENTS. Megan shall provide to Pfizer copies of all patent applications that are part of Patent Rights prior to filing, for the purpose of obtaining substantive comment from Pfizer patent counsel. Megan shall also provide to Pfizer copies of all documents relating to prosecution of all such patent applications in a timely manner and shall provide to Pfizer every six (6) months a report detailing their status. Pfizer shall provide to Megan every six (6) months a report detailing the status of all patent applications that are a part of Patent Rights in which Pfizer employees or consultants alone are named as inventors.

7.2.2 REIMBURSEMENT OF COSTS FOR FILING, PROSECUTING AND MAINTAINING PATENT RIGHTS. Within thirty (30) days of receipt of invoices from Megan, Pfizer shall reimburse Megan for (i) *** Confidential Treatment Requested as to this information *** costs of filing, prosecuting, responding to opposition and maintaining patent applications and patents in the countries where Pfizer requests that patent applications be filed , prosecuted and maintained and (ii) *** Confidential Treatment

Requested as to this information *** in countries that Pfizer requests such filing, prosecuting and maintenance provided that Megan does not market in that country any human health product ("Human Health Product"), the use, manufacture, sale, offer for sale of import of which would infringe any Valid Claim under the Patent Rights. However, Pfizer may, upon sixty (60) days notice, request that Megan discontinue filing or prosecution of patent applications in any country and discontinue reimbursing Megan for the costs of filing, prosecuting, responding to opposition or maintaining such patent application or patent in any country. In the event Megan determines to market a Human Health Product in a country for which Pfizer has reimbursed pursuant to subparagraph (ii) above, Megan will reimburse Pfizer for *** Confidential Treatment Requested as to this information *** of the costs for filing and will thereafter pay *** Confidential Treatment Requested as to this information *** of the costs of prosecuting, responding to opposition and maintaining patent applications and patents in such country. Megan shall pay all costs in those countries in which Pfizer does not request that Megan file, prosecute or maintain patent applications and patents, but in which Megan, at its option, elects to do so. In the event Pfizer requests discontinued filing or prosecution in a country, or does not request and reimburse Megan for filing, prosecution and maintenance in any country, this Agreement shall be deemed amended to exclude such country from the Territory.

7.2.3 Pfizer shall have the right to file on behalf of Megan all applications and take all actions necessary to obtain patent extensions pursuant to 35 USC Section 156 for Patent Rights described in this Section 7.1 licensed to Pfizer. Megan agrees to sign, at Pfizer's expense, such further documents and take such further action as may be requested by Pfizer in this regard.

7.3 Neither party may disclaim a Valid Claim within Patent Rights without the consent of the other.

8. TRADEMARKS. All marketed Products shall utilize the Pfizer trademark.

9. TERMINATION AND DISENGAGEMENT.

9.1 EVENTS OF TERMINATION. The following events shall constitute events of termination ("Events of Terminations"):

(a) Any material written representation or warranty by Megan or Pfizer, or any of its officers, made under or in connection with this Agreement shall prove to have been incorrect in any material respect when made.

(b) Megan or Pfizer shall fail in any material respect to perform or observe any term, covenant or understanding contained in this Agreement or in any of the other documents or instruments delivered pursuant to, or concurrently with, this Agreement, and any such failure shall remain unremedied for thirty (30) days after written notice to the failing party.

9.2 TERMINATION. Upon the occurrence of any Event of Termination, the party not responsible may, by notice to the other party, terminate this Agreement.

9.3 Termination of this Agreement for any reason shall be without prejudice to:

(a) the rights and obligations of the parties provided in Section 6, 7 and 10;

(b) Avant's right to receive all royalty payments accrued hereunder; or

(c) any other remedies which either party may otherwise have.

10. INDEMNIFICATION. Pfizer will indemnify Megan for damages, settlements, costs, legal fees and other expenses incurred in connection with a claim against Megan based on any action or omission of Pfizer, its agents or employees related to the obligations of Pfizer under this Agreement; provided, however, that the foregoing shall not apply (i) if the claim if found to be based upon the negligence, recklessness or willful misconduct of Megan, or (ii) if Megan fails to give Pfizer prompt notice of any claim it receives and such failure materially prejudices Pfizer with respect to any claim or action to which Pfizer's obligation pursuant to this Section applies. Pfizer, in its sole discretion, shall choose legal counsel, shall control the defense of such claim or action, and shall have the right to settle same on such terms and conditions it deems advisable; provided, however, it shall obtain Megan's prior consent to such part which requires payment or other action by, or is likely to have a material adverse effect on the business of Megan.

11. HOLD HARMLESS. Megan agrees to defend, protect, indemnify and hold harmless Pfizer and any sublicensee of Pfizer, from and against any loss or expense arising from any proved claim of a third party that it has been granted rights by Megan that Pfizer or any sublicensee of Pfizer in exercising their rights granted to Pfizer by Megan pursuant to this Agreement, has infringed upon such rights granted to such third party by Megan.

12. NOTICES. All notices shall be in writing mailed via certified mail, return receipt requested, courier, or facsimile transmission addressed as follows, or to such other address as may be designated from time to time.

If to Pfizer:	To Pfizer at its address as set forth at the beginning of this Agreement, Attention: Senior Vice President, Pfizer Global Research and Development
With copy to:	Assistant General Counsel, Pfizer Global Research and Development
If to Megan:	To Megan at its address as set forth at the beginning of this Agreement, Attention: Brian L. Clevinger, CEO, Megan Health, Inc.
With copy to:	

Notices shall be deemed given as of the date received.

13. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

14. MISCELLANEOUS.

14.1 BINDING EFFECT. This Agreement shall be binding upon and inure to the benefit of the parties and their respective legal representatives, successors and permitted assigns.

14.2 HEADINGS. Paragraph headings are inserted for convenience of reference only and do not form a part of this Agreement.

14.3 COUNTERPARTS. This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original.

14.4 AMENDMENT, WAIVER. This Agreement may be amended, modified, superseded or canceled, and any of the terms may be waived, only by a written instrument executed by each party or, in the case of waiver, by the party or parties waiving compliance. The delay or failure of any party at any time or times to require performance of any provisions shall in no manner affect the rights at a later time to enforce the same. No waiver by any party of any condition or of the breach of any term contained in this Agreement, whether by conduct, or otherwise, in any one or more instances, shall be deemed to be, or considered as, a further or continuing waiver of any such condition or of the breach of such term or any other term of this Agreement.

14.5 NO THIRD PARTY BENEFICIARIES. No third party including any employee of any party to this Agreement, shall have or acquire any rights by reason of this Agreement. Nothing contained in this Agreement shall be deemed to constitute the parties partners with each other or any third party.

14.6 ASSIGNMENT AND SUCCESSORS. This Agreement may not be assigned by either party, except that each party may assign this Agreement and the rights and interests of such party, in whole or in part, to any of its Affiliates, any purchaser of all or substantially all of its assets or to any successor corporation resulting from any merger or consolidation of such party with or into such corporations.

14.7 FORCE MAJEURE. Neither Pfizer nor Megan shall be liable for failure of or delay in performing obligations set forth in this Agreement, and neither shall be deemed in breach of its obligations, if such failure or delay is due to natural disasters or any causes reasonable beyond the control of Pfizer or Megan

14.8 SEVERABILITY. If any provision of this Agreement is or becomes invalid or is ruled invalid by any court of competent jurisdiction or is deemed unenforceable, it is the intention of the parties that the remainder of the Agreement shall not be affected.

14.9 AVANT'S RESPONSIBILITIES. Avant covenants to cause Megan to grant the licenses and take the other actions required of Megan hereunder, and should Megan fail to take any such required actions, Avant shall cause such actions to be performed.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives.

PFIZER INC	MEGAN HEALTH, INC.
By: /S/ GEORGE M. MILNE, JR.	By: /S/ UNA S. RYAN
Title: SR. VICE PRESIDENT	Title: PRESIDENT
Date: 17 NOVEMBER 2000	Date: DECEMBER 1, 2000

For purposes of Sections 3 and 14.9:

AVANT IMMUNOTHERAPEUTICS, INC.

By: UNA S. RYAN

Title: PRESIDENT AND CEO

Date: DECEMBER 1, 2000

EXHIBIT A TO THE LICENSE AGREEMENT

Overview of pending Megan patent applications

*** Confidential Treatment Requested as to this information ***

Overview of Issued and Assigned Megan patents (only applicable patents)

*** Confidential Treatment Requested as to this information ***

EXHIBIT B TO THE LICENSE AGREEMENT

Avant Poultry Vaccines

*** Confidential Treatment Requested as to this information ***

Confidential Treatment Requested As To Certain
Information Contained In This Exhibit

February 13, 2001

Mr. Chip Catlin
Avant Immunotherapeutics, Inc.
119 Fourth Avenue
Needham, MA 02494

RE: Amendment to the License and Royalty Agreement between Avant Immunotherapeutics, Inc. ("Avant"), Megan Health, Inc. ("Megan") and Pfizer Inc and its Affiliates ("Pfizer"), executed on December 1, 2000 ("Agreement")

Dear Mr. Catlin,

In accordance with recent discussions between Avant, Megan and Pfizer, we hereby propose that, effective as of the date of your acceptance below, the License and Royalty Agreement between Megan, Avant and Pfizer be amended as follows to reflect the parties' intent regarding payments to be made under the Agreement.

SECTION 3.1: FIRST SENTENCE: "Megan" shall be replaced with "Avant" such that the sentence reads, "Pfizer shall pay Avant a royalty based on the Net Sales of each Product".

SECTION 3.4: FIRST SENTENCE: "Megan" shall be replaced with "Avant" such that the sentence reads, "The Net Sales used for computing the royalties payable to Avant by Pfizer shall be computed and paid in U.S. dollars by wire transfer."

SECTION 3.6: FIRST SENTENCE: "Megan" shall be replaced with "Avant" such that the sentence reads, "Pfizer shall pay Avant, within sixty (60) days of the completion of each respective event set forth below ("Event"), the payment listed opposite that Event."

SECTION 4.1: SECOND TO LAST SENTENCE: "Megan" shall be replaced with "Avant" such that the sentence reads, "However, *** Confidential Treatment Requested as to this information *** of any such sums received by Pfizer, after deduction of all costs and expenses related to such suit or settlement, including attorney's fees paid, shall be paid to Avant."

In all other respects, the Agreement shall be in full force and effect for the term of the Agreement. If you are in agreement, please have authorized signatories of both Megan and Avant execute this letter below. Each party may keep one copy for their records.

Thank you for your attention to this matter.

Regards,

Pfizer Inc

By:

Barrie Hesp, Vice President
Strategic Alliances

ACCEPTED:

Avant Immunotherapeutics, Inc.

By:

Title:

Date:

Megan Health, Inc.

By:

Title:

Date:

FINAL CONFORMED COPY WITH HANDWRITTEN INSERTS MARKED IN BOLD ITALIC

Confidential Treatment Requested As To Certain
Information Contained In This Exhibit

COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT

This COLLABORATIVE RESEARCH AGREEMENT ("Agreement") is entered into as of December 1, 2000 by and between PFIZER INC and its Affiliates ("Pfizer"), a Delaware corporation, having an office at 235 East 42nd Street, New York, New York 10017, and Megan Health, Inc. ("Megan"), a Delaware corporation, having an office at 3655 Vista Ave., St;

WHEREAS, Megan has expertise in vaccine technology; and

WHEREAS, Pfizer has the capability to undertake research for the discovery and evaluation of agents for treatment of disease and also the capability for clinical analysis, manufacturing and marketing with respect to therapeutic and vaccine agents; and

WHEREAS, Pfizer and Megan enter into this Agreement to discover and develop animal vaccines and therapeutic agents; and

WHEREAS, Pfizer and Megan enter into a License and Royalty Agreement of equal date with this Agreement with regard to certain patents and patent applications owned by Megan,

NOW, THEREFORE, the parties agree as follows:

1. DEFINITIONS. Whenever used in this Agreement, the terms defined in this Section 1 shall have the meanings specified in this Section.

1.1 "AFFILIATE" means any corporation or other legal entity owning, directly or indirectly, fifty percent (50%) or more of the voting capital shares or similar voting securities of Pfizer or Megan; any corporation or other legal entity fifty percent (50%) or more of the voting capital shares or similar voting rights of which is owned, directly or indirectly, by Pfizer or Megan or any corporation or other legal entity fifty percent (50%) or more of the voting capital shares or similar voting rights of which is owned, directly or indirectly, by a corporation or other legal entity which owns, directly or indirectly, fifty percent (50%) or more of the voting capital shares or similar voting securities of Pfizer or Megan. 1.2 "Commitment Year" means a twelve-month period commencing on the Effective Date and each anniversary of the Effective Date thereafter.

1.3 "CONFIDENTIAL INFORMATION" means any and all information about any element of a party's Technology or Program Technology which is disclosed by such party ("Disclosing Party) to the other (Receiving Party) and either designated "Confidential" in writing by the Disclosing Party at the time of disclosure or, if orally or otherwise disclosed, confirmed within thirty (30) days following disclosure. Confidential Information shall not include information that, as of the date of such disclosure, is (i) known to the Receiving Party other than through a prior confidential disclosure to the Receiving Party by the Disclosing Party; or (ii) disclosed in published literature, or otherwise generally known to the public through no fault or omission of the receiving party; or (iii) obtained from a third party free from any obligation of confidentiality to the disclosing party.

1.4 "CONTRACT PERIOD" means the period beginning on the Effective Date and ending on the date on which this Agreement terminates.

1.5 "EFFECTIVE DATE" is DECEMBER 1, 2000.

1.6 "AREA" means research, development and commercialization with respect to *** Confidential Treatment Requested as to this information *** as further described in the Research Plan.

1.7 "FTE" means full-time equivalent.

1.8 "LICENSE AGREEMENT" shall mean the License and Royalty Agreement between the parties of even date with this Agreement.

1.9 "PATENT RIGHTS"

(a) the patents and patent applications listed in Exhibit A of the License Agreement, and patents issuing on them, including any divisional, continuation, continuation-in-part, renewal, extension, reexamination, reissue or foreign counterpart of such patents and patent applications; and

(b) all patent rights in and to inventions *** Confidential Treatment Requested as to this information *** including all the Valid Claims of patent applications, whether domestic or foreign, claiming such patentable inventions, including all continuations, continuations-in-part, divisions, and renewals, all letters patent granted thereon, and all reissues, reexaminations and extensions thereof.

1.10 "PRODUCT" means any *** Confidential Treatment Requested as to this information *** the manufacture, use, sale, offer for sale or import of which would infringe any Valid Claim within Patent Rights in the absence of a license.

1.11 " RESEARCH PLAN" means the written plan describing the research and development in the Area to be carried out by Pfizer and Megan pursuant to this Agreement. Each annual Research Plan will be attached to and made a part of this Agreement as Exhibit A.

1.12 "RESEARCH PROGRAM" means the collaborative research program in the Area conducted by Pfizer and Megan pursuant to the Research Plan.

1.13 "RESERVED RIGHTS" means any of the following: (a) the exclusive rights granted by Megan to Boehringer Ingelheim, including the right to grant sublicenses, to manufacture, use, sell, offer for sale and import vaccines and therapeutics for horses (the "Equine License"); (b) rights relating to Megan-Registered Trademark- Vac I, Megan-Registered Trademark- Egg and Megan-Registered Trademark- Vac II, AntiPath, as they now exist and as set forth in Exhibit B to the License Agreement; and (c) applicability of Program Technology and Patent Rights to human vaccines and human therapeutic agents.

1.14 "TECHNOLOGY" means and includes all materials, technology, technical information, know-how, expertise and trade secrets in the Area .

1.14.1 "MEGAN TECHNOLOGY" means Technology that is or was developed by employees of or consultants to Megan alone or jointly with third parties prior to the Effective Date, but, in the case of consultants or third parties, only to the extent Megan has the right to grant rights to such Technology.

1.14.2 "PROGRAM TECHNOLOGY" means Technology that is or was developed in the course of performing the Research Program by employees of or consultants to Pfizer or Megan solely or jointly with each other.

1.14.3 "PFIZER TECHNOLOGY" means Technology that is or was developed by employees of or consultants to Pfizer alone or jointly with third parties prior to the Effective Date, but, in the case of consultants or third parties, only to the extent Pfizer has the right to grant rights to such Technology.

1.15 "VALID CLAIM" means a claim within Patent Rights so long as such claim shall not have been disclaimed by Pfizer (in the case of Patent Rights within the Pfizer Technology) or by Megan (in the case of Patent Rights within the Megan Technology)

or both (in the case of Patent Rights within the Program Technology) and shall not have been held invalid in a final decision rendered by a tribunal of competent jurisdiction from which no appeal has been or can be taken.

2. COLLABORATIVE RESEARCH PROGRAM

2.1 PURPOSE. Megan and Pfizer shall conduct the Research Program throughout the Contract Period. All Technology in the Area developed in the course of performing the Research Plan will become part of the Program Technology. The objective of the Research Program is to discover and develop Products.

2.2 RESEARCH PLAN. The Research Plan shall be attached as Exhibit A within sixty (60) days of the Effective Date. For each Commitment Year after the first, the Annual Research Plan shall be prepared by the Research Committee for submission to and approval by Pfizer and Megan no later than ninety (90) days before the end of the prior Commitment Year. The parties expect that Megan's primary responsibility will be the construction of live, genetically attenuated recombinants to be used in SALMONELLA-vectored animal vaccines together with limited immunogenicity testing and Pfizer's primary responsibility will be to develop vaccines based on such constructs.

2.3 EXCLUSIVITY. *** Confidential Treatment Requested as to this information ***

2.4 RESEARCH COMMITTEE.

2.4.1 PURPOSE. Pfizer and Megan shall establish a Research Committee (the "Research Committee"). The functions of the Research Committee shall be:

(a) to prepare the Research Plan, and any amendments;

(b) to review and evaluate progress under the Research Plan;

(c) to coordinate and monitor publication of research results obtained from the Research Program as specified in Section 4.2; and

(d) to coordinate and monitor the exchange of information and materials that relate to the Research Program.

The functions detailed in (c) and (d) shall survive termination of this Agreement.

2.4.2 MEMBERSHIP. Pfizer and Megan each shall appoint, in its sole discretion, four members to the Research Committee. Substitutes may be appointed at any time by written notice to the other party.

The members initially shall be:

Pfizer Appointees:	Everett Rosey (Chair)
	Tonia Agin
	Dennis Foss
	Robert Ankenbauer
Megan Appointees:	Kevin Killeen
	Steve Tinge
	Donata Sizemore
	Ken Roland

2.4.3 CHAIR. The Research Committee shall be chaired by *** Confidential Treatment Requested as to this information ***

2.4.4 MEETINGS. The Research Committee shall meet at least quarterly, at places selected by each party in turn and on dates mutually agreed by the parties. The location of the first meeting of the Research Committee shall be at Pfizer's election. Representatives of Pfizer or Megan or both, in addition to members of the Research Committee, may attend such meetings at the invitation of either party.

2.4.5 Minutes. The Research Committee shall keep accurate minutes of its deliberations which record all proposed decisions and all actions recommended or taken. Drafts of the minutes shall be delivered to all Research Committee members within five (5) business days after each meeting. The party selecting the location for the meeting shall be responsible for the preparation and circulation of the draft minutes.

2.4.6 Decisions. All issues related to the Research Program shall be discussed by the Research Committee members. *** Confidential Treatment Requested as to this information ***

2.4.7 EXPENSES. Pfizer and Megan shall each respectively bear all expenses, including reasonable travel, related to the participation of their designated members of the Research Committee.

2.5 REPORTS AND MATERIALS.

2.5.1 REPORTS. During the Contract Period, Pfizer and Megan each shall furnish to the Research Committee:

(a) summary written reports within fifteen (15) days after the end of each stage of the Research Plan, commencing on the Effective Date, describing the progress under the Research Plan; and

(b) comprehensive written reports within thirty (30) days after the end of each contract year, describing in detail the work accomplished by it under the Research Plan during the year and discussing and evaluating the results of such work.

2.5.2 MATERIALS. Megan and Pfizer shall, during the Contract Period, as a matter of course as described in the Research Plan, or upon each other's written or oral request, as the parties may reasonably agree, furnish to each other samples of biochemical, biological or synthetic chemical materials which are part of Pfizer Technology, Megan Technology or Program Technology and which are necessary for each party to carry out its responsibilities under the Research Plan; provided, however, that Megan shall, upon request, deliver to Pfizer samples of any material made pursuant to the Research Plan. To the extent that Pfizer requests and Megan provides quantities of materials in excess of the quantities required to do pre-clinical proof of principle experiments, Pfizer shall reimburse Megan for the reasonable costs of such materials.

2.6 LABORATORY FACILITIES AND PERSONNEL. Megan and Pfizer shall provide suitable laboratory facilities, equipment and personnel for the work to be done by each party in carrying out the Research Program. *** Confidential Treatment Requested as to this information ***

2.7 DILIGENT EFFORTS. Pfizer and Megan each shall use *** Confidential Treatment Requested as to this information *** efforts to achieve the objectives of the Research Program. Megan and Pfizer will use reasonably diligent efforts to achieve the objectives listed in the Research Plan, and Pfizer will use reasonably diligent efforts to assist Megan in the Research Plan.

3. PAYMENTS.

3.1 RESEARCH PROGRAM FUNDING. Pfizer will fund the research to be performed by Megan, pursuant to this Agreement, according to the following schedule:

*** Confidential Treatment Requested as to this information ***

The funding payments are expected to support the work of *** Confidential Treatment Requested as to this information ***

3.1.1 All funding payments shall be made quarterly in advance for work scheduled to be performed by Megan during any three (3) month period, against Megan's invoice for such three (3) month period. At the end of each three (3) month period, Megan shall make adjustments as necessary to reflect the personnel actually assigned and the work actually performed by Megan and such adjustments shall be reflected in Megan's invoice for the next three (3) month period; provided, however, that in each Commitment Year Megan shall be assigned sufficient work to be performed by *** Confidential Treatment Requested as to this information ***. Both parties understand that all payments pursuant to this Section are noncreditable and nonrefundable.

3.1.2 The amount of the funding payment for each quarter shall be based on the personnel assigned calculated on an FTE basis; provided, however, that the aggregate amount of funding payments made in any Commitment Year shall not exceed the Annual Commitment listed above for such Commitment Year.

3.3 US FUNDS. Each payment pursuant to this Agreement shall be paid by Pfizer in U.S. currency by wire transfer in immediately available funds to an account designated by Megan, or by other mutually acceptable means within thirty (30) days after receipt by Pfizer of the invoice from Megan consistent with this Section 3.

3.4 RECORDS. Megan shall keep for three (3) years from the conclusion of each year complete and accurate records of its expenditures of efforts from payments received by it from Pfizer under Section 3.1. The records shall conform to good accounting principles as applied to a similar company similarly situated. Pfizer shall have the right at its own expense during the term of this Agreement and during the subsequent three-year period to appoint an independent certified public accountant

reasonably acceptable to Megan to inspect said records to verify the accuracy of such expenditures of efforts, pursuant to each Research Plan. Upon reasonable notice by Pfizer, Megan shall make its records available for inspection by the independent certified public accountant during regular business hours at the place or places where such records are customarily kept, to verify the accuracy of the expenditures of efforts. This right of inspection shall not be exercised more than once in any calendar year and not more than once with respect to records covering any specific period of time. All information concerning such expenditures of efforts, and all information learned in the course of any audit or inspection, shall be deemed to be Megan Confidential Information, except to the extent that it is necessary for Pfizer to reveal the information in order to enforce any rights it may have pursuant to this Agreement or if disclosure is required by law. The failure of Pfizer to request verification of any expenditures of efforts before or during the three-year period shall be considered acceptance by Pfizer of the accuracy of such expenditures of efforts, and Megan shall have no obligation to maintain any records pertaining to such report or statement beyond such three-year period. The findings of such inspection, if any, shall be binding on the parties.

4. TREATMENT OF CONFIDENTIAL INFORMATION

4.1 CONFIDENTIALITY

4.1.1 Pfizer and Megan each recognize that the other's Confidential Information constitutes highly valuable, confidential information. Subject to the terms and conditions of the License Agreement, the obligations set forth in Section 4.3 and the publication rights set forth in Section 4.2, Pfizer and Megan each agree that during the term of this Agreement and for five (5) years thereafter, it will keep confidential, and will cause its Affiliates and sublicensees to keep confidential, all Megan Confidential Information or Pfizer Confidential Information, as the case may be, that is disclosed to it, or to any of its Affiliates or sublicensees pursuant to this Agreement. Neither Pfizer nor Megan nor any of their respective Affiliates or sublicensees shall use such

Confidential Information of the other party except as expressly permitted in this Agreement. For the purposes of this Section 4, it is understood that Program Technology shall be deemed Confidential Information of both parties.

4.1.2 Pfizer and Megan each agree that any disclosure of the other's Confidential Information to any officer, employee or agent of the other party or of any of its Affiliates shall be made only if and to the extent necessary to carry out its responsibilities under this Agreement and shall be limited to the maximum extent possible consistent with such responsibilities. Pfizer and Megan each agree not to disclose the other's Confidential Information to any third parties under any circumstance without written permission from the other party. Each party shall take such action, and shall cause its Affiliates and sublicensees to take such action, to preserve the confidentiality of each other's Confidential Information as it would customarily take to preserve the confidentiality of its own Confidential Information. Each party, upon the other's request, will return all the Confidential Information disclosed to it by the other party pursuant to this Agreement, including all copies and extracts of documents, within sixty (60) days of the request upon the termination of this Agreement except for one (1) copy which may be kept for the purpose of complying with continuing obligations under this Agreement.

4.1.3 Megan and Pfizer each represent that all of its employees, and any consultants to such party, participating in the Research Program who shall have access to Program Technology, the Technology of the other (Pfizer Technology or Megan Technology, as the case may be) or Confidential Information of the other (Pfizer Confidential Information or Megan Confidential Information, as the case may be) are bound by agreement to maintain such information in confidence.

4.2 PUBLICATION. Notwithstanding any matter set forth with particularity in this Agreement to the contrary, results obtained in the course of the Research Program may be submitted for publication following scientific review by the Research Committee and subsequent written approval by Megan's and Pfizer's managements, which approval

shall not be unreasonably withheld. After receipt of the proposed publication by both Pfizer's and Megan's managements, such managements shall provide written approval or disapproval (i) within thirty (30) days for a manuscript; (ii) within fourteen (14) days for an abstract for presentation at, or inclusion in the proceedings of, a scientific meeting; or (iii) within fourteen (14) days for presentation materials to be used at a scientific meeting.

4.3 PUBLICITY. Except as required by law, neither party may disclose the terms of this Agreement nor the research described in it without the written consent of the other party.

4.4 PERMITTED DISCLOSURE.

4.4.1 DISCLOSURE REQUIRED BY LAW. If either party is requested to disclose the other party's Confidential Information in connection with a legal or administrative proceeding or is otherwise required by law to disclose the other party's Confidential Information, such party will give the other party prompt notice of such request. The Disclosing Party may seek an appropriate protective order or other remedy or waive compliance with the provisions of this Agreement. If the Disclosing Party seeks a protective order or other remedy, the Receiving Party will cooperate. If the Disclosing Party fails to obtain a protective order or waive compliance with the relevant provisions of this Agreement, the Receiving Party will disclose only that portion of Confidential Information which its legal counsel determines it is required to disclose.

4.4.2 DISCLOSURE OF INVENTIONS. Each party shall promptly inform the other about all inventions in the Area within the Program Technology that are made in the course of carrying out the Research Program by employees of, or consultants to, either of them solely, or jointly with employees of, or consultants to, the other.

4.5 RESTRICTIONS ON TRANSFERRING MATERIALS. Megan and Pfizer recognize that the biological, biochemical and chemical materials which are part of Program

Technology represent valuable commercial assets. Therefore, throughout the Contract Period and for five (5) years thereafter, Megan agrees not to transfer such materials to any third party for use in the Area, unless prior written consent for any such transfer is obtained from Pfizer; and Pfizer agrees not to transfer such materials to any third party for use outside the Area, unless prior written consent for any such transfer is obtained from Megan.

5. INTELLECTUAL PROPERTY RIGHTS. The following provisions relate to intellectual property rights in the Program Technology.

5.1 OWNERSHIP. *** Confidential Treatment Requested as to this information ***

5.2 The filing, prosecution and maintenance of Patent Rights is set forth in the License Agreement.

5.3 Pfizer and Megan each grant to the other an irrevocable, royalty-free, non-exclusive, world-wide license to manufacture and use Patent Rights and Program Technology for all research purposes.

6. ACQUISITION OF RIGHTS FROM THIRD PARTIES. During the Contract Period, Megan and Pfizer shall each promptly notify each other of any appropriate opportunities to acquire in any manner from third parties, technology, patents or information which it proposes to use in the course of performing the Research Program. Megan and Pfizer shall decide if such rights should be acquired in connection with the Research Program and, if so, whether by Megan, Pfizer or both, it being understood that nothing herein shall obligate either party to obtain such rights or, if it does acquire such rights, to make such rights available for use in the Research Program. If acquired, such rights shall become part of the Confidential Information, Technology or Patent Rights, whichever is appropriate, of the acquiring party or Program Technology, as the case may be.

7. OTHER AGREEMENTS. Concurrent with the execution of this Agreement, Megan and Pfizer shall enter into the License Agreement and Stock Purchase Agreement of even date. This Agreement, the Stock Purchase Agreement and the License Agreement are the sole agreements with respect to the subject matter and supersede all other prior or contemporaneous agreements and understandings, written or oral, between the parties with respect to same.

8. TERM, TERMINATION AND DISENGAGEMENT.

8.1 TERM. Unless sooner terminated, as provided below, or extended, by mutual agreement of the parties, this Agreement shall expire *** Confidential Treatment Requested as to this information *** years from the Effective Date.

8.2 EVENTS OF TERMINATION. The following events shall constitute events of termination ("Events of Termination"):

(a) if any written representation or warranty made by Megan or Pfizer, or any of its officers, under or in connection with this Agreement shall prove to have been incorrect in any material respect when made;

(b) Megan or Pfizer shall fail in any material respect to perform or observe any term, covenant or understanding contained in this Agreement or in any of the other documents or instruments delivered pursuant to, or concurrently with, this Agreement, and any such failure shall remain unremedied for thirty (30) days after written notice to the failing party.

8.3 TERMINATION.

8.3.1 UPON EVENT OF TERMINATION BY PFIZER OR MEGAN. Upon the occurrence of any Event of Termination, the party not responsible may, by written notice to the other party, terminate this Agreement.

8.3.2 If either party terminates this Agreement pursuant to Section 8.3.1, the License Agreement shall not terminate, but instead shall terminate or expire in accordance with its terms.

8.4 TERMINATION BY PFIZER. Within ninety (90) days preceding the end of the first Commitment Year, Pfizer may terminate this Agreement, with or without cause, by delivering written notice of termination to Megan. If Pfizer terminates this Agreement pursuant to this Section, it will make all funding payments which would have otherwise been due through the first Commitment Year. Pfizer will retain all rights and obligations as set forth in the License Agreement.

8.5 Termination of this Agreement by either party, with or without cause, will not terminate the licenses granted pursuant to Section 5.3.

8.6 Termination of this Agreement for any reason shall be without prejudice to:

(a) the rights and obligations of the parties provided in Sections 4, 5, and 11 and any Sections which provide by its terms performance by either party subsequent to termination;

(b) Megan's right to receive all payments accrued under Section 3; or

(c) any other remedies which either party may otherwise have.

9. REPRESENTATIONS AND WARRANTIES. Megan and Pfizer each represents and warrants as follows:

9.1 It is a corporation duly organized, validly existing and is in good standing under the laws of the State of Delaware; is qualified to do business and is in good standing as a foreign corporation in each jurisdiction in which the conduct of its business or the ownership of its properties requires such qualification; and it has all requisite power and authority, corporate or otherwise, to conduct its business as now being conducted, to own, lease and operate its properties and to execute, deliver and perform this Agreement.

9.2 The execution, delivery and performance by it of this Agreement have been duly authorized by all necessary corporate action and do not and will not (a) require any consent or approval of its stockholders beyond the approvals already obtained; (b) violate any provision of any law, rule, regulations, order, writ, judgment, injunction, decree, determination or award presently in effect having applicability to it or any provision of its certificate of incorporation or by-laws; or (c) result in a breach of or constitute a default under any material agreement, mortgage, lease, license, permit or other instrument or obligation to which it is a party or by which it or its properties may be bound or affected.

9.3 This Agreement is a legal, valid and binding obligation of it enforceable against it in accordance with its terms and conditions, except as such enforceability may be limited by applicable bankruptcy, insolvency, moratorium, reorganization or similar laws, from time to time in effect, affecting creditor's rights generally.

9.4 It is not under any obligation to any person, or entity, contractual or otherwise, that is conflicting or inconsistent in any respect with the terms of this Agreement or that would impede the diligent and complete fulfillment of its obligations.

9.5 It has good and marketable title to or valid leases or licenses for, all of its properties, rights and assets necessary for the fulfillment of its responsibilities under the Research Program, subject to no claim of any third party other than any relevant lessors or licensors.

10. COVENANTS OF MEGAN AND PFIZER OTHER THAN REPORTING REQUIREMENTS. Throughout the Contract Period, Megan and Pfizer each shall:

10.1 maintain and preserve its corporate existence, rights, franchises and privileges in the jurisdiction of its incorporation, and qualify and remain qualified as a foreign corporation in good standing in each jurisdiction in which such qualification is from time to time necessary or desirable in view of their business and operations or the ownership of their properties.

10.2 comply in all material respects with the requirements of all applicable laws, rules, regulations and orders of any government authority to the extent necessary to conduct the Research Program, except for those laws, rules, regulations, and orders it may be contesting in good faith.

11. INDEMNIFICATION. Pfizer and Megan will indemnify, defend and hold each other harmless for any and all damages, settlements, costs, legal fees and other expenses incurred in connection with a claim by a third party against either party based on any action or omission of the indemnifying party's agents, employees, or officers related to its obligations under this Agreement; provided, however, that the foregoing shall not apply (i) if the claim is found to be based upon the negligence, recklessness or willful misconduct of the party seeking indemnification; or (ii) if such party fails to give the other party prompt notice of any claim it receives and such failure materially prejudices the other party with respect to any claim or action to which its obligation pursuant to this Section applies. Notwithstanding the foregoing, Pfizer hereby expressly agrees to

indemnify, defend and hold harmless Megan (and all officers, directors, agents and Affiliates of Megan) for any and all claims arising from clinical trials pursued by Pfizer or its Affiliates and/or sublicensees, the use, manufacture, sale or offer to sell of Products, and/or the exercise of rights granted to Pfizer under Section 5.3 or the License Agreement (including without limitation product liability claims). The indemnifying party, in its sole discretion, shall choose legal counsel, shall control the defense of such claim or action and shall have the right to settle same on such terms and conditions it deems advisable.

12. NOTICES. All notices shall be in writing mailed via certified mail, return receipt requested, courier, or facsimile transmission addressed as follow, or to such other address as may be designated from time to time:

If to Pfizer:	To Pfizer at its address as set forth at the beginning of this Agreement, Attention: Senior Vice President, Pfizer Global Research and Development.
With copy to:	Assistant General Counsel, Pfizer Global Research and Development
If to Megan:	To Megan at its address as set forth at the beginning of this Agreement, Attention: President, Megan Health, Inc.
With copy to:	Una Ryan, CEO AVANT Immunotherapeutics, Inc. 119 Fourth Avenue Needham, MA 02494

Notices shall be deemed given as of the date received at the above specified address.

13. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to its conflicts of law provisions.

14. MISCELLANEOUS.

14.1 BINDING EFFECT. This Agreement shall be binding upon and inure to the benefit of the parties and their respective legal representatives, successors and permitted assigns.

14.2 HEADINGS. Paragraph headings are inserted for convenience of reference only and do not form a part of this Agreement.

14.3 COUNTERPARTS. This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original. Signatures may be transmitted via facsimile, thereby constituting the valid signature and delivery of this Agreement.

14.4 AMENDMENT, WAIVER. This Agreement may be amended, modified, superseded or canceled, and any of the terms may be waived, only by a written instrument executed by each party or, in the case of waiver, by the party or parties waiving compliance. The delay or failure of any party at any time or times to require performance of any provisions shall in no manner affect the rights at a later time to enforce the same. No waiver by any party of any condition or of the breach of any term contained in this Agreement, whether by conduct, or otherwise, in any one or more instances, shall be deemed to be, or considered as, a further or continuing waiver of any such condition or of the breach of such term or any other term of this Agreement.

14.5 NO THIRD PARTY BENEFICIARIES. No third party including any employee of any party to this Agreement, shall have or acquire any rights by reason of this

Agreement. Nothing contained in this Agreement shall be deemed to constitute the parties partners with each other or any third party.

14.6 ASSIGNMENT AND SUCCESSORS. This Agreement may not be assigned by either party , except that each party may assign this Agreement and the rights and interests of such party, in whole or in part, to any of its Affiliates, any purchaser of all or substantially all of its assets or to any successor corporation resulting from any merger or consolidation of such party with or into such corporations.

14.7 FORCE MAJEURE. Neither Pfizer nor Megan shall be liable for failure of or delay in performing obligations set forth in this Agreement, and neither shall be deemed in breach of its obligations, if such failure or delay is due to natural disasters or any causes reasonably beyond the control of Pfizer or Megan.

14.8 SEVERABILITY. If any provision of this Agreement is or becomes invalid or is ruled invalid by any court of competent jurisdiction or is deemed unenforceable, it is the intention of the parties that the remainder of the Agreement shall not be affected so long as the essential benefits of this Agreement remain enforceable and obtainable.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives.

PFIZER INC	MEGAN HEALTH, INC.
By: /S/ GEORGE M. MILNE, JR.	By: UNA S. RYAN
Name: GEORGE M, MILNE, JR.	Name: UNA S. RYAN
Title: SR. VICE PRESIDENT	Title: PRESIDENT

cc: Pfizer Inc, Legal Division, Groton, CT 06340

Exhibit 21.0

LIST OF SUBSIDIARIES

Name	State of Incorporation
Megan Health, Inc.	Delaware

Exhibit 23.0

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in the Registration Statement on Forms S-8, (File Nos. 333-52796, 333-34780, 33-80036, 33-80048 and 333-62017) and the Registration Statement on Forms S-3 (File Nos. 333-43204, 333-52736, 33-64021, 333-08607, 333-56755, 333-64761 and 333-89341), of AVANT Immunotherapeutics, Inc. (f/k/a TCell Sciences, Inc.) of our report dated February 2, 2001 relating to the financial statements of AVANT Immunotherapeutics, Inc. (f/k/a TCell Sciences, Inc.) which appears in the Annual Report on Form 10-K for the year ended December 31, 2000.

PricewaterhouseCoopers LLP

Boston, Massachusetts
March 27, 2001