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, 1999

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 10, 2000 was $657,749,278 (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 10, 2000 was: 50,012,800 shares.

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

AVANT Immunotherapeutics, Inc. (f/k/a "T Cell Sciences, Inc.," herein referred to as "AVANT") is a biopharmaceutical company that uses novel applications of immunology to prevent and treat diseases caused by both the enemy within (autoimmune diseases, cardiovascular diseases, cancer and inflammation) and the enemy without (infectious diseases and organ transplant rejection). Each of our products address large market opportunities for which current therapies are inadequate or non-existent.

We were incorporated in the state of Delaware in 1983. 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.

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. 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 Inhibition	TP10	Transplantation	Novartis Pharma	Phase II
		Cardiac Surgery	—	Phase I/II
		Heart Attacks	—	Phase I
	TP20	Stroke	—	Preclinical
Therapeutic Vaccines	CETi-1 Vaccine	Atherosclerosis	—	Phase I
Protective Vaccines	Rotavirus Vaccine	Rotavirus	SmithKline Beecham	Phase II
	Cholera Vaccine	Cholera	US Army & NIH	Phase IIb
Vaccines and Immunotherapeutic Delivery Systems	Adjumer® -RSV Vaccine	Respiratory Syncytial Virus	Aventis Pasteur	Phase I/II
	-Cat Scratch	Cat Scratch Disease	Heska Corporation	Clinical testing
	-Lyme Disease	Lyme Disease	Aventis Pasteur	Preclinical
	Therapore™	Viral Infection-HIV	US Army	Preclinical
		-Hepatitis	—	Preclinical
		Cancer	—	Preclinical

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 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 have 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 and aiming to commence a Phase III pivotal trial in late 2000. We believe that this is an appropriate indication for a small company to pursue for the following reasons:

- Orphan drug status has been sought because only 30,000 pediatric cardiac surgeries are performed each year;
- Because the surgery is life-threatening, the TP10 compound may qualify for priority review at 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.

We plan to initiate Phase II trials for adult cardiac surgery in 2000, with an eye to partnering that program when additional clinical data are available.

Atherosclerosis 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 preclinical 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 preclinical work on the vaccine was partially funded by almost $1 million in Small Business Innovation Research ("SBIR") grants. The Company initiated a Phase I clinical trial in 1999 and plans to initiate a Phase II trial in 2000. As clinical data becomes available, the Company plans to seek a corporate partner to complete development and to commercialize the vaccine.

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 SmithKline Beecham 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. Assuming product development and commercialization continues satisfactorily, SmithKline will pay us additional milestones and a royalty based on sales.

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 Institutes of Health (the "NIH"). This trial, set to begin in 2000, will test the safety, immunogenecity and protective capacity of the vaccine against a challenge with live virulent

cholera. We will then determine our commercialization strategy with respect to the cholera vaccine based on clinical data from the trial.

Vaccine 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®, a water soluble polymer intended as an adjuvant to enhance systemic immune response with fewer injections and lower antigen doses;
- Micromer®, a polymer microsphere adjuvant designed to enhance systemic and mucosal immune responses to oral or nasal administration;
- Therapore™, a genetically engineered bacterial protein vector designed to induce cell-mediated immunity, believed to be particularly important for therapeutic vaccines; and
- VibrioVec™, 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 gaining us 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® and Micromer® in a variety of vaccines, including 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™, 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™ beginning in 2000. 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 will suffer significantly.

The health care industry in the United States and in Europe is undergoing fundamental changes as the 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 Inhibition

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. Independent 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 a ppeared 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 will evaluate the ability of TP10 to mitigate the injury to the heart and other organs that occurs when patients are placed on cardiopulmonary bypass circuits. If successful, we hope to initiate a Phase III pivotal trial in late 2000.

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 preclinical 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. Atherosclerosis 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 is to demonstrate the safety of single administrations of the vaccine at four different dosage strengths.

3. T Cell Regulators

In early 1992, we entered into a joint development program with AstraZeneca plc ("Astra") to develop products resulting from our proprietary TCAR technology, which utilizes T cell antigen receptor for selectively targeting T cells involved in autoimmune diseases such as multiple sclerosis and rheumatoid arthritis. The original agreement was modified in 1993 with Astra assuming all responsibility for developing the lead antibody products and AVANT retaining leadership of the first peptide product candidate. Under the original and modified agreements, we received funding of approximately $15 million in the early years with the potential of up to $17 million of additional funding based on clinical progress. By the end of 1995, we had received substantially all of the original funding payments.

In 1996, we amended the agreement with Astra to transfer some of our rights to the TCAR technology, including two therapeutic products, ATM-027 and ATP-012, to Astra, which is solely responsible for further clinical development and commercialization. Under the amended agreement, we could receive royalties from product sales, as well as milestone payments which may total up to $4 million as specific clinical milestones are achieved.

In 1997, we received a milestone payment from Astra because one of the products derived from our TCAR program entered clinical trials for the treatment of multiple sclerosis. In 1998, Astra announced that Phase I data from these trials had shown an effect on the target cells and that there had been no serious adverse effects in the study to date, and initiated a Phase II study. In 1999, we announced results of the Phase II study of the TCAR monoclonal antibody (ATM-027) being developed by Astra for the treatment of multiple sclerosis. The results showed that ATM-027 was safe and well tolerated, however, in the view of Astra the reduction of disease activity in the study population did not reach a level that would be of value for those patients. Therefore, Astra made the decision to stop further development of ATM-027 for multiple sclerosis but is reviewing development of the TCAR peptide, ATP-012, as a vaccine for multiple sclerosis under the terms of the TCAR agreement.

D. Vaccines, Vaccine Delivery Systems and Immunotherapeutics

1. Overview

The Vaccine Market: Vaccines have long been recognized as a safe and cost-effective method to prevent infection caused by some bacteria and viruses. The Centers for Disease Control and Prevention (the "CDC") have estimated that every dollar spent on vaccination saves $16 in healthcare costs. There are currently 22 vaccines in routine use in the United States against life-threatening infectious organisms such as tetanus, diphtheria, poliovirus, hepatitis A virus, hepatitis B virus, haemophilus influenzae B, measles, mumps and rubella. From 1990 to 1999, annual worldwide vaccine sales increased from $1.6 billion to $5.9 billion and the market is growing at about 12% a year. We believe that this growth rate may accelerate as a result of advances in vaccine technologies and formulations that address the shortcomings of existing vaccines. Areas of potential improvement include enhancement of immune responses, which could lead to a reduction in the number of doses required for effective protection as well as effective immunization in a higher percentage of the population, and delivery of vaccines through methods other than injection. The vaccine market is expected to expand due to the introduction of new vaccines utilizing purified antigens, produced as a result of advances in molecular biology. We also believe that the growing awareness and incidence of infectious diseases, such as H. pylori, hepatitis C virus, HIV1 and HSV2 infection, together with the availability of new vaccines, could further expand the vaccine market.

The Immune System and Vaccines: The function of the human immune system is to respond to pathogens, including infectious bacteria and viruses, that enter the body. However, a pathogen may establish an infection and cause disease before it is eliminated by an immune response. Antibodies are produced as part of the immune response to antigens, which are components of the pathogen. These antibodies can continue to be present in the human body for many years, providing continued protection against reinfection by the same pathogen.

Protective antibodies can be produced in both the systemic and mucosal branches of the immune system. The systemic immune system produces IgG antibodies to protect against infection occurring in blood and deep tissue. The mucosal immune system produces IgA antibodies that protect against infection occurring in the mucosal layer lining the digestive, respiratory and genitourinary tracts. Mucosal immunity may act as a first line of defense by attacking pathogens at the

point of entry into the body, prior to systemic penetration, as well as by targeting pathogens such as H. pylori, influenza and rotavirus that propagate exclusively at the mucosal layer.

Vaccines are a pre-emptive means of generating a protective antibody response. A vaccine consists of either a weakened pathogen or pathogen-specific, non-replicating antigens which are deliberately administered to induce the production of antibodies. When weakened pathogens are used as a vaccine, they replicate in the body, extending presentation to the immune system and inducing the production of antibodies without causing the underlying disease. When non-replicating antigens are used as a vaccine, they must be delivered in sufficient quantity and remain in the body long enough to generate an effective antibody response. To achieve this goal, many vaccines require multiple administrations. Of the 22 vaccines currently in routine use, 20 are delivered by injection and stimulate only systemic immunity. Only polio and typhoid vaccines can be administered orally and induce both a mucosal and a systemic immune response. Both of these vaccines are live, weakened pathogens that localize in the intestines and do not require a separate vaccine delivery system.

There is considerable research activity in developing vaccines to treat patients already infected with the target disease. Referred to generally as immunotherapy, this effort is directed to designing vaccines that will mobilize the immune system in various ways to curtail or eliminate the pathogen. Immunotherapy may have the most promise in treating cancer and chronic disease such as HIV and HCV.

Adjuvants and other delivery systems: The antigens contained in many injectable vaccines alone will not produce an immune response sufficient to protect against infection and require the use of an adjuvant to sustain the presentation of the antigens to the human immune system. Aluminum-based adjuvants ("alum") are the only adjuvants currently approved by the United States Food and Drug Administration (the "FDA") for commercial use in humans. While alum has gained widespread use, it does not sufficiently enhance the immune response to permit administration of many existing injected vaccines in a single dose. In the case of some vaccines, such as influenza, alum is ineffective as an adjuvant.

We believe that alum may not be sufficiently effective for use with a number of the new purified recombinant antigens being developed. Further, alum cannot be used for mucosal delivery of vaccines. Therapeutic vaccines may require entirely different systems to enhance deliver and maximize the immune response. Accordingly, we believe that there is a significant need for new adjuvants that are safe, work with a wide variety of antigens, and induce a protective immune response with only one or two administrations. These attributes could result in benefits, including cost savings and improved patient compliance.

2. Vaccine Development Programs

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 $p<0.001$. 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 "E. 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. Provided that

clinical progress continues, we will be entitled to additional milestones and royalties based on net sales of the rotavirus vaccine.

Cholera Vaccine: 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. The Phase IIb trial will test the safety, immunogenicity and protective capacity of the vaccine against a challenge with live virulent cholera. AVANT and WRAIR have successfully manufactured clinical supplies of the vaccine at WRAIR's facility for use in the study.

Other Vaccine Programs: We have successfully completed early clinical studies with a single dose oral vaccine against typhoid fever and have done preclinical work in vaccines for genital herpes and anthrax infections. We have temporarily reduced resources devoted to these programs to focus on more advanced projects.

3. Vaccine 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 cancer.

The following table summarizes important characteristics of our two main vaccine delivery systems and Therapore™:

DELIVERY SYSTEM	COMPOSITION	DELIVERY METHOD	POTENTIAL BENEFITS (1)	STATUS (1)
Adjumer®	Water Soluble Polymer	Injectable	Enhanced systemic immune response; fewer injections; lower antigen doses	Phase II influenza conducted; under review at Aventis Phase I/II RSV in process Phase I HIV; analysis of results ongoing *B. henselae* (Cat Scratch Disease); clinical testing Preclinical research in Lyme Disease and other vaccine targets
Micromer®	Polymer Microparticles	Intranasal or oral	Systemic and mucosal immune response; no injection	Preclinical research in influenza and other vaccine targets
Therapore™	Genetically Engineered Bacterial Protein Vector	Injectable	Induction of cell-mediated immunity	Preclinical research in hepatitis, HIV and cancer

(1) The summary information included in the above table is qualified in its entirety by the detailed discussion of each of the vaccine and immunotherapeutic delivery systems that follows.

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

In preclinical studies conducted by AVANT, Adjumer® demonstrated sustained presentation of influenza, hepatitis B, HSV2, HIV1 and tetanus antigens to the immune system. In those preclinical studies, single intramuscular injections of Adjumer®-formulated vaccines elicited a higher immune response than both alum-formulated vaccines and non-adjuvanted vaccines as measured by resulting IgG antibody levels. In additional preclinical studies, an Adjumer®-formulated influenza vaccine using lower antigen doses sustained higher antibody levels over a longer time period than both alum-formulated vaccines and non-adjuvanted vaccines. In other preclinical studies Adjumer®-formulated vaccines produced an effective immune response in a higher percentage of animals than in animals receiving existing vaccine formulations. Furthermore, in these studies, as well as tests conducted using Adjumer® alone, we observed no material adverse reactions when Adjumer® was administered at effective levels.

Based on these preclinical results, we believe that an Adjumer®-formulated vaccine may provide a number of benefits over existing injected vaccines. These benefits include reducing the number of doses required for an effective immune response, thereby improving compliance; providing cost savings as a result of the reduction in the number of doses and the amount of antigen required; and increasing the time period over which immune protection can be sustained. In addition, based on the results of these preclinical studies, we believe that an Adjumer®-formulated vaccine may be able to induce an immune response in a number of subjects who would not otherwise respond to existing vaccines. The first human clinical trials of a vaccine using Adjumer® as a delivery system commenced in 1996.

AVANT and Aventis, the leading worldwide supplier of influenza vaccine, are currently collaborating on the development of an Adjumer®-formulated vaccine for influenza. Aventis completed Phase I human clinical trials of the Adjumer®-formulated influenza vaccine in France during 1997. Based on the results of the study, which showed the Adjumer®-formulated vaccine was well tolerated and elicited improved responses, a Phase II safety and immunogenicity study was initiated in Peru by Aventis during 1997. Preliminary results of the Phase II clinical trial confirmed that the Adjumer®-formulated vaccine was well tolerated. However, results of the Phase II study appear to be inconsistent in some respects with Phase I results. The degree of improvement in immune responses elicited by the Adjumer® influenza vaccine was less in comparison to the control group than was elicited in the Phase I study. In the Phase II study the control group receiving the unadjuvanted vaccine generated higher immune responses than observed in the Phase I study control group. AVANT and Aventis are currently analyzing and assessing the results of the Phase II study to determine the appropriate next steps to take with the clinical development of the product.

Aventis is continuing to investigate the use of Adjumer® in other vaccines. During the fourth quarter of 1998, Aventis initiated a Phase I/II trial of an Adjumer®-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.

Micromer®: Micromer® 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.

In preclinical studies conducted by AVANT, several Micromer®-formulated antigens delivered intranasally elicited both a mucosal ("IgA") immune response and a systemic ("IgG") immune response. IgA antibodies were detected at all mucosal sites, and the level of IgG antibodies was comparable to the level obtained through Adjumer®-formulated injections of the same antigen. A Micromer®-formulated influenza vaccine required only a single, intranasal dose to provide an immune response sufficient to protect the animals against subsequent infection by the influenza virus. We have currently suspended efforts on Micromer® to focus on more advanced programs.

Therapore ™: During 1997, we received an exclusive worldwide license to Therapore™ from Harvard College. In 1998, we received a non-exclusive license from the NIH to further secure our Therapore™ technology rights. We believe that Therapore™ will be the core of a novel technology for the development of immunotherapeutics. We are conducting preclinical 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™ 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™ 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 preclinical research studies indicate that Therapore™ may be distinguished from other delivery systems. We believe that the therapeutic and preventative potential of Therapore™ is significant for two reasons: (i) the targeting of Therapore™ 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™ constructs; and (ii) Therapore™ 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™-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™ to develop novel immunotherapeutics for the treatment of chronic viral infections and cancers. We expect to initiate a human clinical trial of our first Therapore™-based product, a vaccine candidate under development by the U.S. Army against the Human Immunodeficiency Virus ("HIV"), in the second half of 2000.

E. 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.

Yamanouchi: We started our complement program in 1988. From 1989 through 1994, TP10 was under development in a joint program pursuant to an agreement with SmithKline and Yamanouchi. During 1994, AVANT and SmithKline negotiated various amendments to the agreement and, in February 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.

Aventis: We are a party to two license agreements entered into in 1994 and 1995 with Aventis relating to Adjumer®- and Micromer®-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®- and Micromer®-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®- and Micromer®-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®- and Micromer®-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®. 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®-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®-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®- and Micromer®-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®, Aventis sponsored research at AVANT into Micromer®-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®, 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.

Pasteur Merieux-Oravax: We have a collaborative arrangement with Pasteur Merieux-Oravax ("PM-O") for the use of our VibrioVec™ bacterial delivery system. The agreement grants to PM-O a worldwide license to use VibrioVec™ for the delivery of specific H. pylori antigens. A license issue fee as well as research support payments totaling $1.0 million, has been paid to us under this agreement. The agreement also provides for future milestone payments and royalties on net sales of any future products developed by PM-O using VibrioVec™. An option previously granted to PM-O for the use of PCPP in the delivery of H. pylori vaccines has expired.

SmithKline: 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.

Heska Corporation: In 1998, we entered into an agreement with Heska Corporation ("Heska") whereby Heska was granted the right to use PCPP in specified animal health vaccines. The agreement provides for the payment of license fees, milestone and royalties based on net sales of PCPP-formulated animal vaccines. In September 1999, we received a payment from Heska for achieving a major milestone in efforts to develop and utilize the PCPP polymer as an adjuvant in Heska’s animal health vaccine against *B. henselae*, the bacterium that causes Cat Scratch Disease (“CSD”) in humans.

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 on our legal right to do so at the time and whether the product remained commercially viable.

F. 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 $133.3 million, as of December 31, 1999. 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 I/II
TP10	Heart attacks	clinical phase I
TP20	Stroke	preclinical
CETi-1 vaccine	Atherosclerosis	clinical phase I
Rotavirus vaccine	Rotavirus infection	clinical phase II
Cholera vaccine	Cholera infection	clinical phase II
Adjumer®	Influenza	clinical phase II
Adjumer®	Respiratory syncytial virus	clinical phase I/II
Adjumer®	Lyme disease	preclinical
Therapore™	Hepatitis	preclinical
Therapore™	HIV	preclinical
Therapore™	Cancer	preclinical
TCAR	Multiple sclerosis	clinical phase II

If and when any of these products receive Food and Drug Administration approval, we will need to make substantial investments to establish sales, marketing, quality control, and regulatory compliance capabilities. 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. We will disclose the progress each product is making through pre-clinical and clinical testing, and the preparations we are making for products that are nearing approval for sale in our periodic reports under the Securities Exchange Act of 1934.

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 pre-commercialization stages of development before they 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. We will provide specific information about the sources and adequacy of funding for our active research and development programs in our periodic reports under the Securities Exchange Act of 1934.

If selling stockholders choose to sell shares in large volume, the trading price of our common stock could suffer

In September 1999, we sold 5,459,375 shares of our common stock in a private placement at $1.92 per share. This was the latest of several private placements of our common stock. Those shares plus among others, 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 3,138,559 shares that employees may purchase under stock options at prices ranging from $0.30 to $7.81 per share, can be resold in the public securities markets without restriction. These shares in total account for approximately 27.4 % of our total common stock outstanding as of December 31, 1999. 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 cardiac surgery and organ transplantation. TP10 has also undergone phase I clinical testing for use in treating heart attacks. Other products in our vaccine programs are in various stages of preclinical and clinical testing. Preclinical tests are performed at an early stage of a product's development and provide information about a product's effectiveness on laboratory animals. Preclinical tests can last years. If a product passes its preclinical 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 six 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 six 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 several more years to receive FDA approval. We will disclose the progress of our ongoing tests and any FDA action on our products in our periodic reports under the Securities Exchange Act of 1934.

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, Yamanouchi Pharmaceutical 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

As clinical tests currently in progress continue and new tests begin, we will disclose in our periodic reports under the Securities Exchange Act of 1934 our progress in enrolling sufficient patients to keep our various programs moving forward, including any specific difficulties we face from time to time and their expected consequences on the affected program. 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 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 third parties to plan, conduct, monitor and supply 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 Chicago Center for Clinical Research and SmithKline Beecham 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 also depend on third party suppliers, including Walter Reed Army Institute of Research, Marathon Biopharmaceuticals, Inc., and Multiple Peptide Systems, 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 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 Heska Corporation, Innogenetics, Inc., Novartis Pharma AG, Aventis Pasteur, SmithKline Beecham, and Yamanouchi Pharmaceutical, for the licensing, development and ultimate commercialization of most 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, which 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 cardiac surgery. 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.

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.

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. If these agreements are breached, our competitors may discover our

trade secrets. 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, Immune Response and Wyeth-Lederle. 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
- 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, which 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.

G. 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 preclinical 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 AVANT. 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 its 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.

H. Manufacturing

We have no manufacturing facilities, no experience in volume manufacturing and 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 PCPP in quantities sufficient for preclinical and clinical studies, and for clinical trial supplies of our rotavirus vaccine candidate. 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 for the development and initial supply of the starting materials for PCPP but do not yet have a written contract with a manufacturer for commercial production of PCPP. We have facilitated the production of commercial grade PCPP in a contractor's cGMP manufacturing facility according to agreed upon specifications. The Aventis agreement, while reserving to Aventis the right to manufacture PCPP, anticipates that we may supply PCPP under a cost-plus supply agreement. We have also entered into a collaborative arrangement with WRAIR for the manufacture of a Therapore™ -HIV product. WRAIR will manufacture the HIV-specific component for this product and we have contracted with Marathon Biopharmaceuticals, Inc. to manufacture the other component. WRAIR has made Cholera Peru-15 and Bengal-15 vaccines under a collaborative agreement with us. The CETi-1 vaccine is made under contracts with Multiple Peptide Services and Bioconcepts, Inc. 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 readily 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 delay 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.

I. 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.

J. 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 1996, we amended our agreement with Astra to transfer some of our patent rights and licenses to the TCAR technology to Astra. This transfer includes patent applications which have resulted to date in U.S. patents covering the DNA, proteins, protein fragments and antibodies relating to the Alpha TCAR and the DNA, full-length proteins and antibodies relating to Beta TCAR, and two European patents covering Beta TCAR inventions. In addition, we have transferred filings on T cell antigen receptor inventions resulting from the partnership with Astra.

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® 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® 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 our Adjumer® vaccine delivery technology, and directed to the use of vaccines incorporating our Micromer® 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® and Adjumer® 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™ vaccine delivery system; we have an exclusive license to an issued U.S. patent directed to a rotavirus strain antigen which forms the basis of our rotavirus vaccine; and we 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. We also have an exclusive license to U.S. patent applications and a non-exclusive license to US and foreign patents and applications directed to technology that may be useful for our Therapore™ 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 patent 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™ 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™ system. The remaining claims of the patent cover other cultures which we believe are not pertinent to VibrioVec™. 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 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 addition, we are aware of a foreign patent with claims that could conflict with AVANT's vaccine candidates and vaccine delivery systems. We believe that the relevant claims under this patent do not extend to or restrict our activities, however there can be no assurance that a foreign court would reach the same conclusion. We are also aware of an issued U.S. patent relating to the same technology covered by a patent application to which we have been granted an exclusive license, and 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 the herpes vaccine 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 actions 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: 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™, 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.

K. 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 Heska. 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: preclinical 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 its products. Moreover, even if we received regulatory approval for a product, the approval may require limitations on use, which would 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 that action is 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 does not necessarily indicate its safety and effectiveness in any other test, including more advanced ones. 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 preclinical 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 (an "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, 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.

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.

To market our products abroad, we are 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 subject to all of the above-described regulations in connection with the commercialization of products utilizing our technology.

L. 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 some 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.

M. Employees; Scientific Consultants

As of March 10, 2000, we employed 50 full time persons, 16 of whom have doctoral degrees. Of these employees, 36 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, the Company is obligated to pay a base annual rent of

$756,400 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 $134,500 until the end of the initial term. Aggregate net base rental payments for the years ended December 31, 1999 and 1998 for this facility were $580,600 and $662,000, 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 $36,000 will be payable to the landlord as additional rent.

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

The common Stock of AVANT Immunotherapeutics, Inc. ("AVANT") 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, 1998		
1Q (Jan. 1- March 31, 1998)	$ 2.94	$ 1.81
2Q (April 1 – June 30, 1998)	4.50	2.38
3Q (July 1 – Sept. 30, 1998)	2.81	1.19
4Q (Oct. 1 – Dec. 31, 1998)	1.78	1.06
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

As of March 10, 2000, there were approximately 671 shareholders of record of our common stock. The price of the common stock was $14.44 as of the close of the market on March 10, 2000. 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 the operating and future earnings of AVANT, our capital requirements and general business conditions.

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 that 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 that Act, 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 are being 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, 1999, 1998, 1997, 1996 and 1995 have been derived from the audited consolidated financial statements of AVANT. The results of operations for 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 (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,				
	1999	1998	1997	1996	1995
OPERATING REVENUE:					
Product Sales, Product Development and Licensing Agreements	$ 1,484	$ 2,150	$ 1,192	$ 1,115	$ 3,963
OPERATING EXPENSE:					
Research and Development	7,872	5,703	5,257	6,036	8,005
Charge for Purchased In-Process Research & Development	—	44,630	—	—	—
Legal Settlement	—	(166)	6,109	—	(2,900)
Other Operating Expense	5,556	4,377	3,494	6,549	7,821
Total Operating Expense	13,428	54,544	14,860	12,585	12,926
Non-Operating Income, Net	635	594	560	680	705
Net Loss	$ (11,309)	$ (51,800)	$ (13,108)	$ (10,790)	$ (8,258)
Basic and Diluted Net Loss Per Common Share	$ (0.26)	$ (1.56)	$ (0.52)	$ (0.50)	$ (0.47)
Weighted Average Common Shares Outstanding	44,076	33,177	25,140	21,693	17,482

CONSOLIDATED BALANCE SHEET DATA	December 31,				
	1999	1998	1997	1996	1995
Working Capital	$ 12,289	$ 12,298	$ 4,629	$ 11,673	$ 11,208
Total Assets	19,883	22,650	9,827	17,224	18,532
Other Long Term Obligations	269	563	750	—	182
Accumulated Deficit	(133,345)	(122,036)	(70,237)	(57,129)	(46,339)
Total Stockholders' Equity	17,413	18,770	6,316	15,619	16,000

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In January 1997, the Securities and Exchange Commission issued Financial Reporting Release No. 48, which expands the disclosure requirements for certain derivatives and other financial instruments. 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.

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 its products before its 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 preclinical 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.

ACQUISITION

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 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 third quarter of 1998.

As of the date of acquisition, VRI was engaged in the following six significant research and development projects:

1. Adjumer® -- a vaccine delivery system being developed with a collaborator, Aventis, as an adjuvant to enhance the immune response to injected vaccines.
2. Micromer® -- a 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.
3. Vibrio Vec™ -- a vaccine and immunotherapeutic system that uses a bacterial vector for the oral delivery of antigens.
4. Rotavirus vaccine -- a vaccine against rotavirus infection being developed with a collaborator, SmithKline.

5. Herpes vaccine – a vaccine for the prevention of genital herpes.
6. Therapore™ – a novel technology for the development of immunotherapeutics.

As of the acquisition date, the IPR&D value assigned to each project, the estimated cost to reach technological feasibility and the projected product release date was as set forth below:

Project	Adjumer®	Micromer®	Vibrio Vec™	Rotavirus	Herpes	Therapore™
Value Assigned	$15,450,000	$ 3,260,000	$ 2,450,000	$ 3,120,000	$ 2,240,000	$18,110,000
Estimated Cost to Complete	$ 9,500,000	$ 3,300,000	$ 900,000	$ 1,200,000	$ 1,600,000	$41,200,000
Estimated Project Release Date	2001-2004	2002-2004	2003	2002	2007	2004

As of December 31, 1999, 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. In addition, each project will need to successfully complete a series of clinical trials and will need to receive Food & Drug Administration ("FDA") approval prior to commercialization. There can be no assurance 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 acquisition of VRI represents the only purchase of historical IPR&D by AVANT. As of December 31, 1999, 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 issuance of common stock via private placement and public offering.

NEW DEVELOPMENTS

Positive Phase I/II results of AVANT's lead drug candidate, TP10, in patients undergoing lung transplantation were presented in April 1998. Results in these patients showed that TP10 therapy appears safe and well tolerated and demonstrated significant efficacy. TP10 is our product name for sCR1, a therapeutic compound which inhibits the complement system, a key triggering mechanism for the inflammatory response. 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. We received our second option fee payment in November 1998 which initiated year two of the option agreement. 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.

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 will evaluate the ability of TP10 to mitigate the injury to the heart and other organs that occurs when patients are placed on cardiopulmonary bypass circuits.

In August 1998, AVANT announced positive results of our Phase II efficacy study of our vaccine for the prevention of rotavirus disease in infants. Rotavirus is a major cause of acute diarrhea and dehydration in infants for which there are currently no approved vaccines, although several are under development. The rotavirus vaccine is being developed and commercialized in collaboration with SmithKline. Following successful completion of the Phase II trial, SmithKline has assumed responsibility for and funds all subsequent clinical and other development activities. In June 1999, we received

a milestone payment of $500,000 for the successful completion of the Phase II clinical efficacy study and the establishment of a commercially viable process for manufacture of the vaccine. We will be entitled to receive additional milestone payments and royalties on vaccine sales under the agreement which grants SmithKline exclusive worldwide marketing rights to the rotavirus vaccine.

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®-formulated RSV vaccine initiated by Aventis in 1998.

Based on encouraging results from a Phase I clinical trial of the humanized monoclonal antibody, ATM-027, in patients with multiple sclerosis, our collaborator Astra initiated a Phase II clinical trial for ATM-027 in patients with multiple sclerosis in 1998. ATM-027 is one of the products derived from our T cell antigen receptor (TCAR) program, now under development by Astra. In December 1999, we announced results of the Phase II study of ATM-027 which showed that ATM-027 was safe and well tolerated, however, in the view of Astra the reduction of disease activity in the study population did not reach a level that would be of value for those patients. Therefore, Astra made the decision to stop further development of ATM-027 for multiple sclerosis but is reviewing development of the TCAR peptide as a vaccine for multiple sclerosis under the terms of the TCAR agreement.

RESULTS OF OPERATIONS

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® test kits. In August 1999, AVANT sold the TRAx® line of diagnostic products and the TRAx® 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 CETi-1 vaccine and the Phase I/II clinical trial of TP10, both ongoing in 1999, and an increase in expense 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® technology, respectively. Excluding the writeoff 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.

Fiscal Year Ended December 31, 1998 compared with Fiscal Year ended December 31, 1997

AVANT reported a net loss of $51,799,700, or $1.56 per share, for the year ended December 31, 1998, compared to a net loss of $13,108,000, or $0.52 per share, for the year ended December 31, 1997. 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. The net loss for the year ended December 31, 1997 includes a charge of $6,108,800 for the settlement of litigation with our former landlord and the landlord's mortgagee. Excluding the charge for purchased in-process research and development in 1998 and the charge for the settlement of our litigation in 1997, the net loss for 1998 increased 2.4% to $7,169,700, or $0.22 per share, compared to $6,999,200, or $0.28 per share, for 1997. The weighted average common shares outstanding used to calculate the net loss per common share was 33,177,200 in 1998 and 25,139,900 in 1997.

Operating Revenue

Total operating revenue increased $958,300, or 80.4%, to $2,150,400 in 1998 from $1,192,100 in 1997.

Product development and licensing revenue increased $946,900 in 1998, or 82.5%, to $2,094,500 from $1,147,600 in 1997. Product development and licensing revenue in 1998 consisted primarily of a $1,000,000 nonrefundable option fee associated with our agreement with Novartis, a milestone payment of $600,000 from Aventis and $494,500 received in connection with our SBIR grants. In 1997, we recognized $250,000 of a nonrefundable option fee from Novartis in product development and licensing revenue, milestone payments totaling $650,000 from Astra and $247,600 received in connection with our SBIR grants.

Product sales for 1998 and 1997 totaled $55,900 and $44,500, respectively, and were derived from sales of our TRAx® test kits.

Operating Expense

Operating expense of $54,544,300 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. In May 1998, we used cash as collateral for a $750,000 note due November 15, 1999 issued in connection with a settlement agreement with its 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. Operating expense of $14,859,600 for 1997 included a charge of $6,108,800 for the settlement of litigation with our former landlord and the landlord's mortgagee. Excluding the purchased in-process research and development charge in 1998 and the legal settlement in 1997, operating expense increased $1,163,500, or 13.3%, to $9,914,300 for 1998 compared to $8,750,800 for 1997. The increase in operating

expense for 1998 compared to 1997 is primarily due to four months of operations of VRI combined with goodwill amortization expense of $546,400 and the write-off of certain capitalized patent costs relating to our TRAx® technology.

Research and development expense increased $446,200, or 8.5%, to $5,703,100 in 1998 from $5,256,900 in 1997. The increase in 1998 compared to 1997 is primarily due to four months of operations of VRI, partially offset by costs associated with Phase I and Phase I/II clinical trials of TP10 ongoing in 1997.

General and administrative expense increased $335,200, or 9.7%, to $3,808,100 in 1998 compared to $3,472,900 in 1997. Included in general and administrative expense in 1998 is a charge of $294,500 for the write-off of certain capitalized patent costs associated with our TRAx® technology. Reductions in legal costs in 1998 primarily due to the settlement of litigation in 1997 and lower consulting costs in 1998 compared to 1997 were offset by certain general and administrative costs associated with four months of operations of VRI.

Non-Operating Income, Net

Non-operating income, net increased $34,700, or 6.2%, to $594,200 for 1998 compared to $559,500 in 1997. Interest income decreased $5,400, or 0.9%, to $571,900 for 1998 compared to $577,300 for 1997. The reductions in interest income are primarily due to lower cash balances combined with lower interest rates in 1998.

LIQUIDITY AND CAPITAL RESOURCES

AVANT's cash, cash equivalents and marketable securities at December 31, 1999 was $13,619,000 compared to $13,840,300 at December 31, 1998. Cash used in operations was $8,539,100 in 1999 compared to $8,852,000 in 1998 and $7,695,400 in 1997.

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.

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 of the litigation 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 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 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 AVANT 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 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, cash equivalents and short-term investment balance was below $10,000,000. As a result, in accordance with the lease agreement, 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. At December 31, 1999, we had $217,000 pledged as collateral recorded as long-term restricted cash.

AVANT believes that cash inflows from existing collaborations, interest income on invested funds and our current cash and cash equivalents, net of restricted amounts, will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2000 and into the first half of 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, preclinical and clinical studies and the scope of collaborative arrangements. During 2000, 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 issuance of common stock via private placement and public offering.

The statements in the following section include the "Year 2000 Readiness Disclosure" within the meaning of the Year 2000 Information and Readiness Disclosure Act.

YEAR 2000

The "Year 2000" issue affects computer systems that have date sensitive programs that may not properly recognize the year 2000. Systems that do not properly recognize such information could generate data or cause a system to fail, resulting in business interruption. Through the first ten weeks of the year 2000, AVANT's operations are fully functioning and have not experienced any significant issues associated with the Year 2000 problem discussed above. Costs associated with modifications made by AVANT to be Year 2000 compliant were immaterial. There can be no assurance, however, that a failure by another company's system to be Year 2000 compliant would not have a material adverse affect on our business, operating results and financial condition.

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 sheets and the related consolidated statements of income and of cash flows present fairly, in all material respects, the financial position of AVANT Immunotherapeutics, Inc. and its subsidiaries at December 31, 1999 and 1998, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1999, in conformity with accounting principles generally accepted in the United States. 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, 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 the opinion expressed above.

PricewaterhouseCoopers LLP
Boston, Massachusetts
February 14, 1999

CONSOLIDATED BALANCE SHEET

	December 31, 1999	December 31, 1998
ASSETS		
Current Assets:		
Cash and Cash Equivalents	$ 13,619,000	$ 8,937,200
Marketable Securities	—	4,903,100
Current Portion Restricted Cash	—	750,000
Current Portion Lease Receivable	431,700	395,700
Prepaid and Other Current Assets, Net	439,000	629,700
Total Current Assets	14,489,700	15,615,700
Property and Equipment, Net	1,256,800	1,111,400
Restricted Cash	217,000	365,000
Long-Term Lease Receivable	395,700	827,300
Other Assets	3,523,500	4,730,700
Total Assets	$ 19,882,700	$ 22,650,100
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts Payable	$ 575,300	$ 363,700
Accrued Expenses	1,331,500	1,184,700
Deferred Revenue	—	750,000
Short-Term Note Payable	—	750,000
Current Portion Lease Payable	293,700	269,200
Total Current Liabilities	2,200,500	3,317,600
Long-Term Lease Payable	269,200	562,900
Commitments and Contingent Liabilities (Notes 3 and 13)		
Stockholders' Equity:		
Common Stock, $.001 Par Value 75,000,000 Shares Authorized; 48,127,400 Issued and Outstanding at December 31, 1999; 42,512,400 Issued and 42,508,600 Outstanding at December 31, 1998	48,100	42,500
Additional Paid-In Capital	150,710,300	140,777,200
Less: 0 and 3,800 Common Treasury Shares at Cost at December 31, 1999 and 1998, respectively	—	(13,800)
Accumulated Deficit	(133,345,400)	(122,036,300)
Total Stockholders' Equity	17,413,000	18,769,600
Total Liabilities and Stockholders' Equity	$ 19,882,700	$ 22,650,100

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

CONSOLIDATED STATEMENT OF OPERATIONS

	Year Ended December 31, 1999	Year Ended December 31, 1998	Year Ended December 31, 1997
OPERATING REVENUE:			
Product Development and Licensing Agreements	$ 1,483,500	$ 2,094,500	$ 1,147,600
Product Sales	—	55,900	44,500
Total Operating Revenue	1,483,500	2,150,400	1,192,100
OPERATING EXPENSE:			
Research and Development	7,871,800	5,703,100	5,256,900
General and Administrative	4,280,200	3,808,100	3,472,900
Cost of Product Sales	—	22,300	21,000
Charge for Purchased In-Process Research & Development	—	44,630,000	—
Legal Settlement	—	(165,600)	6,108,800
Amortization of Goodwill	1,275,800	546,400	—
Total Operating Expense	13,427,800	54,544,300	14,859,600
Operating Loss	(11,944,300)	(52,393,900)	(13,667,500)
Non-Operating Income, Net	635,200	594,200	559,500
Net Loss	$ (11,309,100)	$ (51,799,700)	$ (13,108,000)
Basic and Diluted Net Loss Per Common Share	$ (0.26)	$ (1.56)	$ (0.52)
Weighted Average Common Shares Outstanding	44,076,400	33,177,200	25,139,900

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

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 1999, 1998 AND 1997

	Shares	Common Stock Par Value	Additional Paid-In Capital	Treasury Stock Cost	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 1996	**24,965,400**	**$ 25,000**	**$ 72,791,800**	**$ (69,000)**	**$ (57,128,600)**	**$ 15,619,200**
Issuance at $1.81 to $2.13 per Share upon Exercise of Stock Options	12,000	—	22,400	—	—	22,400
Employee Stock Purchase Plan Issuance at $1.38 and $1.39 per Share	—	—	(20,700)	33,200	—	12,500
Issuance at $2.50 per Share for Settlement of Litigation	1,500,000	1,500	3,748,500	—	—	3,750,000
Compensation Expense Associated with Issuance at $1.94 per Share	10,000	—	19,400	—	—	19,400
Net Loss for the Year Ended December 31, 1997	—	—	—	—	(13,108,000)	(13,108,000)
Balance at December 31, 1997	**26,487,400**	**$ 26,500**	**$ 76,561,400**	**$ (35,800)**	**$ (70,236,600)**	**$ 6,315,500**
Issuance at $0.60 to $1.81 per Share upon Exercise of Stock Options	11,400	—	15,300	—	—	15,300
Employee Stock Purchase Plan Issuance at $1.65 and $1.94 per Share	—	—	(10,700)	22,000	—	11,300
Returned Shares from Settlement of Litigation at $2.50 per Share	(66,300)	—	(165,600)	—	—	(165,600)
Net Proceeds from Stock Issuance	2,043,500	2,000	3,697,800	—	—	3,699,800
Share Issued for Acquisition of Virus Research Institute, Inc.	14,036,400	14,000	60,679,000	—	—	60,693,000
Net Loss for the Year Ended December 31, 1998	—	—	—	—	(51,799,700)	(51,799,700)
Balance at December 31, 1998	**42,512,400**	**$ 42,500**	**$ 140,777,200**	**$ (13,800)**	**$ (122,036,300)**	**$ 18,769,600**
Issuance at $0.10 to $1.81 per Share upon Exercise of Stock Options	152,100	100	102,000	—	—	102,100
Employee Stock Purchase Plan Issuance at $1.46 to $1.78 per Share	3,500	—	(2,200)	13,800	—	11,600
Net Proceeds from Stock Issuance	5,459,400	5,500	9,833,300	—	—	9,838,800
Net Loss for the Year Ended December 31, 1999	—	—	—	—	(11,309,100)	(11,309,100)
Balance at December 31, 1999	**48,127,400**	**$ 48,100**	**$ 150,710,300**	**$ —**	**$ (133,345,400)**	**$ 17,413,000**

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

CONSOLIDATED STATEMENT OF CASH FLOWS

Increase (Decrease) in Cash and Cash Equivalents	Year Ended December 31, 1999	Year Ended December 31, 1998	Year Ended December 31, 1997
Cash Flows From Operating Activities:			
Net Loss	$ (11,309,100)	$ (51,799,700)	$ (13,108,000)
Adjustments to Reconcile Net Loss to Cash Used by Operating Activities:			
Depreciation and Amortization	1,988,600	989,800	353,800
Write-off of Capitalized Patent Costs	105,900	337,000	51,100
Non-Cash Portion of Litigation Settlement	—	(165,600)	5,250,000
Compensation Expense Associated with Stock Issuance	—	—	19,400
Gain on Sale of Equipment	—	(22,300)	—
Charge for Purchased In-Process Research and Development	—	44,630,000	—
Changes in Assets and Liabilities, Net of Acquisition:			
Current Portion Restricted Cash	750,000	—	(750,000)
Prepaid and Other Current Assets	190,700	(1,529,900)	81,700
Accounts Payable and Accrued Expenses	358,400	(1,291,300)	(343,400)
Deferred Revenue	(750,000)	—	750,000
Lease Receivable	395,600	—	—
Lease Payable	(269,200)	—	—
Net Cash Used by Operating Activities	(8,539,100)	(8,852,000)	(7,695,400)
Cash Flows From Investing Activities:			
Acquisition of Property and Equipment	(688,500)	(294,800)	(76,900)
Proceeds from the Sale of Equipment	—	25,200	—
Redemption of Marketable Securities	4,903,100	4,463,000	—
Increase in Patents and Licenses	(344,200)	(426,000)	(381,200)
Decrease in Long-Term Restricted Cash, Net	148,000	160,000	160,000
Cash Received from Acquisition of Virus Research Institute, Inc.	—	4,391,500	—
Payment of Notes Payable	(750,000)	(750,000)	—
Payment Received on Convertible Note Receivable	—	—	1,802,700
Other	—	57,600	400
Net Cash Provided by Investing Activities	3,268,400	7,626,500	1,505,000
Cash Flows From Financing Activities:			
Net Proceeds from Stock Issuance	9,850,400	3,711,100	12,500
Proceeds from Exercise of Stock Options	102,100	15,300	22,400
Net Cash Provided by Financing Activities	9,952,500	3,726,400	34,900
Increase (Decrease) in Cash and Cash Equivalents	4,681,800	2,500,900	(6,155,500)
Cash and Cash Equivalents at Beginning of Period	8,937,200	6,436,300	12,591,800
Cash and Cash Equivalents at End of Period	$ 13,619,000	$ 8,937,200	$ 6,436,300

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
YEARS ENDED DECEMBER 31, 1999, 1998 and 1997

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, AstraZeneca plc, Yamanouchi Pharmaceutical Co., Ltd., Aventis Pasteur, SmithKline Beecham plc and Heska Corporation.

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. 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. 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 14).

AVANT's cash and cash equivalents at December 31, 1999 was $13,619,000. Our working capital at December 31, 1999 was $12,289,200. We incurred a loss of $11,309,100 for the year ended December 31, 1999. AVANT believes that cash inflows from existing grants and collaborations, interest income on invested funds and our current cash, cash equivalents, and marketable securities will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2000. The working capital requirements of AVANT are dependent on several factors including, but not limited to, the costs associated with research and development programs, preclinical and clinical studies and the scope of collaborative arrangements. During 2000, 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 issuance of common stock via private placement and public offering. There can be no assurances that such efforts will be successful.

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 1,439,496 shares of our common stock at $1.60 per share and a license fee of $3,692,300.

In March 1996, we sold substantially all of the assets of our wholly-owned subsidiary, T Cell Diagnostics, Inc while retaining all rights to the TRAx® product franchise. In August 1999, we sold the TRAx® line of diagnostic products and the TRAx® technology to Innogenetics, Inc. for a combination of cash and future royalty payments.

(B) Basis of Presentation

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

(C) Cash Equivalents and Investments

AVANT considers all highly liquid investments purchased with a maturity of three months or less to be cash equivalents. Short-term investments are those with maturities in excess of three months but less than one year. All cash equivalents and short-term investments have been classified as available for sale and are reported at fair market value with unrealized gains and losses included in stockholders' equity.

In addition to cash equivalents, at December 31, 1998, we had investments in corporate and municipal debt securities that are classified in the balance sheet as held-to-maturity in accordance with the provisions of Statement of Financial Accounting Standards No. 115 ("SFAS 115"), "Accounting for Certain Instruments in Debt and Equity Securities."

Held-to-maturity investments are securities we have the positive intent and ability to hold to maturity. These securities are accounted for at amortized 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, 1999 and 1998, 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. Cash received in advance of activities being performed is recorded as deferred revenue. Nonrefundable milestone fees are recognized when they are earned in accordance with the performance requirements and contractual terms. Revenues from product sales are recorded when the product is shipped.

(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. 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.

(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) 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." The Company adopted the disclosure requirements of

Statement of Financial Accounting Standards No. 123 ("SFAS 123"), "Accounting for Stock-Based Compensation" (see Note 7).

(L) 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.

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, 1999 and 1998, our investments that met the definition of cash equivalents were recorded at cost, which approximated fair value.

Pursuant to the terms of the settlement agreement between AVANT and our former landlord, we pledged as collateral $750,000 at December 31, 1998 (see Note 13). We also have $217,000 and $365,000 pledged as collateral at December 31, 1999 and 1998, respectively, in accordance with the terms of an operating lease (see Note 3).

3. PROPERTY, EQUIPMENT AND LEASES

Property and equipment includes the following:

	December 31, 1999	December 31, 1998
Laboratory Equipment	$ 2,595,400	$ 2,480,000
Office Furniture and Equipment	1,176,800	1,148,200
Leasehold Improvements	938,100	393,600
Property and Equipment, Total	4,710,300	4,021,800
Less Accumulated Depreciation and Amortization	(3,453,500)	(2,910,400)
	$ 1,256,800	$ 1,111,400

Depreciation expense related to equipment and leasehold improvements was approximately $543,100, $267,600 and $224,000 for the years ended December 31, 1999, 1998 and 1997, 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 and $365,000 as long-term restricted cash at December 31, 1999 and 1998, respectively.

Obligations for base rent, net of sublease income, under these and other noncancelable operating leases as of December 31, 1999 are approximately as follows:

Year ending December 31,	2000	$ 741,200
	2001	709,200
	2002	252,100
	Total minimum lease payments	$ 1,702,500

Our total rent for all operating leases (including rent expense net of sublease income) was approximately $804,900, $909,500 and $851,400 for the years ended December 31, 1999, 1998 and 1997, respectively.

4. OTHER ASSETS

Other assets include the following:

	December 31, 1999	December 31, 1998
Capitalized Patent Costs	$ 2,101,300	$ 1,890,300
Accumulated Amortization	(715,300)	(595,500)
Capitalized Patent Costs, Net	1,386,000	1,294,800
Goodwill and Other Intangible Assets, Net of Accumulated Amortization of $1,822,200 and $546,400	2,013,500	3,289,300
Other Non Current Assets	124,000	146,600
	$ 3,523,500	$ 4,730,700

In December 1999 and 1998, in accordance with SFAS 121, we evaluated and subsequently wrote off approximately $105,900 and $294,500 of capitalized patent costs relating to our SMIR program and our TRAx® test kit program, respectively. These writeoffs were included in operating expense as general and administrative expense for the years ended December 31, 1999 and 1998.

Amortization expense for the years ended December 31, 1999, 1998 and 1997 relating to the capitalized costs of purchased licenses, patents and trademarks was approximately $169,700, $175,800 and $129,800, respectively. Goodwill amortization expense for the years ended December 31, 1999 and 1998 was approximately $1,275,800 and $546,400, respectively.

5. ACCRUED EXPENSES

Accrued expenses include the following:

	December 31, 1999	December 31, 1998
Accrued License Fees	$ 8,300	$ 60,000
Accrued Payroll and Employee Benefits	333,200	258,700
Accrued Clinical Trials	409,200	195,500
Accrued Legal	138,100	263,800
Other Accrued Expenses	442,700	406,700
	$ 1,331,500	$ 1,184,700

6. INCOME TAXES

	Year Ended December 31, 1999	1998	1997
Income tax benefit:			
Federal	$ 3,628,500	$17,640,500	$ 4,539,100
State	189,000	3,141,500	529,000
	3,817,500	20,782,000	5,068,100
Deferred tax assets valuation allowance	(3,817,500)	(20,782,000)	(5,068,100)
	$ —	$ —	$ —

Deferred tax assets are comprised of the following:

	December 31, 1999	December 31, 1998
Net Operating Loss Carryforwards	$ 39,851,000	$ 36,821,000
Tax Credit Carryforwards	4,742,000	4,427,000
Other	645,000	172,000
Gross Deferred Tax Assets	45,238,000	41,420,000
Deferred Tax Assets Valuation Allowance	(45,238,000)	(41,420,000)
	$ —	$ —

Reconciliation between the amount of reported income tax expenses and the amount computed using the U.S. Statutory rate of 35% follows:

	1999	1998	1997
Loss at Statutory Rates	$ (3,866,800)	$(17,612,200)	$ (4,587,800)
Research and Development Credits	(200,000)	(218,700)	(172,100)
State tax benefit, net of federal tax liabilities	(747,200)	(514,000)	(591,500)
Other	438,300	190,400	283,300
Expiration of State NOLS	558,200	170,800	—
In Process R&D	—	15,174,200	—
Benefit of losses and credits not recognized, increase in valuation allowance	3,817,500	2,809,500	5,068,100
	$ —	$ —	$ —

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, 1999, we had U.S. net operating loss carryforwards of $104,000,000, U.S. capital loss carryforwards of $1,852,000, and U.S. tax credits of $3,467,000 which expire at various dates through 2019.

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.

7. STOCKHOLDERS' EQUITY

(A) Public and Private Stock Offerings

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.

On March 24, 1998, we completed a private placement of 2,043,500 newly issued shares of common stock. Net proceeds were approximately $3,699,800 after deducting all associated expenses.

(B) Preferred Stock

At December 31, 1999 and 1998, 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 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, 1999 and 1998.

(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, 1999 are as follows:

Security	Number of Shares	Exercise Price Per Share	Expiration Date
Common stock	35,657	$ .62	February 9, 2004
Common stock	76,842	1.26	December 14, 2005
Common stock	17,050	6.19	April 12, 2001
Common stock	1,811,843	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 replaces 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. All options vested either on the first anniversary date or over a four year period and 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). The exercise price of stock options shall not 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 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.

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.

A summary of stock option activity for the years ended December 31, 1999, 1998 and 1997 is as follows:

	1999		1998		1997	
	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,	3,354,708	$ 2.65	1,773,242	$ 3.20	2,303,196	$ 5.94
Granted	557,500	1.60	638,250	1.99	492,750	1.77
Assumed in acquisition	—	—	1,532,055	2.34	—	—
Exercised	(152,056)	0.67	(11,355)	1.34	(12,000)	1.86
Canceled	(621,593)	3.76	(577,484)	2.82	(1,010,704)	8.78
Outstanding at December 31,	3,138,559	$ 2.34	3,354,708	$ 2.65	1,773,242	$ 3.20
At December 31,						
Options exercisable	2,091,562		2,542,950		1,039,437	
Available for grant	2,833,818		1,095,206		1,296,716	
Weighted average fair value of options granted during year		$ 0.83		$ 1.10		$ 0.92

The following tables summarize information about the stock options outstanding at December 31, 1999:

	Options Outstanding		
Range of Exercise Prices	Number Outstanding at December 31, 1999	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price per Share
$ 0.30 – 0.64	556,062	4.46	$ 0.63
0.95 – 1.67	579,477	8.83	1.47
1.81 – 2.06	686,210	8.23	1.91
2.44 – 3.59	720,063	6.41	2.75
3.81 – 7.81	596,747	4.98	4.77
$ 0.30 – 7.81	3,138,559	6.64	$ 2.34

	Options Exercisable	
Range of Exercise Prices	Number Exercisable at December 31, 1999	Weighted Average Exercise Price per Share
$ 0.30 – 0.64	556,062	$ 0.63
0.95 – 1.67	115,291	1.58
1.81 – 2.06	225,711	1.88
2.44 – 3.59	597,751	2.79
3.81 – 7.81	596,747	4.77
$ 0.30 – 7.81	2,091,562	$ 2.62

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, 1999, 1998 and 1997 would be as follows:

	1999	1998	1997
Net Loss:			
As reported	$ 11,309,100	$ 51,799,700	$ 13,108,000
Pro forma	11,416,700	52,150,800	13,514,100
Basic and Diluted Net Loss Per Share:			
As reported	$ 0.26	$ 1.56	$ 0.52
Pro forma	0.26	1.57	0.54

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:

	1999	1998	1997
Expected dividend yield	0%	0%	0%
Expected stock price volatility	63%	63%	57%
Risk-free interest rate	5.0% - 6.1%	4.5% - 5.6%	5.5% - 6.4%
Expected option term	2.5 Years	2.5 Years	2.7 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 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, 1999 and 1998, 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 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 14).

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 $221,500, $100,000 and $65,000 for the years ended December 31, 1999, 1998 and 1997, respectively.

9. PRODUCT DEVELOPMENT AND DISTRIBUTION AGREEMENTS

AVANT's product development revenues were received from contracts with different organizations. Total revenue received by us in connection with these contracts for the years ended December 31, 1999, 1998 and 1997 were approximately $1,483,500, $2,094,500 and $1,147,600, 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) SmithKline Beecham

During 1997, AVANT entered into an agreement with SmithKline Beecham 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) AstraZeneca

In 1992, we entered into a product development and distribution agreement with AstraZeneca plc ("Astra"), a worldwide pharmaceutical company headquartered in Sodertalje, Sweden, for the joint development and marketing of therapeutic products using our proprietary T cell antigen receptor ("TCAR") technology. The products developed exclusively and jointly with Astra were monoclonal antibodies and protein-derived immunomodulators that may have efficacy in treating autoimmune diseases such as multiple sclerosis, Crohn's disease, and rheumatoid arthritis.

In 1996, we suspended further internal funding of the research and development of the TCAR program and further amended our agreement with Astra to transfer some of our rights to the TCAR technology to Astra in addition to sole responsibility for further development and commercialization of the TCAR technology. Under the amended agreement, we received an initial signing fee of $100,000 and could receive future milestone and royalty payments upon Astra's successful development and commercialization of the TCAR technology. In 1997, we recognized revenue from milestone payments from Astra of $650,000.

In December 1999, we announced results of a Phase II study of the TCAR monoclonal antibody (ATM-027) being developed by Astra for the treatment of multiple sclerosis. The results showed that ATM-027 was safe and well tolerated, however, in the view of Astra, the reduction of disease activity in the study population did not reach a level that would be of value for those patients. Therefore, Astra made the decision to stop further development of ATM-027 for multiple sclerosis but is reviewing development of the TCAR peptide as a vaccine for multiple sclerosis under the terms of the TCAR agreement.

(D) 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®-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®-formulated vaccines directed against five other pathogens, including pneumococcus and RSV. We have retained rights to make, use, sell and license Adjumer®-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®-formulated vaccine for RSV.

(E) Heska Corporation

In January 1998, AVANT entered into an agreement with Heska Corporation ("Heska") whereby Heska was granted the right to use PCPP in specified animal health vaccines. The agreement provides for the payment of license fees, milestone and royalties based on net sales of PCPP-formulated animal vaccines. In September 1999, we received a payment from Heska for the achievement of a major milestone in efforts to develop and utilize the PCPP polymer as an adjuvant in Heska's animal health vaccine against *B. henselae*, the bacterium that causes Cat Scratch Disease in humans.

10. NON-OPERATING INCOME

Non-operating income includes the following:

	Year Ended December 31,		
	1999	1998	1997
Interest and Dividend Income	$ 635,200	$ 571,900	$ 577,300
Gain on Sale of Equipment	—	22,300	—
Loss on Sale of Investments	—	—	(17,800)
	$ 635,200	$ 594,200	$ 559,500

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 1999. 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 $30,100, $20,100 and $20,600 for the years ended December 31, 1999, 1998 and 1997, 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, 1999	$ —	$ —	$ —	$ —	$ —
December 31, 1998	5,000	31,000	—	20,000	56,000
December 31, 1997	5,000	29,000	—	11,000	45,000

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 and respiratory irritation to a significant number of employees. The landlord defendant filed counterclaims, alleging we breached our lease obligations. The court ordered a limited trial between AVANT and the landlord on factual issues which began on November 20, 1996. Closing arguments for the limited trial were heard on January 13, 1997. In a separate lawsuit, the landlord's mortgagee filed claims against AVANT for payment of the same rent alleged to be owed. A motion for summary judgment filed by the bank was denied by the court. 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, as alleged by us, that any fireproofing fibers contaminated our space, our space was not uninhabitable because of contamination from fireproofing fibers and we were not justified in terminating its lease on the grounds that our office and laboratories were uninhabitable. 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 and is included in operating expense for the year ended December 31, 1997. The common stock issued is subject to restrictions on transfer per the settlement agreement. The settlement agreement also provides for specific registration rights for the shares of common stock to become effective no later than September 30, 1998. Upon such registration, however, the settlement agreement 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 a 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 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, the Company 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 the acquisition date have been included in our consolidated results of 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:	
Work force	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® vaccine delivery system.* Adjumer® 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®-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® vaccine delivery system. (ii) *Micromer® vaccine delivery system.* Micromer® 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®-formulated vaccines, including influenza and RSV. As of the acquisition date, the estimated cost to complete the development of Micromer®-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 value of $3,260,000 which was assigned to Micromer®. (iii) *Vibrio Vec™ vaccine delivery system.* Vibrio Vec™ 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™, 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™ 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™ 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 preclinical 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™*. AVANT was granted an exclusive worldwide license from Harvard for Therapore™, a novel technology for the development of immunotherapeutics. We are conducting preclinical 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™ product is estimated to be in 2004 and the projected research and development cost to complete all indications of Therapore™ 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™.

As of December 31, 1999, 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 and 1997, 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 $44,630,000, are not reflected in the following pro forma financial summary.

Year Ended December 31,	1998	1997
Operating Revenue	$ 2,206,500	$ 3,697,600
Net Loss	(13,389,800)	(21,311,500)
Basic and diluted net loss per share	(0.32)	(0.54)

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 1 - Election of Directors" and "Management" in the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 8, 2000, is hereby incorporated by reference.

Item 11. EXECUTIVE COMPENSATION

The information under the Section "Management" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 8, 2000, is hereby incorporated by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The information under the Section "Beneficial Ownership of Common Stock" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 8, 2000, is hereby incorporated by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information under the Sections "Proposal 1 - Election of Directors" and "Management" of the Registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on May 8, 2000, 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)
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)
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)
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)
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)
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)
4.1	Shareholder Rights Agreement dated November 10, 1994 between the Company and State Street Bank and Trust Company as Rights Agent	Filed herewith
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)
10.1	Amended and Restated 1991 Stock Compensation Plan dated as of April 1, 1995	Incorporated by reference to the Company's Annual Report on Form 10K for the fiscal year ended December 31, 1995
10.2	1994 Employee Stock Purchase Plan	Incorporated by reference to the Company's Registration Statement on Form S-8 filed June 8, 1994
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	Filed herewith
10.5	Performance Plan of the Company	Filed herewith
10.6	Form of Agreement relating to Change of Control	Filed herewith
10.7	Termination Agreement between the Company and SmithKline Beecham p.l.c. relating to sCR1 dated April 7, 1995, portions of which are subject to confidential treatment	Incorporated by reference to the Company's report on Form 8-K filed April 27, 1995

10.8	Pledge Agreement between the Company and Fleet Credit Corporation dated October 24, 1995	Incorporated by reference to the Company's report on Form 10-Q for the quarter period ended September 30, 1995
10.9	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
10.10	Second Amended and Restated Product Development and Distribution Agreement between Astra AB and the Company dated May 1, 1996, portions of which are subject to confidential treatment	Incorporated by reference to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1996
10.11	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
10.12	Option Agreement by and between the Company and Novartis Pharma AG dated as of October 31, 1997, portions of which are subject to confidential treatment	Incorporated by reference to the Company's report on Form 10-Q/A for the quarterly period ended September 30, 1997
10.13	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
10.14	Lease dated December 1, 1996 between Virus Research institute, Inc. and Moulton Realty Company as amended.	Filed herewith.
10.15	License Agreement dated as of May 1, 1992 between Virus Research Institute, Inc. and the President and Fellows of Harvard College ("Harvard") as amended.	Filed herewith.
10.16	License and Clinical Trials Agreement dated as of February 27, 1995 between Virus Research Institute, Inc. and The James N. Gamble Institute of Medical Research (assigned to Children's Hospital of Cincinnati).	Filed herewith.
10.17§	License Agreement dated December 6, 1991 between Virus Research Institute, Inc. and Massachusetts Institute of Technoloby	Filed herewith.
10.18§	License Agreement dated as of December 13, 1994 between Virus Research Institute, Inc. and Pasteur Merieux Serums & Vaccins S.A. ("Pasteur Merieux").	Filed herewith.
10.19§	License Agreement dated as of August 2, 1995 between Virus Research Institute, Inc. and Pasteur Merieux.	Filed herewith.
10.20§	License Agreement dated as of December 1, 1997 between Virus Research Institute, Inc. and SmithKline Beecham PLC.	Filed herewith.
10.21§	License Agreement dated as of March 28, 1997 among Virus Research Institute, Inc. and Harvard.	Filed herewith.
21.0	List of Subsidiaries	Filed herewith
23.0	Consent of Independent Accountants	Page 333
27.0	Financial Data Schedule	Page 334

§ Confidential treatment requested.

(B) Reports on Form 8-K.

AVANT did not file any current reports on Form 8-K during the last quarter of the period covered by this Form 10-K.

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 15, 2000

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 15, 2000
s/UNA S. RYAN (Una S. Ryan)	President, Chief Executive Officer, and Director	March 15, 2000
s/AVERY W. CATLIN (Avery W. Catlin)	Senior Vice President, Chief Financial Officer and Treasurer	March 15, 2000
s/FREDERICK W. KYLE (Frederick W. Kyle)	Director	March 15, 2000
s/JOHN W. LITTLECHILD (John W. Littlechild)	Director	March 15, 2000
s/THOMAS R. OSTERMUELLER (Thomas R. Ostermueller)	Director	March 15, 2000
s/HARRY H. PENNER, JR. (Harry H. Penner, Jr.)	Director	March 15, 2000
s/PETER A. SEARS (Peter A. Sears)	Director	March 15, 2000