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SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark one)

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

For the fiscal year ended December 31, 2003

or

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

Commission File Number 0-15006

AVANT IMMUNOTHERAPEUTICS, 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 ☒ No o

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. o

Indicate by check mark whether the registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2). Yes ☒ No o

The aggregate market value of common stock held by non-affiliates as of June 30, 2003 was $67,713,408 (excludes shares held by directors and executive officers). Exclusion of shares held by any person should not be construed to indicate that such person possesses the power, direct or indirect, to direct or cause the actions of the management or policies of the registrant, or that such person is controlled by or under common control with the registrant. The number of shares of common stock outstanding at March 1, 2004 was: 73,959,121 shares.

Certain information contained in the registrant's proxy statement relating to its annual meeting of stockholders to be held on May 13, 2004 is incorporated by reference in Part III, Items 10, 11, 12 and 13.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995: *This report on Form 10-K contains forward-looking statements within the meaning of the federal securities laws. You can identify forward-looking statements by the use of the words "believe," "expect," "anticipate," "intend," "estimate," "project," "will," "should," and other expressions which predict or indicate future events and trends to and which do not relate to historical matters. You should not rely on forward-looking statements, because they involve known and unknown risks, uncertainties and other factors, some of which are beyond the control of the Company. These risks, uncertainties and other factors may cause the actual results, performance or achievements of the Company to be materially different from the anticipated future results, performance or achievements expressed or implied by the forward-looking statements.*

Some of the factors that might cause these differences include the following: (1) the integration of multiple technologies and programs; (2) the ability to adapt AVANT's vectoring systems to develop new, safe and effective orally administered vaccines against anthrax and plague or other bioterrorism threats or emerging health care threats; (3) the ability to successfully complete development and commercialization of TP10, CETi-1, CholeraGarde™ (Peru-15), Ty800 and other products; (4) the cost, timing, scope and results of ongoing safety and efficacy trials of TP10, CETi-1, CholeraGarde™ (Peru-15), Ty800 and other preclinical and clinical testing; (5) the ability to successfully complete product research and further development, including animal, pre-clinical and clinical studies of TP10, CETi-1, CholeraGarde™ (Peru-15), Ty800 and other products; (6) the ability of the Company to manage multiple late stage clinical trials for a variety of product candidates; (7) the volume and profitability of product sales of Megan®Vac 1, Megan®Egg and other future products; (8) changes in existing and potential relationships with corporate collaborators; (9) the availability, cost, delivery and quality of clinical and commercial grade materials supplied by contract manufacturers; (10) the timing, cost and uncertainty of obtaining regulatory approvals to use TP10, CETi-1, CholeraGarde™ (Peru-15) and Ty800, among other purposes, for adults undergoing cardiac surgery, to raise serum HDL cholesterol levels and to protect travelers and people in endemic regions from diarrhea causing diseases, respectively; (11) the ability to obtain substantial additional funding; (12) the ability to develop and commercialize products before competitors; (13) the ability to retain certain members of management; and (14) other factors detailed from time to time in filings with the Securities and Exchange Commission. In addition, the factors described under "Risk Factors" in this report may result in these differences. You should carefully review all of these factors. These forward-looking statements were based on information, plans and estimates at the date of this report, and we do not promise to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.

PART I

Item 1. BUSINESS

A. General

As used herein, the terms "we", "us", "our", or "AVANT" refer to AVANT Immunotherapeutics, Inc., a Delaware corporation organized in 1983. We are a biopharmaceutical company that uses novel applications of immunology to develop products for the prevention and treatment of diseases. We are developing a broad portfolio of vaccines and immunotherapeutics addressing a wide range of applications including cardiovascular disease, bacterial and viral diseases, biodefense and food safety. These include single-dose, oral vaccines that protect against important disease-causing agents, a novel, proprietary vaccine candidate for cholesterol management, and a treatment to reduce complement-mediated tissue damage associated with cardiac by-pass surgery. Our strategy is to demonstrate proof-of-concept for our product candidates before leveraging their value through partnerships or, in appropriate situations, continuing late stage development ourselves. Demonstrating proof-of-concept for a product candidate generally involves bringing it through Phase I clinical trials and one or more Phase II clinical trials so that we are able to demonstrate, based on human trials, good safety data for the product candidate and some data indicating its effectiveness. Our

current collaborations encompass the development of an oral human rotavirus vaccine, vaccines to combat threats of biological warfare, and vaccines addressed to human food safety and animal health. Our product candidates address large market opportunities for which we believe current therapies are inadequate or non-existent.

The Company's web site is located at http://www.avantimmune.com. On the Company's web site, investors can obtain a copy of the Company's annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act of 1934, as amended, as soon as reasonably practicable after the Company files such material electronically with, or furnishes it to, the Securities and Exchange Commission.

Our focus is on using the power of the immune system to prevent and treat disease. We have assembled a broad portfolio of technologies and intellectual property that we believe will give us a strong competitive position in vaccines and immunotherapeutics. This portfolio includes:

- *Cholera*- and *Salmonella*-vectored vaccine delivery technologies;
- patent rights directed to a rotavirus strain;
- technology supporting our CETi-1 product candidate, which is aimed at increasing levels of HDL, or "good" cholesterol;
- our VitriLife® patented drying system for the preservation of proteins, cells, bacteria and viruses; and
- technology and patents for the complement inhibitor sCR1 (TP10).

We currently have six products in clinical development. Our goal is to become a leading developer of innovative vaccines and immunotherapeutics that address health care needs on a global basis. Our success has depended and will continue to depend upon many factors, including our ability and that of our licensees and collaborators to successfully develop, obtain regulatory approval for and commercialize our product candidates. To date, we have had no commercial revenues from sales of our human therapeutic or vaccine products and a history of operating losses. It is possible that we may not be able to successfully develop, obtain regulatory approval for or commercialize our product candidates, and we are subject to a number of risks that you should be aware of before investing in our company. These risks are disclosed more fully in "Risk Factors."

AVANT is targeting its efforts where it can add the greatest value to the development of its products and technologies. Our goal is to demonstrate clinical proof-of-concept for each product, and then seek partners to help see those products through to commercialization. This approach allows us to maximize the overall value of our technology and product portfolios while best ensuring the expeditious development of each individual product.

In January 2003, we acquired the technology and intellectual property portfolio of Universal Preservation Technologies, Inc. ("UPT"), a privately held company based in San Diego, California, and licensed certain patent rights from Elan Drug Delivery Limited (formerly a subsidiary of Elan Corporation plc, now Quadrant plc). Through this transaction, AVANT has gained exclusive rights to UPT's VitriLife® process for use in AVANT's oral vaccines and certain other non-injectable applications.

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

On August 21, 1998, we acquired Virus Research Institute, Inc. ("VRI"), a Delaware corporation, 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.

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

Our products derive from a broad set of complementary technologies with the ability to utilize the human immune system and enable the creation of preventative and therapeutic agents. We are using these technologies to develop vaccines and immunotherapeutics that prevent or treat disease caused by infectious organisms, and treatment vaccines that modify undesirable activity by the body's own proteins or cells. 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
Immunotherapeutics	TP10	Cardiac by-pass surgery	—	Phase IIb
	CETi-1	Cholesterol management	—	Phase II
Bacterial Vaccines				
Global Health	CholeraGarde™	Cholera	IVI	Phase IIb
	Ty800	Typhoid fever	NIH	Phase I/II
Travelers'	ETEC	Enterotoxigenic E coli infection	—	Pre-clinical
	Shigella	Dysentery	—	Pre-clinical
	Campylobacter	*Campylobacter infection*	—	Pre-clinical
BioDefense	Injectable Anthrax Oral Anthrax & Plague	Anthrax infection Anthrax & Plague infections	DoD/DVC DoD/DVC and NIH	Phase I Pre-clinical
Food Safety and Animal Health	Megan®Vac 1	*Salmonella* infection in chicken	Lohmann	Marketed
	Megan®Egg	Salmonella infection in laying hens and eggs	Lohmann	Marketed
	Other Food Safety and Animal Health Vaccines	Bacterial contamination of food sources and animal health	Pfizer	Pre-clinical
Viral Vaccines	Rotarix® Therapore®	Rotavirus infection Viral infection — HIV — Hepatitis	GlaxoSmithKline US Army —	Phase III Pre-clinical Pre-clinical

B. Strategy

AVANT's strategy is to utilize our expertise to design and develop vaccines and immunotherapeutics 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. Our goal is to demonstrate clinical proof-of-concept for each product, and then seek partners to help see those products which we can not develop ourselves through to commercialization. This approach lets us maximize the overall value of our technology and product portfolios while best ensuring the expeditious development of each individual product. Implementation of this strategy is exemplified by the following lead programs:

Rotavirus Vaccine: Rotavirus is a major cause of diarrhea and vomiting in infants and children in the U.S. and Europe and a cause of significant infant mortality worldwide. No vaccine against rotavirus is currently on the market. We licensed an oral vaccine for rotavirus from a non-profit institution and initiated a Phase I clinical trial with the goal of licensing the vaccine to a major vaccine company. After completing Phase I studies and commencing a Phase II study, we licensed the vaccine to GlaxoSmithKline plc ("Glaxo"). The initial license fee from Glaxo partially funded our Phase II study. In 1999, after the study demonstrated 89% protection in a study involving 215 infants, Glaxo paid us an additional license fee and assumed full responsibility for funding and performing all remaining clinical development. Glaxo initiated Phase III global clinical trials in the third quarter of 2003 of its investigational rotavirus vaccine, Rotarix®, a two-dose oral rotavirus vaccine which has been shown to be helpful in preventing rotavirus gastroenteritis disease in young children for at least two years

following administration. Assuming product development and commercialization continues satisfactorily, we expect that Glaxo will pay us additional milestones and a royalty based on sales.

Complement Inhibitors: We are developing a new class of therapeutics that inhibits the complement system, a key triggering mechanism for the body's inflammatory response. Medical problems that result from excessive complement activation represent multi-billion dollar market opportunities. These include reperfusion injury, the vascular and tissue damage that occurs following a heart attack, stroke or surgical procedure where the patient's blood supply is shut off and then restored; hyperacute or chronic organ rejection following transplantation; acute inflammatory injury to the lungs and autoimmune diseases. We have developed a lead compound, TP10, for cardiac surgery.

In February 2002, AVANT announced that TP10 had not achieved a significant reduction in the primary endpoint of death, myocardial infarction, prolonged intubation or prolonged intra-aortic balloon pumping following preliminary analysis of a Phase II adult cardiac surgery trial conducted in 564 patients. However, further analysis of the study data demonstrated an important treatment benefit to male patients participating in the trial, with no significant treatment benefit to female patients. Adverse events reported following treatment with TP10 were generally similar to those seen in placebo treated patients and were said by investigators to be routinely observed following cardiopulmonary bypass surgery.

The important treatment benefits seen in the male population were directly related to mortality and the benefit seen was impressive. This further analysis of the study data showed continued promise for this molecule and AVANT has renewed its commitment to TP10's development. Results of this Phase II adult trial were presented at the American Heart Association's Annual Meeting in November 2003.

In February 2004, AVANT announced plans to start a Phase IIb double-blind, placebo-controlled trial of TP10 in approximately 300 women undergoing cardiopulmonary by-pass surgery. The trial will examine the effect of TP10 versus placebo, will conclude around year-end 2004, and will be conducted at approximately 25 sites throughout the United States. The goals of the trial are to clarify the effect that TP10 has for women undergoing cardiac surgery, as well as augment the safety data for that patient population to allow for the design of a subsequent registration-directed trial.

Cholesterol Management 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). We believe that a therapeutic vaccine that increases HDL with one or two injections a year would present a substantial market opportunity. In pre-clinical studies in rabbits, the CETi-1 vaccine increased HDL levels and significantly reduced atherosclerotic lesions in blood vessels as compared to an untreated control group. Our pre-clinical work on the vaccine was partially funded by almost $1 million in Small Business Innovation Research ("SBIR") grants.

AVANT completed a Phase I clinical trial in late 2000 and results indicated that the vaccine was well tolerated in the 48 adult volunteers who participated in the study. The Phase I clinical study and its extension demonstrated an acceptable safety profile for the CETi-1 vaccine, as well as showed its ability to elicit antibody titers against CETP and suggested a dose-response relationship. In October 2003, AVANT completed a 200 patient placebo-controlled Phase II efficacy study of the CETi-1 vaccine in patients with low levels of HDL cholesterol. The results of the study demonstrated proof-of-concept in humans confirming that blocking cholesterol transfer could raise HDL levels. In addition, the CETi-1 vaccine worked as designed to elicit anti-CETP antibodies in a high percentage of patients treated, approximately 90%. AVANT is continuing to evaluate the next steps for development of this vaccine, including the use of new adjuvants to elicit a more robust antibody response. We plan to seek a corporate partner to complete development and to commercialize the CETi-1 vaccine.

Bacterial Vaccines: AVANT is developing a series of single-dose, genetically-attenuated, live bacterial vaccines to prevent diarrhea and dysentery. These diarrheal vaccines are targeted to address the U.S. and European travelers' market as well as the healthcare requirements of developing countries, where for example the need for cholera and typhoid fever vaccines is particularly acute. We believe that vaccines for the travelers' market are appropriate indications for a small company such as AVANT to pursue independently with our own sales and marketing effort in the United States and with partners outside the United States.

We are developing a single dose, oral cholera vaccine using a live, genetically attenuated cholera strain. Based on this technology, discovered in academia, we have developed the vaccine through early Phase II trials. During 2001, AVANT announced results of a Phase IIb clinical trial conducted by the Walter Reed Army Institute of Research ("WRAIR") and the National Institutes of Health (the "NIH") with our investigational vaccine against cholera, called CholeraGarde™. Results of that study demonstrated the ability of AVANT's vaccine candidate to provide complete protection against moderate and severe diarrhea in vaccinated individuals challenged with live, virulent cholera. During 2002, AVANT completed a Phase II dose-ranging study with CholeraGarde™ which confirmed the safety and activity of this vaccine and supported the start of trials in December 2002 with the International Vaccine Institute ("IVI") in Bangladesh, where cholera is endemic. In January 2004, we announced positive preliminary results of the adult portion from the Phase II clinical trial of CholeraGarde™ in Bangladesh. In 70 adult subjects, enrolled as part of this ongoing study that is assessing the safety and immunogenicity of the vaccine in adults prior to moving into progressively younger pediatric populations, vaccination with the single-dose, oral cholera vaccine was well tolerated. Moreover, over 70% of the vaccinated adults responded with a favorable immune response. The study will complete in the second half of 2004.

Based on the similar technology, AVANT has designed its Ty800 vaccine to offer rapid, single-dose protection against *Salmonella typhi*, the cause of typhoid fever. The National Institute of Allergy and Infectious Disease (the "NIAID") of the NIH and AVANT have entered into a cooperative agreement for the NIAID to conduct a Phase I in-patient dose ranging clinical trial aimed at demonstrating the safety and immunogenicity of the Ty800 typhoid fever vaccine. The NIAID trial seeks to confirm the

safety and immunogenicity of the Ty800 oral vaccine observed in an earlier physician sponsored Ty800 vaccine study. We are also developing additional bacterial vaccines to prevent infection with *Shigella*, enterotoxigenic *E. coli* and *Campylobacter*—all important causes of severe diarrheal illness.

The attenuated live bacteria used to create AVANT's single-dose oral vaccines also can serve as vectors for the development of vaccines against other bacterial and viral diseases. By engineering key disease antigens into the DNA of the vector organisms, AVANT expects to be able to extend the protective ability of its single-dose oral vaccines to a wide variety of illnesses. We believe our vector technologies may prove useful for improving and expanding America's vaccine arsenal against microbial agents used in war or terrorist attacks. In this regard, AVANT has entered into two agreements with DynPort Vaccines Company LLC ("DVC") to utilize AVANT's vectored vaccine technologies to develop an injectable anthrax vaccine and an oral combination vaccine against anthrax and plague. Further, in October 2002, DVC announced the initiation of a Phase I clinical trial of a new injectable recombinant anthrax vaccine.

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. Bacterial Vaccine Development Programs

Overview

Modern biotechnology offers great potential for bettering health conditions worldwide. New vaccine technologies, in particular, can provide avenues to disease prevention and treatment with notable advantages over drugs in terms of patient compliance and cost. They also offer strategies to solve global health problems, to protect both civilians and the military from biowarfare threats, and to increase the safety of our food supply. Our goal is to become a leading developer of innovative vaccines that address health care needs on a global basis. In this regard, we acquired VitriLife®, a new technology with the potential to reduce manufacturing costs and improve product stability, eliminating the need for vaccine refrigeration. With this technology and our *Cholera*- and *Salmonella*-vectored delivery technologies, named VibrioVec™ and SalmoVec™, we can now develop a new generation of vaccines that have an ideal product profile: safe and effective, oral, single-dose, rapidly protective and requiring no refrigeration.

AVANT is developing a series of single-dose, genetically-attenuated, live bacterial vaccines to protect travelers and endemic populations from diarrhea and dysentery. AVANT's single-dose oral vaccine technology is currently addressed to serious bacterial diseases, but combines the advantages of rapid onset of protection with the flexibility to address a variety of different causes of disease. The attenuated live bacteria used to create these vaccines can also serve as vectors for the development of vaccines against other bacterial and viral diseases. By engineering key disease antigens into the DNA of the vector organisms, AVANT can extend the protective ability of its single-dose oral vaccines to a wide variety of illnesses. Thus, our vector technologies may prove useful for improving and expanding America's vaccine arsenal against microbial agents used in war or terrorist attacks. AVANT has also partnered with Pfizer Inc ("Pfizer"), who will apply AVANT's vaccine technology to animal health and human food safety markets.

In August 2003, the Company reached agreement with MassDevelopment, an economic development entity for the Commonwealth of Massachusetts, for AVANT to occupy and build-out a process development and pilot-manufacturing facility in Fall River, Massachusetts. AVANT is establishing this 11,800 square foot facility to support the clinical development of its portfolio of

bacterial vaccines, including vaccines for biodefense, as well as the continued development and product application of the VitriLife® technology.

1. Global Health

AVANT's oral, bacterial vaccine technology can address the healthcare requirements of developing countries, where, for example, the need for cholera and typhoid vaccines is particularly acute. These vaccine technologies may provide avenues to disease prevention and treatment with notable advantages over drugs in terms of ease of use, patient compliance, thermostability and cost. Thus, they may offer strategies to solve global health problems.

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, CholeraGarde™ (or Peru-15), were administered to more than 75 human 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 NIAID of the NIH also signed a Clinical Trial Agreement that allowed for the clinical evaluation of the Peru-15 vaccine formulation at Children's Hospital in Cincinnati. AVANT and WRAIR have successfully manufactured clinical supplies of the vaccine at WRAIR's facility for use in the study.

The Phase IIb trial, which began in October 2000 at the Children's Hospital in Cincinnati, tested the safety, immunogenicity and protective capacity of the vaccine against a challenge with live virulent cholera. Results of the study demonstrated the ability of AVANT's vaccine candidate, CholeraGarde™, to provide complete protection against the trial's primary endpoint, moderate and severe diarrhea. During 2002, AVANT completed a Phase II dose-ranging study with CholeraGarde™ which confirmed the safety and activity of this vaccine and supported the start of trials in December 2002 with the IVI in Bangladesh where cholera is endemic. In January 2004, we announced positive preliminary results of the adult portion from the Phase II clinical trial of CholeraGarde™ in Bangladesh. In 70 adult patients, enrolled as part of this ongoing study that is assessing the safety and immunogenicity of the vaccine in adults prior to moving into progressively younger pediatric populations, vaccination with the single-dose, oral cholera vaccine was well tolerated. Moreover, over 70% of the vaccinated adults responded with a favorable immune response. The study will complete in the second half of 2004.

AVANT has developed an oral vaccine to offer rapid, single-dose protection against *Salmonella typhi*, the cause of typhoid fever. The NIAID and AVANT have entered into a cooperative agreement for the NIAID to conduct a Phase I in-patient dose ranging clinical trial aimed at demonstrating the safety and immunogenicity of the Ty800 typhoid fever vaccine. The trial is planned for an NIAID funded clinical site using NIAID funded clinical material. The NIAID trial seeks to confirm the safety and immunogenicity of the Ty800 oral vaccine observed in an earlier physician sponsored Ty800 vaccine study.

2. Travelers' Vaccines

With our acquisition of Megan Health in 2000, AVANT gained access to technologies for developing vaccines against *Campylobacter* and enterotoxigenic *E. coli* (ETEC). When combined with our existing *Shigella* vaccine program, AVANT now has three travelers' vaccine programs in pre-clinical development—all addressing important causes of serious diarrheal diseases worldwide. AVANT is pursuing a strategy to develop a combination travelers' vaccine from these programs. In 2004, we expect to allocate resources to further the development of a two-vaccine combination product containing ETEC and Campylobacter addressed to the travelers' market.

3. BioDefense Vaccine Programs

The attenuated live bacteria used to create AVANT's single-dose oral vaccines also can serve as vectors for the development of vaccines against other bacterial and viral diseases. By engineering key disease antigens into the DNA of the vector organisms, AVANT expects to be able to extend the protective ability of its single-dose oral vaccines to a wide variety of illnesses. We believe our vector technologies may prove useful for improving and expanding America's vaccine arsenal against microbial agents used in war or terrorist attacks.

In October 2001, AVANT granted DVC a license for exclusive rights to use certain components of AVANT's anthrax vaccine technology. In October 2002, DVC initiated a Phase I clinical trial of a new injectable recombinant anthrax vaccine in approximately 70 volunteers. The vaccine candidate includes a highly purified protein—Protective Antigen—derived from the anthrax bacterium using recombinant technology and production processes licensed from AVANT. DVC hopes this vaccine will offer a safe, effective product to support the country's need for a new-generation injectable anthrax vaccine. The Phase I trial is being conducted at WRAIR in conjunction with the Henry M. Jackson Foundation. The study will evaluate tolerability, safety and immunogenicity of DVC's new vaccine being developed for the Department of Defense (the "DoD") through the Joint Vaccine Acquisition Program (JVAP). In June 2003, AVANT was awarded a subcontract by DVC, in the amount of $344,000, which covers stability testing of DVC's injectable anthrax vaccine. Payments under the subcontract agreement are made on a time and materials basis and receipt of the full amount is conditioned upon the project being fully funded through completion and AVANT performing and continuing to demonstrate that it has the capability to perform the funded work.

In July 2002, AVANT was awarded a Phase I Small Business Innovation Research (SBIR) grant to support the development of the company's single oral-dose bacterial vectors to immunize people against anthrax. Vaccine delivery using live, attenuated bacteria is particularly well suited for situations where ease of administration and rapid onset of immunity are required, such as for protection against biological warfare agents. The NIAID of the NIH awarded this Live Attenuated Vaccines Against Anthrax grant, which provided approximately $125,000 in funding to AVANT over a twelve-month period.

Further, in January 2003, AVANT was awarded a subcontract by DVC to develop for the U.S. Department of Defense an oral combination vaccine against anthrax and plague using AVANT's proprietary vaccine technologies. AVANT executed this initial subcontract with DVC and will be reimbursed on a time and materials basis for vaccine development research work performed by AVANT in the amount of $2.5 million. In June 2003, AVANT was awarded a second subcontract for approximately $1.3 million to support preclinical animal testing of vaccine constructs being developed by AVANT for the oral combination vaccine against anthrax and plague. AVANT expects to execute additional subcontracts with DVC. Under the subcontract agreement, AVANT may receive in excess of $8 million over a two-year period, covering vaccine development through preclinical testing. The Defense Appropriations Bill for Fiscal Year 2004 passed by Congress in September 2003 commits $3.0 million for the continued development of this combination vaccine. Payments under the subcontract agreement are made on a time and materials basis and receipt of the full amount is conditioned upon the project being fully funded through completion and AVANT performing and continuing to demonstrate that it has the capability to perform the funded work.

4. Animal Health and Food Safety Vaccine Programs

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

animal health and food safety vaccines. In accordance with this agreement, Megan's existing poultry health and food safety products fall outside the Pfizer collaboration.

In addition to developing proprietary and patented bacterial gene technologies, Megan has commercialized three veterinary vaccines; Argus™ SC, licensed by the USDA in March 1998 and marketed by Intervet, Inc., and Megan®Vac 1 and Megan®Egg, licensed by the USDA in November 1998 and 2003, respectively, and currently marketed by Lohmann Animal Health International ("LAHI").

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

Megan®Egg: Megan®Egg is from the same master seed as Megan®Vac 1 with titer, dosage recommendations, and product configuration specifically targeting the layer (commercial table-egg pullets) and breeder hen markets. Pullets generally receive three vaccinations during the growing period and are protected throughout the lay period without further vaccination. In the case of table-egg layers and breeder hens, the primary objective is elimination or reduction of *Salmonella enteritidis* levels in the eggs, birds, and poultry houses.

Because AVANT's focus is on human health care, in September 2002 we appointed LAHI as the exclusive distributor of our Megan Health poultry vaccines in North America. LAHI, an established animal health company, has taken over marketing and distribution of Megan's currently marketed products for the commercial poultry market.

D. Viral Vaccine Development Programs

1. 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. In the rest of the world, rotavirus is a cause of significant infant mortality. 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 that mild fever in a small number of infants was the only side effect significantly more common in the vaccine group than in the placebo group.

AVANT and Glaxo are currently collaborating on the development and commercialization of our oral rotavirus vaccine, Rotarix®. As discussed under "F. Collaborative Agreements", with the successful completion of the Phase II clinical trial and the development by Glaxo of a viable manufacturing process, Glaxo has assumed financial responsibility for all subsequent clinical and development activities and paid us a milestone payment of $500,000. Glaxo has completed Phase I/II bridging studies in over 6,500 infants in Europe, Latin America and Asia using the two-dose oral Rotarix® vaccine. Glaxo initiated global Phase III clinical trials of Rotarix® in the third quarter of 2003 and AVANT recognized a $1.0 million milestone. Assuming product development and commercialization continues satisfactorily, we may receive additional milestone payments totaling $7.5 million upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of Rotarix®.

2. Therapore®

AVANT is developing a proprietary immunotherapeutic delivery system for the prevention and/or treatment of infectious diseases and some forms of cancers. 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 have conducted pre-clinical research to evaluate this system for the treatment of persistent viral infections, such as Hepatitis B, Hepatitis C, HIV and some forms of cancer.

Therapore® is composed of two bacterial proteins derived from *Bacillus anthracis* 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 pre-clinical 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 the following 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 have entered into a collaborative agreement for WRAIR to fund and perform the first human clinical trial of a Therapore®-based product, a vaccine candidate under development by the U.S. Army against HIV. This HIV clinical trial of a Therapore®-component is expected to begin in 2004. As clinical data becomes available, AVANT may seek a corporate partner to develop and to commercialize Therapore®. We have currently suspended substantially all in-house development efforts on Therapore® pending the results of clinical and partnering efforts.

E. Therapeutic Programs

1. Cholesterol Management Vaccine

We are developing an immunotherapeutic 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 this vaccine (CETi-1) to stimulate an

immune response against CETP which we believe may improve the ratio of HDL to LDL cholesterol and reduce the progression of atherosclerosis. We have conducted preliminary studies of rabbits which had been administered the CETi-1 vaccine and fed a high-cholesterol, high-fat diet. In these studies, vaccine-treated rabbits exhibited reduced lesions in their blood vessels compared to a control group of untreated rabbits which developed significant blood vessel lesions. These studies have demonstrated, in animal models, the ability of CETi-1 vaccine to elevate HDL and reduce the development of blood vessel lesions.

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

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

In June 1999, we initiated a double-blinded placebo controlled, Phase I clinical trial of our CETi-1 vaccine in adult volunteers. The object of the study was to demonstrate the safety of single administrations of the vaccine at four different dosage strengths. AVANT completed the Phase I clinical trial in late 2000 and results indicated that the vaccine was very well tolerated in the 48 adult volunteers who participated in the study. The only serious adverse reaction reported during the study (allergic reaction to shower gel) was not related to study medication. There were no differences in the safety profiles of placebo groups and active vaccine groups. In addition there was limited evidence of an immune response in one subject treated with the highest dose. In early 2001, AVANT announced results from a double-blinded placebo controlled extension of the earlier completed Phase I trial of the CETi-1 vaccine in healthy adult volunteers receiving a second dose of the vaccine. Results from the extension study showed measurable antibody titers in all dose groups treated with study medication and suggested a dose-response relationship.

These data were helpful in moving the program forward to a placebo controlled Phase II study, which was initiated in August 2001, in approximately 200 patients with low levels of HDL cholesterol. The objectives of the study were to evaluate the safety, immunogenicity and dose-response relationship of the CETi-1 product in patients who received an initial immunization followed by boosters. In October 2003, AVANT completed the CETi-1 vaccine Phase II efficacy study. The results of the study demonstrated proof-of-concept in humans, confirming that blocking cholesterol transfer could raise HDL levels. In addition, the CETi-1 vaccine worked as designed to elicit anti-CETP antibodies in a high percentage of patients treated, approximately 90%. AVANT is continuing to evaluate the next steps for development of this vaccine, including the use of new adjuvants to elicit a more robust antibody response. We plan to seek a corporate partner to complete development and to commercialize the CETi vaccine.

2. Complement Inhibitors

We have been 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. Our lead

compound, TP10, a soluble form of naturally occurring Complement Receptor 1, has effectively shown to inhibit 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. Medical problems that result from excessive complement activation represent multi-billion dollar market opportunities. In the United States, several million people are afflicted with these complement-mediated conditions.

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). 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. As of September 6, 2002, Novartis and AVANT agreed to terminate the TP10 agreement pursuant to which Novartis paid a net termination fee of $1.9 million and returned to AVANT all pre-clinical and clinical TP10 material.

We have elected to independently develop and commercialize TP10 for cardiac surgery. In February 2002, AVANT announced that TP10 had not achieved a significant reduction in the primary endpoint of death, myocardial infarction, prolonged intubation or prolonged intra-aortic balloon pumping following preliminary analysis of a Phase II adult cardiac surgery trial conducted in 564 patients. However, further analysis of the study data demonstrated an important treatment benefit in male patients participating in the trial, with no significant treatment benefit observed in female patients. Adverse events reported following treatment with TP10 were generally similar to those seen in placebo treated patients and were said by investigators to be routinely observed following cardiopulmonary bypass.

The important treatment benefits seen in the male population were directly related to mortality and the benefit seen was impressive. This further analysis of the study data showed continued promise for this molecule and AVANT has renewed its commitment to TP10's development. Results of this Phase II adult trial were presented at the American Heart Association's Annual Meeting in November 2003.

In February 2004, AVANT announced plans to start a Phase IIb double-blind, placebo-controlled trial of TP10 in approximately 300 women undergoing cardiopulmonary by-pass surgery. The trial will examine the effect of TP10 versus placebo, will conclude around year-end 2004, and will be conducted at approximately 25 sites throughout the United States. The goals of the trial are to clarify the effect that TP10 has for women undergoing cardiac surgery, as well as augment the safety data for that patient population to allow for the design of a subsequent registration-directed trial.

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

In addition to TP10, AVANT has 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 × (sLe^x) carbohydrate side chains yielding sCR1sLe^x (TP20). sLe^x is a carbohydrate which mediates binding of neutrophils to selectin proteins. 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. 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 be effective 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.

AVANT plans to advance clinical development of the complement inhibitor program on its own through the current ongoing Phase IIb study in women. We plan to seek partnering arrangements to capture the value inherent in these programs and their strong intellectual property. With the termination of the Novartis

agreement, AVANT can now offer a worldwide license for all fields, which we believe improves the likelihood of a partnership arrangement.

F. Collaborative Agreements

GlaxoSmithKline: During 1997, we entered into an agreement with Glaxo to collaborate on the development and commercialization of our oral rotavirus vaccine. Under the terms of the agreement, Glaxo 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 Glaxo of a viable manufacturing process, Glaxo assumed responsibility for all subsequent clinical trials and all other development activities. Glaxo made an initial license payment of $250,000 in 1997 upon execution of the agreement. In June 1999, the Company received a milestone payment of $500,000 from Glaxo for successfully completing the Phase II clinical efficacy study and establishing a commercially viable process to manufacture the vaccine. Glaxo initiated global Phase III clinical trials of Rotarix® in the third quarter of 2003, and AVANT recognized a $1.0 million milestone. Assuming product development and commercialization continues satisfactorily, we may receive additional milestone payments totaling $7.5 million upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of Rotarix®. The term of this agreement is through the expiration of the last of the patents covered by the agreement, although Glaxo may terminate the agreement upon 90 days prior written notice.

Pfizer: In connection with our acquisition of Megan in 2000, we entered into a licensing agreement with Pfizer whereby Pfizer has licensed Megan's technology for the development of animal health and food safety vaccines. Upon execution of the agreement, Pfizer made an initial license payment of $2.5 million together with a $3 million equity investment. In December 2002, we received a milestone payment of $500,000 from Pfizer as a result of the submission of an application with the USDA for licensure of a food safety vaccine. Under the agreement, we may receive additional milestone payments of up to $3 million based upon attainment of specified milestones. We have received research and development funding from Pfizer through November 2002 totaling $1 million and may receive royalty payments on eventual product sales. The term of this agreement is through the expiration of the last of the patents covered by the agreement.

DynPort: In October 2001, AVANT granted DynPort Vaccine Company LLC ("DVC") a license for exclusive rights to use certain components of AVANT's anthrax vaccine technology. In October 2001, in connection with the execution of the agreement, AVANT received a $200,000 materials transfer fee. Under the agreement, AVANT is also entitled to annual $50,000 license maintenance payments, with respect to which AVANT has received $100,000, and milestone payments of up to $700,000 in the aggregate, $100,000 of which AVANT has already received. AVANT is also entitled to specified royalties on eventual product sales. The term of this agreement is through the expiration of the last of the patents covered by the agreement, although DVC may terminate the agreement upon 90 days prior written notice. DVC, a private company, is chartered with providing an integrated approach for the advanced development of specific vaccines and other products to protect against the threat of biological warfare agents. DVC has a 10-year contract with the U.S. Department of Defense for the development of vaccines against certain acute infectious diseases and contagious diseases, initiated under the 1997 Joint Vaccine Acquisition Program. Further, in January 2003, AVANT was awarded a subcontract by DVC to develop for the U.S. Department of Defense an oral

combination vaccine against anthrax and plague using AVANT's proprietary vaccine technologies. AVANT executed this initial subcontract with DVC and will be reimbursed on a time and materials basis for vaccine development research work performed by AVANT in the amount of $2.5 million.

In June 2003, AVANT was awarded a second subcontract for approximately $1.3 million to support preclinical animal testing of vaccine constructs being developed by AVANT for the oral combination vaccine against anthrax and plague. Also in June 2003, we were awarded a subcontract by DVC in the amount of $344,000, which covers stability testing of DVC's injectable anthrax vaccine. AVANT expects to execute additional subcontracts with DVC. Under the subcontract agreements, AVANT may receive in excess of $8 million over a two-year period, covering vaccine development through preclinical testing. The Defense Appropriations Bill for Fiscal Year 2004 passed by Congress in September 2003 commits $3.0 million for the continued development of this combination vaccine. Payments under the subcontract agreement are made on a time and materials basis and receipt of the full amount is conditioned upon the project being fully funded through completion and AVANT performing and continuing to demonstrate that it has the capability to perform the funded work. Through December 31, 2003, AVANT had received approximately $2.4 million in payments under the subcontract agreements. These agreements expire in 2004, although they may be terminated by DVC at any time upon 30 days notice.

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. As of September 6, 2002, Novartis and AVANT agreed to terminate the TP10 agreement pursuant to which Novartis paid a net termination fee of $1.9 million and returned to AVANT all pre-clinical and clinical TP10 material.

Aventis: In 1994 and 1995, we entered into two licensing agreements with Aventis relating to Adjumer®- and Micromer®-formulated vaccines, respectively, for the prevention of a variety of infectious diseases. 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 respiratory syncytial virus ("RSV"). All of AVANT's rights in these licensing agreements were contributed to Parallel Solutions, Inc. during October 2001, as described in the next paragraph.

Parallel: During October 2001, AVANT contributed its polyphosphazene polymer adjuvant business (the "PCPP business"), including the compound formulations Adjumer® and Micromer®, into a newly formed, privately held company, Parallel Solutions, Inc. ("Parallel"), in exchange for a non-controlling minority ownership position in Parallel. AVANT received no cash in this transaction, as Parallel was a start-up company with only limited capital, formed specifically for the purpose of pursuing commercial development of the PCPP business, which AVANT had decided, following a review of all its ongoing programs in 2001, not to advance with its own funds. The PCPP business elements were acquired as a part of AVANT's acquisition of Virus Research Institute Inc. ("VRI"), and encompass the formulation, development and manufacture of polyphosphazene polymers for use as therapeutic product vaccine adjuvants, as well as potential other commercial and industrial applications outside the life sciences field. Given the number of active programs that AVANT had in 2001 following the VRI acquisition and the broad potential applications of the PCPP business, AVANT's management

decided that it would be better to discontinue internal funding of the PCPP business to concentrate AVANT's own funds and efforts towards its other programs, while seeking a partner who would pursue the development of the PCPP business independently while allowing AVANT to profit through an equity interest or other form of economic sharing if the PCPP business succeeds. The transaction with Parallel was the most favorable of several possible transactions explored by AVANT prior to October 2001 for the PCPP business.

AVANT initially received 7.5% of the outstanding stock of Parallel. Parallel is still in the start-up phase and has not yet secured the equity capital funding needed to pursue a full business plan to develop the PCPP business. While AVANT continues to believe the transaction with Parallel was the appropriate way to preserve for AVANT's shareholders some of the potential value of the PCPP business in the context of AVANT's other programs and priorities, AVANT is not able at this time to assign a value to its equity stake in Parallel. AVANT could only speculate as to the enterprise value of Parallel which is a separate company not controlled or managed by AVANT. The viability of Parallel depends on its ability to raise equity capital to fund its research and development activities and the ongoing value of AVANT's ownership in Parallel is entirely dependent on Parallel's financial and technical success.

Lohmann: In September 2002, we appointed Lohmann Animal Health International ("LAHI") as the exclusive distributor of our Megan Health poultry vaccines in North America. LAHI, an established animal health company, is taking over marketing and distribution of Megan's marketed products for the commercial poultry market. Under the distribution agreement, AVANT receives a percentage of Megan®Vac 1 and Megan®Egg product sales in the form of royalty payments. From the inception of the agreement to December 31, 2003, AVANT has received approximately $167,800 in royalties under the agreement. The initial term of the agreement is five years with automatic extensions thereafter unless the agreement is terminated by either party.

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

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

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

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

G. Risk Factors

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

Our history of losses and uncertainty of future profitability make our common stock a highly speculative investment.

We have had no commercial revenues to date from sales of our human therapeutic or vaccine products and cannot predict when we will. We have accumulated net operating losses since inception of approximately $204.6 million, as of December 31, 2003. 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
CholeraGarde™ vaccine	Cholera	Clinical phase IIb
Ty800 vaccine	Typhoid fever	Clinical phase I/II
ETEC vaccine	Enterotoxigenic E. coli infection	Pre-clinical
Shigella vaccine	Dysentery	Pre-clinical
Campylobacter vaccine	Campylobacter infection	Pre-clinical
Injectable Anthrax vaccine	Anthrax infection	Clinical Phase I
Oral Anthrax & Plague vaccines	Anthrax & plague infection	Pre-clinical
Rotarix® vaccine	Rotavirus	Clinical phase III
CETi-1 vaccine	Cholesterol management	Clinical phase II
TP10	Cardiac surgery	Clinical phase IIb
Therapore®	HIV	Pre-clinical
Therapore®	Hepatitis	Pre-clinical

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

If we cannot sell capital stock to raise necessary funds, it may force us to limit our research, development and testing programs.

We will need to raise more capital from investors to advance our lead products through the clinical testing and to fund our operations until we receive final FDA approval and our products begin to generate revenues for us. However, based on our history of losses, we may have difficulty attracting sufficient investment interest. As of December 31, 2003, we had cash and cash equivalents of $20.3 million, which, at that time, we believed would support expected operations for approximately 15 months.

On February 13, 2004, we completed a direct placement of our common stock with gross proceeds of approximately $25 million. We believe that our current cash balance of approximately $42 million will meet our expected cash requirements for over two years. We anticipate using cash in the range of $1.2-$1.5 million per month to support our expected operations.

We continue to seek partnerships with pharmaceutical and biotech companies and with other organizations to support the clinical development of our programs, in addition to funded research grants. This kind of funding is at the discretion of other organizations and companies which have limited funds and many companies compete with us for those funds. As a result, we may not receive any research grants or funds from collaborators. If we are unable to raise necessary funds, we may have to delay or discontinue the clinical development of programs, license out programs earlier than expected, raise funds at significant discount or on other unfavorable terms or evaluate a sale of all or part of our business.

Our share price has been and could remain volatile.

The market price of our common stock has historically experienced and may continue to experience significant volatility. From January 2001 through December 2003, the market price of our common stock has fluctuated from a high of $8.50 per share in the first quarter of 2001, to a low of $0.66 per share in the third quarter of 2002. Our progress in developing and commercializing our products, the impact of government regulations on our products and industry, the potential sale of a large volume of our common stock by selling stockholders, our quarterly operating results, changes in general conditions in the economy or the financial markets and other developments affecting us or our competitors could cause the market price of our common stock to fluctuate substantially. In addition, in recent years, the stock market has experienced significant price and volume fluctuations. This volatility has affected the market prices of securities issued by many companies for reasons unrelated to their operating performance and may adversely affect the price of our common stock. In addition, we could be subject to a securities class action litigation as a result of volatility in the price of our stock, which could result in substantial costs and diversion of management's attention and resources and could harm our stock price, business, prospects, results of operations and financial condition.

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

In December 2000, we issued 1,841,236 shares of our common stock at $9.54 per share in connection with our acquisition of Megan Health Inc. and 285,877 shares of our common stock at $10.50 per share in a separate private placement with Pfizer Inc. In February 2004, we completed a direct equity placement of 8,965,000 shares of common stock to institutional investors at a price of $2.75 per share which generated gross proceeds totaling approximately $25 million. In July 2003, we issued 4,444,444 shares of our common stock and warrants to purchase 444,444 shares of our common stock for an aggregate purchase price of $10 million in a private placement with The Riverview Group, LLC. Those shares plus, among others, 3,057,900 shares we sold in an October 2001 direct equity placement at $4.58 per share, 4,650,953 shares we sold in a July 2000 private placement at $7.85 per share, 5,459,375 shares we sold in a September 1999 private placement at $1.92 per share, and 3,084,910 shares that employees may purchase under stock options at prices ranging from $0.30 to $14.69 per share, can be resold in the public securities markets without restriction. These shares in total account for approximately 43.6% of our total common stock outstanding as of March 1, 2004. 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. Products in our vaccine programs are in various stages of pre-clinical and clinical testing. Pre-clinical tests are performed at an early stage of a product's development and provide information about a product's safety and effectiveness on laboratory animals. Pre-clinical tests can last years. If a product passes its

pre-clinical tests satisfactorily, we file an investigational new drug application for the product with the FDA, and if the FDA gives its approval we begin phase I clinical tests. Phase I testing generally lasts between 6 and 24 months. If phase I test results are satisfactory and the FDA gives its approval, we can begin phase II clinical tests. Phase II testing generally lasts between 6 and 36 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 48 months. Once clinical testing is completed and a new drug application is filed with the FDA, it may take more than a year to receive FDA approval.

In all cases we must show that a pharmaceutical product is both safe and effective before the FDA, or drug approval agencies of other countries where we intend to sell the product, will approve it for sale. Our research and testing programs must comply with drug approval requirements both in the United States and in other countries, since we are developing our lead products with companies, including Glaxo, Pfizer, and DynPort, 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 the possibility that none of our products under development will come through the testing process to final approval for sale, with the result that we cannot derive any commercial revenue from them after investing significant amounts of capital in multiple stages of pre-clinical and clinical testing.

Product testing is critical to the success of our products but subject to delay or cancellation if we have difficulty enrolling patients.

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

-

the nature of the clinical test

- the size of the patient population
- the distance between patients and clinical test sites
- the eligibility criteria for the trial

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

We 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, including Avery W. Catlin, our chief financial officer, Dr. Henry C. Marsh, Jr., our vice president of research, Anthony Helstosky, our senior director of regulatory affairs, or Michael E. Furlong, our senior director of business development, could harm us. We have employment agreements with Dr. Ryan and Mr. Catlin. We do not have any key-person insurance coverage. We also depend on our scientific and clinical 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 routinely enter into consulting agreements with our scientific and clinical collaborators and advisors, opinion leaders and heads of academic departments in the ordinary course of our business. We also enter into contractual agreements with physicians and institutions who recruit patients into our clinical trials on our behalf in the ordinary course of our business. Notwithstanding these arrangements, we face significant competition for this type of personnel from other companies,

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

We rely on our contract manufacturers. Should the cost, delivery and quality of clinical and commercial grade materials supplied by contract manufacturers vary to our disadvantage, our business operations could suffer significant harm.

We are dependent on sourcing from third-party manufacturers for suitable quantities of clinical and commercial grade materials essential to pre-clinical and clinical studies currently underway and to planned clinical trials in addition to those currently being conducted by third parties or us. The inability to have suitable quality and quantities of these essential materials produced in a timely manner would result in significant delays in the clinical development and commercialization of products, which could adversely affect our business, financial condition and results of operations. We rely on collaborators and contract manufacturers to manufacture proposed products in both clinical and commercial quantities in the future. Our leading bacterial vaccine candidates use attenuated live bacteria as vectors and therefore require specialized manufacturing capabilities and processes. We have faced difficulties in securing commitments from U.S. contract manufacturers as U.S. manufacturers have at times been unwilling or unable to accommodate our needs. Relying on foreign manufacturers involves peculiar and increased risks, and in one occasion we had to terminate a contract with a foreign manufacturer and find a substitute source of material for planned clinical trials. These peculiar and increased risks include risks relating to the difficulties foreign manufacturers may face in complying with the FDA's Good Manufacturing Practices, or GMP, as a result of language barriers, lack of familiarity with GMP or the FDA regulatory process or other causes, economic or political instability in or affecting the home countries of our foreign manufacturers, shipping delays, potential changes in foreign regulatory laws governing the sales of our product supplies, fluctuations in foreign currency exchange rates and the imposition or application of trade restrictions.

There can be no assurances that we will be able to enter into long-term arrangements with such third party manufacturers on acceptable terms or at all. Further, contract manufacturers must also be able to meet our timetable and requirements, and must operate in compliance with GMP; failure to do so could result in, among other things, the disruption of product supplies. As noted above, non-U.S. contract manufacturers may face special challenges in complying with the FDA's GMP requirements, and although we are not currently dependent on non-U.S. collaborators or contract manufacturers, we may choose or be required to rely on non-U.S. sources in the future as we seek to develop stable supplies of increasing quantities of materials for ongoing clinical trials of larger scale. Our dependence upon third parties for the manufacture of our products may adversely affect our profit margins and our ability to develop and deliver products on a timely and competitive basis.

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

We rely on third parties to plan, conduct and monitor our clinical tests, and their failure to perform as required would interfere with our product development.

We rely on third parties, including, among others, the International Center for Diarrhoeal Disease Research, Bangladesh, the International Vaccines Institute, The Cleveland Clinic, Radiant Research, Inc., Pharmaceutical Research Associates, Inc., PPD Development, LLC, the NIH and Glaxo to conduct the significant majority of our clinical research development activities. These activities can be characterized as clinical patient recruitment and observation, clinical trial monitoring, clinical data management and analysis, safety monitoring and project management. We conduct approximately 50% of our project management and 90% of our safety monitoring in-house and rely on third parties for the remainder of our clinical development activities. If any of these third parties fails to perform as we expect or if their work fails to meet regulatory standards, our testing could be delayed, cancelled or rendered ineffective.

We depend greatly on third party collaborators to license, develop and commercialize some of our products, and they may not meet our expectations.

We have agreements with other companies, including Glaxo, Pfizer, DVC, and Lohmann for the licensing, development and ultimate commercialization of some of our products. Some of those agreements give substantial responsibility over the products to the collaborator. Some collaborators may be unable or

unwilling to devote sufficient resources to develop our products as their agreements require. They often face business risks similar to ours, and this could interfere with their efforts. Also, collaborators may choose to devote their resources to products that compete with ours. If a collaborator does not successfully develop any one of our products, we will need to find another collaborator to do so. The success of 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.

The success of our vaccine candidates depends in great part upon our and our collaborators' success in promoting them as superior to other treatment alternatives. We believe that vaccines like those under development by AVANT can be proven to offer disease prevention and treatment with notable advantages over drugs in terms of patient compliance and cost and ease of distribution. However, there can be no assurance that we will be able to prove these advantages or that the advantages will be sufficient to support the successful commercialization of our vaccines.

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

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

A decrease in demand for Megan®Vac 1, Megan®Egg and other future products could adversely affect our revenues.

Because AVANT's focus is on human health care, as of September 1, 2002 we appointed Lohmann Animal Health International (LAHI) as the exclusive distributor of our Megan Health poultry vaccines in North America. LAHI, an established animal health company, is taking over marketing and distribution of Megan's currently marketed products for the commercial poultry market. Under the distribution agreement, AVANT receives a percentage of Megan®Vac 1 and Megan®Egg product sales in the form of royalty payments.

Both demand and ultimately the profitability of Megan®Vac 1 and Megan®Egg, currently our only products available for commercial sales, and future products, are components to our success. The

following are potential factors that may negatively affect the demand for Megan®Vac 1 and Megan®Egg:

- Our competitors may develop, manufacture and market products that are more effective or less expensive than ours;
- Megan®Vac 1 and Megan®Egg could be replaced by a novel product and may become obsolete;
- Users may not accept such a recently approved product without years of proven history;
- Our competitors in the food safety market have greater financial and management resources than we do, and significantly more experience in bringing products to market; and
- We have no manufacturing or distribution facilities for Megan®Vac 1 and Megan®Egg. Instead, we contract with Maine Biological Laboratories ("MBL"), a subsidiary of LAHI, to manufacture Megan®Vac 1 and Megan®Egg for us.

Any one of these factors could reduce demand for Megan®Vac 1 and Megan®Egg to a level which may lead to LAHI's and/or our discontinuation of the product. Should LAHI or AVANT be unable to realize acceptable profits from sales of Megan®Vac 1 and Megan®Egg, LAHI or AVANT may choose to scale back our commercialization efforts. In addition, if our partner, LAHI, is unable to continue to distribute Megan®Vac 1 and Megan®Egg in an effective manner, or is unable to maintain sufficient personnel with the appropriate levels of experience to manage this function, LAHI may be unable to meet the demand for our products and we may lose potential revenues and royalties.

We may be unable to manage multiple late stage clinical trials for a variety of product candidates simultaneously.

During 2004, we expect to have two Phase I clinical trials, three Phase II clinical trials and one Phase III clinical trial in progress. As our current clinical trials progress, we may need to manage multiple late stage clinical trials simultaneously in order to continue developing all of our current products. The management of late stage clinical trials is more complex and time consuming than early stage trials. Typically early stage trials involve several hundred patients in no more than 10-20 clinical sites. Late stage (Phase III) trials involve up to several thousand patients in up to several hundred clinical sites and may require facilities in several countries. Therefore the project management required to supervise and control such an extensive program is substantially larger than early stage programs. As the need for these resources is not known until some months before the trials begin it is necessary to recruit large numbers of experienced and talented individuals very quickly. If the labor market does not allow this team to be recruited quickly the sponsor is faced with a decision to delay the program or to initiate it with inadequate management resources. This may result in recruitment of inappropriate patients, inadequate monitoring of clinical investigators and inappropriate handling of data or data analysis. Consequently it is possible that conclusions of efficacy or safety may not be acceptable to permit filing of a Biologics License Application or New Drug Application for any one of the above reasons or a combination of several.

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 entering into confidentiality agreements and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors, employees and consultants prior to beginning research or disclosing proprietary information. These agreements will typically restrict the ability of our collaborators, advisors, employees and consultants to publish data potentially relating to our trade secrets. Our academic collaborators typically have rights to publish data, provided that we are notified

in advance and may delay publication for a specified time in order to secure our intellectual property rights arising from the collaboration. In other cases, publication rights are typically controlled exclusively by us, although in some cases we may share these rights with other parties. Nevertheless, our competitors may discover our trade secrets, either through breach of these agreements, independent development or publication of information including our trade secrets in cases where we do not have proprietary or otherwise protected rights at the time of publication. A competitor's discovery of our trade secrets would impair our competitive position.

We may not be able to successfully integrate newly acquired technology with our existing technology or to modify our technologies to create new vaccines.

As part of our acquisition of the assets of UPT in January 2003, we acquired VitriLife®, a patented drying process for the industrial-scale preservation of proteins, cells, bacteria and viruses. VitriLife® may improve product stability at room temperature or higher, thereby eliminating the need for costly cold-chain distribution storage of vaccines and rendering vaccines more affordable. If we are able to integrate VitriLife® with our vaccine technology, we believe that the room temperature stability afforded by VitriLife® will give AVANT's vaccines a competitive advantage for a wide range of uses in food safety, animal health and biodefense applications. However, if we are unable to successfully integrate VitriLife®, or other technologies which we have acquired or may acquire in the future, with our existing technology and potential products currently under development, we may be unable to realize any benefit from our acquisition of VitriLife®, or other technology which we have acquired or may acquire in the future and may face the loss of our investment of financial resources and time in the integration process.

We believe that AVANT's vaccine technology portfolio may offer opportunities to develop vaccines that treat a variety of bacterial and viral infections by stimulating a patient's immune system against those disease organisms. However, some applications of our vaccine technology will require that we adapt AVANT's vectoring systems to develop new, safe and effective oral vaccines against anthrax, plague, and other bacterial and viral health threats. It is possible that the attenuated live bacteria we use in our bacterial vaccine candidates can not serve as vectors for the development of further bacterial or viral vaccines. If our vaccine technology portfolio cannot be used to create vaccines against a variety of disease organisms, we may lose all or portions of our investment in development efforts for new bacterial or viral vaccine candidates.

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 Merck, Pfizer, Japan Tobacco, Alexion, Esperion, Acambis, Chiron, ID

Biomedical, Iomai, Microscience, VaxGen and Berna Biotech. Our success depends upon our ability to develop and maintain a competitive position in the product categories and technologies on which we focus. Many of our competitors have greater capabilities, experience and financial resources than we do. Competition is intense and is expected to increase as new products enter the market and new technologies become available. Our competitors may:

- develop technologies and products that are more effective than ours, making ours obsolete or otherwise noncompetitive;
- obtain regulatory approval for products more rapidly or effectively than us; and
- obtain patent protection or other intellectual property rights that would block our ability to develop competitive products.

We rely on patents, patent applications and other intellectual property protections to protect our technology and trade secrets; they are expensive and may not provide sufficient protection.

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

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

Our business requires us to use hazardous materials, which increases our exposure to dangerous and costly accidents.

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

Health care reform and restrictions on reimbursement may limit our returns on potential products.

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, including 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. Accordingly, if we succeed in bringing products to market, and reimbursement is not available or is insufficient, we could be prevented from successfully commercializing our potential products.

The health care industry in the United States and in Europe is undergoing fundamental changes as a result of political, economic and regulatory influences. Reforms proposed from time to time include mandated basic health care benefits, controls on health care spending, 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 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.

H. Competition

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

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

I. Manufacturing

We have no manufacturing facilities, no experience in volume manufacturing and we rely upon collaborators or contractors to manufacture our proposed products for both clinical and commercial purposes. While we believe that there is currently sufficient capacity worldwide for the production of our potential products by our collaborators or through contract manufacturers, establishing long-term relationships with contract manufacturers and securing multiple sources for the necessary quantities of clinical and commercial materials required can be a challenge. Qualifying the initial source of clinical and ultimately commercial material is a time consuming and expensive process due to the highly regulated nature of the pharmaceutical / biotech industry. These costs are hopefully mitigated in the economies of scale realized in commercial manufacture and product sale. The key difficulty in qualifying more than one source for each product is the duplicated time and expense in doing so without the potential to mitigate these costs if the secondary source is never utilized.

To date, we have been arranging with contract manufacturers for the manufacture of clinical trial supplies of TP10, CETi-1 and our rotavirus vaccine candidate. We have also contracted for the manufacture of PCPP in quantities sufficient for pre-clinical and clinical studies. Future manufacture of our rotavirus vaccine is the responsibility of Glaxo, which has received from us a world-wide exclusive license to commercialize this vaccine.

We contracted with Lonza Biologics plc for the scale-up and manufacture of TP10 clinical trial material. The CETi-1 vaccine is manufactured under contracts with Multiple Peptide Services and Bioconcepts, Inc. WRAIR has manufactured Cholera Peru-15 and Bengal-15 vaccines under a collaborative agreement with us. We entered into an agreement with the NIH for the manufacture of Ty800, our typhoid fever vaccine, for clinical trials. We have also entered into a collaborative arrangement with WRAIR for the manufacture of a Therapore®-HIV product.

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

Use of third party manufacturers limits our control over and ability to monitor the manufacturing process. As a result, we may not be able to detect a variety of problems that may arise and may face additional costs in the process of interfacing with and monitoring the progress of our contract manufacturers. If third party manufacturers fail to meet our manufacturing needs in an acceptable manner, we would face delays and additional costs while we develop internal manufacturing capabilities or find alternative third party manufacturers. It may not be possible to have multiple third party manufacturers ready to supply us with needed material without incurring significant costs or at all.

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.

In 2003, we reached agreement with MassDevelopment, an economic development entity for the Commonwealth of Massachusetts, for AVANT to occupy and build-out an 11,800 square foot pilot-manufacturing facility in Fall River, Massachusetts. The Fall River facility will complement our research and clinical expertise with the capability to develop and manufacture our own portfolio of bacterial

vaccines, as well as to apply our patented thermo-stable preservation technology, VitriLife®, to products for our partners.

J. Marketing

Under the terms of existing and future collaborative agreements, we rely and expect to continue to rely on the efforts of our collaborators for the sale and marketing of our products. We have agreements with, among others, GlaxoSmithKline, Pfizer and Lohmann for the development and commercialization of some of our products. The relevant aspects of these relationships have been previously discussed under the heading "F. Collaborative Agreements." There can be no assurance that our collaborators will market vaccine products incorporating our technologies, or, if marketed, that such efforts will be successful. The failure of our collaborators to successfully market products would harm our business.

We have retained, and in the future intend to retain, marketing rights to some of our product candidates, including vaccine and immunotherapeutic delivery systems and vaccine candidates, in selected geographic areas and for specified indications. We intend to seek marketing and distribution agreements and/or co-promotion agreements for the distribution of our products in these geographic areas and for these indications. We believe that these arrangements could enable us to generate greater financial return than might be obtained from early stage licensing and collaboration agreements. We have no marketing and sales staff and limited experience relating to marketing and distribution of commercial products, including vaccines. If we determine in the future to engage in direct marketing of our products, we will be required to recruit an experienced marketing group, develop a supporting distribution capability and incur significant additional expenditures. There can be no assurance that we will be able to establish a successful marketing force. We may choose or find it necessary to enter into strategic partnerships on uncertain, but potentially unfavorable, terms to sell, market and distribute our products. Any delay in the marketing or distribution of our products, whether it results from problems with internal capabilities or with a collaborative relationship, could harm the value of an investment in AVANT.

K. Patents, Licenses and Proprietary Rights

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

Patents: The successful development and marketing of products by AVANT will depend in part on our ability to create and maintain intellectual property, including patent rights. We have established a proprietary patent position in the areas of complement inhibitor technology, cholesterol regulation technology, vaccine technologies, and preservation 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.

We are the owner or exclusive licensee of 442 patents and patent applications and co-owner or non-exclusive licensee of an additional 62 patents and patent applications around the world covering inventions relating to our business. In the area of complement inhibitor technology, we have rights to 130 patents and patent applications worldwide with the key patents in this area expiring in 2009 and 2016. In the area of cholesterol regulation, we have rights to 47 patents and patent applications worldwide with the key patents in this area expiring in 2016 and 2019. In the area of rotavirus vaccines,

we have rights to 20 patents and patent applications worldwide with the key patents in this area expiring in 2011 and 2014. In the area of cholera and typhoid vaccines, we have rights to 239 patents and patent applications worldwide with the key patents in this area expiring in between 2008 and 2018.

In the area of complement inhibitors, 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 a number of other issued patents and patent applications relating to sCR1, sCR1sLe^x and other complement inhibitor molecules and their uses.

We have an exclusive license to four United States patents, and corresponding foreign patents and applications, directed to vectors that are used in our VibrioVec™ vaccine delivery system. We have an exclusive license to five U.S. patents, and corresponding foreign patents and applications, directed to vectors that are used in our SalmoVec™ vaccine delivery system. We also have an exclusive license to nineteen issued U.S. and foreign patents directed to a rotavirus strain that forms the basis of our rotavirus vaccine. We also have an exclusive license in a defined field to fifteen U.S. and foreign patents directed to technology that may be useful for our Therapore® system. We have twenty-four issued patents and additional pending patent applications in the U.S. and selected foreign countries relating to control of CETP activity through vaccination. We have also filed patent applications on the use of a recombinantly produced single protein of *B. anthracis*, as well as on new live attenuated bacterial strains for delivering isolated anthrax and/or plague antigens, to provide effective anthrax and plague vaccines.

In December 2000, we acquired Megan and by this acquisition obtained exclusive rights to vaccine technology patents and applications based on the work of Dr. Roy Curtiss III. These patent rights complement and expand the patent rights of AVANT in this technological area. In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer whereby Pfizer has licensed Megan's technology for the development of animal health and food safety vaccines.

In March 2003, AVANT enhanced its intellectual property portfolio through the acquisition of certain intellectual property from Pharmacia Corporation, including a portfolio of pending patent applications. These patent applications are directed to products or methods for stimulating an immune response against cholesteryl ester transfer protein (CETP), which mediates an important cholesterol transport mechanism.

Our acquisition of this intellectual property from Pharmacia, coupled with our September 2001 acquisition of a portfolio of granted and pending patents from The Immune Response Corporation, consolidates AVANT's ownership of patents and applications that cover the technology of anti-atherosclerosis vaccines. AVANT now owns 24 granted patents around the world relating to CETP vaccine technology.

In January 2003 AVANT completed licensing and acquisition agreements which gave us ownership or exclusive rights in certain defined fields to a portfolio of patents and applications filed by Universal Preservation Technologies, Inc. and Elan Drug Delivery Ltd. (now Quadrant Drug Delivery Ltd.). This portfolio affords AVANT exclusive rights in a particular technology of foam preservation of biomolecules and cells. This technology should be especially useful in AVANT's vaccine programs to produce vaccine dosage forms that are shelf stable at room temperatures and do not require refrigeration.

There can be no assurance that patent applications owned by or licensed to AVANT will result in granted patents or that, if granted, the resultant patents will afford protection against competitors with similar technology. It is also possible that third parties may obtain patents or other proprietary rights

that may be necessary or useful to AVANT. In cases where third parties are first to invent a particular product or technology, it is possible that those parties will obtain patents that will be sufficiently broad to prevent us from using important technology or from further developing or commercializing important vaccine and immunotherapeutic systems and vaccine candidates. If licenses from third parties are necessary but cannot be obtained, commercialization of the covered products might be delayed or prevented. Even if these licenses can be obtained, they would probably require us to pay ongoing royalties and other costs, which could be substantial.

Although a patent has a statutory presumption of validity in the United States, the issuance of a patent is not conclusive as to validity or as to the enforceable scope of the patent claims. The validity or enforceability of a patent after its issuance by the Patent and Trademark Office can be challenged in litigation. As a business that uses a substantial amount of intellectual property, we face a heightened risk of intellectual property litigation. If the outcome of the litigation is adverse to the owner of the patent, third parties may then be able to use the invention covered by the patent without authorization or 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. While a party challenging the validity of a patent has the burden of proving invalidity, 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 to the patent referred to in the previous paragraph, there may be other patent applications and issued patents belonging to competitors that may require us to alter our vaccine candidates and vaccine and immunotherapeutic delivery systems, pay licensing fees or cease some of our activities. If our product candidates conflict with patents that have been or may be granted to competitors, universities or others, the patent owners could bring legal action against us claiming damages and seeking to enjoin manufacturing and marketing of the patented products. If any of these actions are successful, in addition to any potential liability for damages, we could be required to obtain a license in order to continue to manufacture or market the affected products. There can be no assurance that we would prevail in any such action or that any license required under any such third party patent would be made available on acceptable terms or at all. We believe that there may be significant litigation in the biotechnology and vaccine industries regarding patent and other intellectual property rights. If we become involved in that litigation, we could consume substantial resources.

Licenses: We have entered into several significant license agreements relating to technology that is being developed by AVANT and/or its collaborators, including licenses from the following: Harvard College relating to proprietary technology involving genetically altered *Vibrio cholerea*and *Salmonella* strains; Cincinnati Children's Hospital involving proprietary rights and technologies relating to an

attenuated rotavirus strain for a rotavirus vaccine; 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. 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. Generally, we control and are responsible for the cost of defending the patent rights of the technologies that we license.

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

L. Government Regulation

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

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

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

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

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

The results of the clinical trials and all supporting data are submitted to the FDA for approval. A Biologics License Application (BLA) is submitted for a biologic product; a New Drug Application (NDA) for a drug product. The interval between IND filing and BLA/NDA filing is usually at least several years due to the length of the clinical trials, and the BLA/NDA review process can take over a year. During this time the FDA may request further testing or additional trials or may turn down the application. Even with approval, the FDA frequently requires post-marketing safety studies (known as Phase IV trials) to be performed.

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

In the United States, vaccines for animal health and food safety use are subject to USDA approval. The steps required before a new product can be commercialized include: pre-clinical studies in animals; clinical trials in animals to determine safety and efficacy; and USDA approval of the product for

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

The Advisory Committee on Immunization Practices (ACIP) of the CDC has a role in setting the public market in the United States for the vaccine products we intend to develop. The ACIP makes

recommendations on the appropriate use of vaccines and related products and the CDC develops epidemiologic data relevant to vaccine requirements and usage.

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

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

M. Product Liability

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

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

N. Employees; Scientific Consultants

As of March 1, 2004, we employed 59 full time persons, 9 of whom have doctoral degrees. Of these employees, 50 were engaged in or directly support research and development activities.

We have also retained a number of scientific consultants and advisors in various fields, including the following individuals: 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 54,300 square feet of laboratory and office space in Needham, Massachusetts. The lease had an initial six-year term which expired in April 2002. In August 2001, we extended our lease through April 30, 2007. Under the extended lease agreement, we are obligated to pay an escalating base annual rent ranging from $1,466,600 to $1,561,600 during the extension term. Aggregate net base rental payments for the years ended December 31, 2003 and 2002 for this facility were $2,107,000 and $1,694,600, respectively. A sublease relating to 14,000 square feet of excess laboratory and office space expired in April 2002. We are currently marketing the space for a new sublessee.

Our wholly-owned subsidiary, Megan Health, Inc., leases approximately 12,400 square feet of laboratory and office space in Overland, Missouri near St. Louis. Under the lease agreement, we are

obligated to pay annual rent of $161,460 until the lease expires on March 31, 2004. In February 2004, we extended our lease through September 30, 2007. Under the extended lease agreement, we are obligated to pay an escalating base annual rent ranging from $158,400 to $161,500 during the extension term. Aggregate net base rental payments for the years ended December 31, 2003 and 2002 for this facility were $164,900 and $164,800, respectively.

In 2003, we reached agreement with MassDevelopment, an economic development entity for the Commonwealth of Massachusetts, for AVANT to occupy and build-out an 11,800 square foot pilot-manufacturing facility in Fall River, Massachusetts. The lease has an initial seven-year term which expires in December 2010. Under the lease agreement, we are obligated to pay annual rent of approximately $165,000, subject to annual rent adjustments in the final two years.

Item 3. LEGAL PROCEEDINGS

None.

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

None.

PART II

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

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

Fiscal Period	High	Low
Year Ended December 31, 2002		
1Q (Jan. 1- March 31, 2002)	$ 4.08	$ 0.91
2Q (April 1—June 30, 2002)	2.47	0.92
3Q (July 1—Sept. 30, 2002)	1.25	0.66
4Q (Oct. 1—Dec. 31, 2002)	1.60	0.90
Year Ended December 31, 2003		
1Q (Jan. 1-March 31, 2003)	$ 1.45	$ 0.88
2Q (April 1—June 30, 2003)	3.45	0.95
3Q (July 1—Sept. 30, 2003)	2.89	1.99
4Q (Oct. 1—Dec. 31, 2003)	3.25	2.16

As of March 1, 2004, there were approximately 723 shareholders of our common stock. The price of the common stock was $2.68 as of the close of the market on March 1, 2004. We have not paid any dividends on our common stock since our inception and do not intend to pay any dividends in the foreseeable future. Declaration of dividends will depend, among other things, upon our operating and future earnings, our capital requirements and general business conditions.

On February 13, 2004, we completed a direct equity placement of 8,965,000 shares of common stock to institutional investors at a price of $2.75 per share which generated net proceeds totaling approximately $23,080,000 after deducting all associated expenses of approximately $1,573,700. Proceeds from the direct equity placement are being used to fund our clinical development programs, including TP10 for cardiac surgery, to provide for our general working capital needs and to enable us to pursue licensing and acquisition opportunities for complementary technologies and products.

On July 1, 2003, we closed a private placement of approximately 4.4 million shares of common stock at $2.25 per share and warrants to purchase 444,444 shares of common stock at $3.00 per share to an institutional investor which generated net proceeds totaling approximately $9,207,700 after deducting all associated expenses of approximately $792,300. Rodman & Renshaw, Inc. was the placement agent for the offering. The transaction was not registered under the Securities Act of 1933, as amended, in reliance on an exemption from registration provided by Rule 506 of the Securities Act of 1933, as amended, which was available because, among other things, there were fewer than thirty five purchasers of common stock and more than six months had elapsed from the date of any previous offerings. Proceeds from the private placement are being used to support the development of our bacterial vaccines programs and provides for our general working capital needs.

On October 17, 2001, we completed a direct equity placement of approximately 3,057,900 shares of common stock to institutional investors at an average price of $4.58 per share which generated net proceeds totaling approximately $13,575,200 after deducting all associated expenses of approximately $424,800. Proceeds from the direct equity placement were used to support clinical development of our

travelers' vaccine portfolio, the manufacture of commercial grade CholeraGarde™ and other company activities.

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

On July 17, 2000, we closed a private placement of approximately 4.7 million shares of common stock at $7.85 per share which generated net proceeds totaling approximately $34,481,000 after deducting all associated expenses of approximately $2,019,000. PaineWebber, Inc. was the placement agent for the offering, which included several European and U.S. institutional investors. The transaction was not registered under the Securities Act of 1933, as amended, in reliance on an exemption from registration provided by Rule 506 of the Securities Act of 1933, as amended, which was available because, among other things, there were fewer than thirty five purchasers of common stock and more than six months had elapsed from the date of any previous offerings. Proceeds from the private placement were used to support clinical development of our lead complement inhibitor, TP10, in patients undergoing cardiac surgery on cardiopulmonary bypass and other company activities.

On September 22, 1999, we closed a private placement of approximately 5.5 million shares of common stock at $1.92 per share which generated net proceeds totaling approximately $9,838,800 after deducting all associated expenses of approximately $661,200. Nomura was the placement agent for the offering, which included several European and U.S. institutional investors. The transaction was not registered under the Securities Act of 1933, as amended, in reliance on an exemption from registration provided by Rule 506 of the Securities Act of 1933, as amended, which was available because, among other things, there were fewer than thirty five purchasers of common stock and more than six months had elapsed from the date of any previous offerings. Proceeds from the private

placement were used to support clinical development of our 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, 2003, 2002, 2001, 2000 and 1999 have been derived from the audited consolidated financial statements of AVANT. The results of operations for 2003, 2002, 2001, 2000 and 1999 include the operating results of Virus Research Institute, Inc. ("VRI") from August 21, 1998, the date on which AVANT acquired VRI, through the present. The results of operations for 2003, 2002, 2001 and 2000 also include the operating results of Megan Health, Inc. ("Megan") from December 1, 2000, the date on which AVANT acquired Megan, through the present (see Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations"). All amounts are in thousands except per share data.

CONSOLIDATED STATEMENTS OF OPERATIONS DATA	2003	2002	2001	2000	1999
REVENUE:					
Product Development and Licensing	$ 1,804	$ 6,413	$ 3,000	$ 730	$ 1,484
Government Contracts	2,661	—	—	—	—
Product Sales and Royalty	168	292	346	33	—
Total Operating Revenue	4,633	6,705	3,346	763	1,484
OPERATING EXPENSE:					
Research and Development	10,021	14,709	21,581	10,774	7,872
Charge for Purchased In-Process Research & Development	—	—	—	9,012	—
Legal Settlement	—	—	—	(500)	—
Other Operating Expense	6,346	6,428	6,326	5,430	5,556
Total Operating Expense	16,367	21,137	27,907	24,716	13,428
Investment Income, Net	240	603	1,808	1,978	635
Net Loss Before Cumulative Effect of Change in Accounting Principle	(11,494)	(13,829)	(22,753)	(21,975)	(11,309)
Cumulative Effect of Change in Accounting Principle	(1,175)	—	—	—	—
Net Loss	$ (12,699)	$ (13,829)	$ (22,753)	$ (21,975)	$ (11,309)
Basic and Diluted Net Loss Per Common Share:					
Net Loss Before Cumulative Effect of Change in Accounting Principle	(0.18)	(0.23)	(0.39)	(0.42)	(0.26)
Cumulative Effect of Change in Accounting Principle	(0.02)	—	—	—	—
Net Loss	$ (0.20)	$ (0.23)	$ (0.39)	$ (0.42)	$ (0.26)
Weighted Average Common Shares Outstanding	62,513	60,461	57,982	52,438	44,076

CONSOLIDATED BALANCE SHEET DATA	2003	2002	2001	2000	1999
Working Capital	$ 18,924	$ 22,427	$ 37,821	$ 46,409	$ 12,289
Total Assets	31,305	35,233	53,485	63,563	19,883
Other Long Term Obligations	—	456	2,693	4,233	269
Accumulated Deficit	(204,572)	(191,903)	(178,073)	(155,320)	(133,345)
Total Stockholders' Equity	27,920	31,344	45,269	53,932	17,413

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

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

We do not utilize derivative financial instruments. See Notes 1 and 2 to the Consolidated Financials Statements for a description of our use of other financial instruments. The carrying amounts reflected in the consolidated balance sheet of cash and cash equivalents, accounts receivables and accounts payable

approximates fair value at December 31, 2003 due to the short-term maturities of these instruments.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995: *Statements contained in the following, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, that are not historical facts may be forward-looking statements that are subject to a variety of risks and uncertainties. There are a number of important factors that could cause the actual results to differ materially from those expressed in any forward-looking statements made by AVANT. These factors include, but are not limited to: (1) the integration of the UPT technology and programs; (2) the ability to adapt AVANT's vectoring systems to develop new, safe and effective orally administered vaccines against anthrax and plague or any other microbes used as bioweapons; (3) the ability to successfully complete development and commercialization of TP10, CholeraGarde™ (Peru-15), Ty800, CETi-1 and of other products; (4) the cost, timing, scope and results of ongoing safety and efficacy trials of TP10, CholeraGarde™(Peru-15), Ty800, CETi-1 and other preclinical and clinical testing; (5) the ability to successfully complete product research and further development, including animal, pre-clinical and clinical studies of TP10, CholeraGarde™ (Peru-15), Ty800, CETi-1 and other products; (6) the ability of the Company to manage multiple late stage clinical trials for a variety of product candidates; (7) the volume and profitability of product sales of Megan®Vac 1, Megan®Egg and other future products; (8) changes in existing and potential relationships with corporate collaborators; (9) the cost, delivery and quality of clinical and commercial grade materials supplied by contract manufacturers (10) the timing, cost and uncertainty of obtaining regulatory approvals to use TP10, CholeraGarde™ (Peru-15) and Ty800, among other purposes, for adults undergoing cardiac surgery, to protect travelers and people in endemic regions from diarrhea causing diseases, to use CETi-1, among other purposes, to raise serum HDL cholesterol levels and for other products; (11) the ability to obtain substantial additional funding; (12) the ability to develop and commercialize products before competitors; (13) the ability to retain certain members of management; and (14) other factors detailed from time to time in filings with the Securities and Exchange Commission. In addition, the factors described under "Risk Factors" in this report may result in these differences. You should carefully review all of these factors. These forward-looking statements were based on information, plans and estimates at the date of this report, and we do not promise to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.*

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

OVERVIEW

General.

AVANT's principal 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 and other collaborators. We were incorporated in the State of Delaware in December 1983.

AVANT's focus is unlocking the power of the immune system to prevent and treat disease. We have assembled a broad portfolio of technologies and intellectual property that give us a strong competitive position in vaccines and immunotherapeutics. Six of our products are in clinical development. The development of immunotherapeutic vaccines like CETi-1 and the marriage of innovative vector delivery technologies with the unique VitriLife® manufacturing process represent the potential for a new generation of vaccines. Our goal is to become a leading developer of such innovative vaccines that address health care needs on a global basis.

We have actively developed and acquired innovative technologies—especially novel approaches to vaccine creation. Today our broad intellectual property position allows us to respond quickly and leverage our expertise into many different areas as opportunities and needs arise. For example, our vaccine technology for providing rapid protection against bacterial illnesses may prove useful for improving and expanding America's vaccine arsenal against microbial agents used in war or terrorist attacks.

AVANT is targeting its efforts where it can add the greatest value to the development of its products and technologies. Our goal is to demonstrate clinical proof-of-concept for each product, and then seek excellent partners to help see those products through to commercialization. This approach allows us to maximize the overall value of our technology and product portfolios while best ensuring the expeditious development of each individual product.

Acquisitions

Universal Preservation Technologies, Inc.: In January 2003, AVANT completed the acquisition of certain technology and intellectual property of Universal Preservation Technologies, Inc. (UPT), a privately held company based in San Diego, California, and the licensure of certain patent rights from Elan Drug Delivery Limited (formerly a subsidiary of Elan Corporation plc, now Quadrant plc). As part of the acquisition, Elan Drug Delivery Limited (EDD) settled a patent interference with UPT. Under the settlement agreement UPT assigned certain patent rights to EDD, and EDD licensed UPT's and other related patents to AVANT. EDD's license to AVANT gives AVANT exclusive rights in connection with those patents relating to orally administered vaccines, and non-exclusive rights in certain other fields.

Through this transaction, AVANT has gained exclusive rights to UPT's VitriLife® process for use in AVANT's oral vaccines and certain other non-injectable applications. VitriLife® is a patented drying method for the industrial-scale preservation of biological solutions and suspensions, such as proteins, enzymes, viruses, bacteria and other cells, which has the potential to cut production costs and improve product stability at room temperature or higher, thus eliminating the need for costly cold-chain distribution and storage of vaccines—the major challenge to vaccine affordability in many areas of the world facing endemic disease. The acquisition of UPT's assets includes only technology and patents; AVANT did not acquire UPT's San Diego facility or employees in this transaction. We have determined that this technology has alternative future uses and will be incorporated into a number of AVANT's bacterial vaccine programs. AVANT paid an aggregate of $2,000,000 in consideration in the transaction,

recorded this value to acquired intangible assets, and is amortizing these assets over their estimated lives of ten years.

Megan Health, Inc.: On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan Health, Inc. ("Megan"), a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies. In connection with the acquisition, we recorded a charge of $9,012,300 for acquired 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 value of IPR&D was determined by estimating the costs to develop the purchased in-

process technology into commercially viable products, estimating the net cash flows from such projects and discounting the net cash flows back to their present values. The probability of success and discount rates in each project take into account the uncertainty surrounding the successful development and commercialization of the purchased in-process technology. The resulting net cash flows for these projects were based on our best estimates of revenue, cost of sales, research and development costs, selling, general and administrative costs, and income taxes for each project, and the net cash flows reflect assumptions that would be used by market participants. As of December 31, 2003, none of the acquired research and development projects had reached technological feasibility.

Virus Research Institute, Inc.: On August 21, 1998, AVANT acquired Virus Research Institute, Inc. ("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. In connection with the acquisition, we recorded a charge of $44,630,000 for acquired IPR&D, which represented purchased in-process technology which had not yet reached technological feasibility and had no alternative future use. As of December 31, 2003, none of the acquired research and development projects had reached technological feasibility.

Research and Development Activities

AVANT is currently focused on the development of a number of vaccine product candidates which are in various stages of clinical trials. We expect that a large percentage of our research and development expenses will be incurred in support of our current and future clinical trial programs.

The expenditures that will be necessary to execute AVANT's business plan are subject to numerous uncertainties. Completion of clinical trials may take several years or more, but the length of time generally varies substantially according to the type, complexity, novelty and intended use of a product candidate. It is not unusual for the clinical development of these types of product candidates to each take five years or more, and for total development costs to exceed $100 million for each product candidate. AVANT estimates that clinical trials of the type AVANT generally conducts are typically completed over the following timelines:

Clinical Phase	Estimated Completion Period
Phase I	1-2 Years
Phase II	1-5 Years
Phase III	1-5 Years

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

- the number of patients that ultimately participate in the trial;
- the duration of patient follow-up that seems appropriate in view of results;
- the number of clinical sites included in the trials;

- the length of time required to enroll suitable patient subjects; and
- the efficacy and safety profile of the product candidate.

AVANT tests potential product candidates in numerous preclinical studies for safety, toxicology and immunogenicity. AVANT then may conduct multiple clinical trials for each product candidate. As we obtain results from trials, we may elect to discontinue or delay clinical trials for certain product candidates in order to focus our resources on more promising product candidates.

An element of AVANT's business strategy is to pursue the research and development of a broad portfolio of product candidates. This is intended to allow AVANT to diversify the risks associated with its research and development expenditures. As a result, AVANT believes its future capital requirements and its future financial success are not substantially dependent on any one product candidate. To the extent AVANT is unable to maintain a broad range of product candidates, AVANT's dependence on the success of one or a few product candidates increases.

AVANT's product candidates also have not yet received FDA regulatory approval, which is required before AVANT can market them as therapeutic or vaccine products. In order to proceed to subsequent clinical trial stages and to ultimately achieve regulatory approval, the FDA must conclude that AVANT's clinical data establish safety and efficacy. Historically, the results from preclinical testing and early clinical trials (through Phase II) have often not been predictive of results obtained in later clinical trials. A number of new drugs, biologics and vaccines have shown promising results in early clinical trials, but subsequently failed to establish sufficient safety and efficacy data to obtain necessary regulatory approvals.

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

As a result of the uncertainties discussed above, among others, AVANT is unable to estimate the duration and completion costs of its research and development projects or when, if ever, and to what extent it will receive cash inflows from the commercialization and sale of a product. AVANT's inability to complete its research and development projects in a timely manner or its failure to enter into collaborative agreements, when appropriate, could significantly increase its capital requirements and could adversely impact its liquidity. These uncertainties could force AVANT to seek additional, external sources of financing from time to time in order to continue with its business strategy. AVANT's inability to raise additional capital, or to do so on terms reasonably acceptable to it, would jeopardize the future success of its business. The amount incurred for each material research program since the beginning of 2000, is set forth below under "Program Developments." During the past five years through the end of 2003, AVANT incurred an aggregate of $65.0 million in research and development costs. During the year ended December 31, 2003, AVANT incurred an aggregate of $10.0 million in research and development costs. The following table indicates the

amount incurred for each of AVANT's material research programs and for other identified research and development activities during the years ended December 31, 2003, 2002, 2001 and 2000. The amounts disclosed in the following table and in "Program Developments" below reflect direct research and development costs, license fees associated with the underlying technology and an allocation of indirect research and development costs to each program. Prior to January 1, 2000, AVANT did not track research and

development costs by program and, therefore we are unable to disclose spending by program prior to that date.

	Years Ended December 31,			
	2003	2002	2001	2000
Cholesterol Management Vaccine:				
CETi-1	$ 3,404,000	$ 3,176,800	$ 2,387,700	$ 1,900,100
Bacterial Vaccines:				
CholeraGarde	695,800	5,959,100	2,369,200	134,200
Ty800	186,300	2,203,600	1,863,500	66,100
Other	137,500	204,400	—	—
BioDefense Vaccines:	3,524,500	239,900	—	—
Food Safety & Animal Health Vaccines:	49,400	450,600	984,900	64,800
Viral Vaccines:				
Rotavirus vaccine	200,000	400,000	334,100	244,900
Other	72,400	346,800	264,600	1,366,500
Complement Inhibitors:				
TP10/TP20	1,648,700	1,714,800	12,930,500	6,514,600
Other Porgrams:	102,700	—	—	—
Discontinued Programs:	—	12,500	446,000	483,000
Total R&D Expense	$ 10,021,300	$ 14,708,500	$ 21,580,500	$ 10,774,200

Program Developments

Cholesterol Management Vaccine: We are developing an immunotherapeutic 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 (high-density lipoprotein) and LDL (low-density lipoprotein). We are developing this vaccine, CETi-1, to stimulate an immune response against CETP, which we believe may improve the ratio of HDL to LDL cholesterol and reduce the progression of atherosclerosis. We have conducted preliminary studies of rabbits, which have demonstrated the ability of CETi-1 vaccine to elevate HDL and reduce the development of blood vessel lesions.

CETi-1 is being developed for the management of patients with low levels of HDL cholesterol. In September 1999, we initiated a double-blind placebo controlled, Phase I clinical trial of our CETi-1 vaccine in adult volunteers. The object of the study was to demonstrate the safety of single administrations of the vaccine at four different dosage strengths and results were announced in January 2001. The vaccine was well tolerated in the 48 adult volunteers who participated in the study. The only serious adverse reaction reported during the study (allergic reaction to shower gel) was not related to study medication. There were no differences in the safety profiles of placebo groups and active vaccine groups. In addition, there was limited evidence of an immune response in one subject treated with the highest dose. Subsequently, AVANT announced results from a double-blinded placebo controlled extension of the earlier completed CETi-1 Phase I trial in the same healthy adult volunteers receiving a second dose of the vaccine. Results from the extension study showed measurable antibody titers in all dose groups treated with study medication, suggesting a dose-response relationship.

These data were helpful in moving the program forward to a placebo controlled Phase II study, which was initiated in August 2001, in approximately 200 patients with low levels of HDL cholesterol. The objectives of the study were to evaluate the safety, immunogenicity and dose-response relationship of the CETi-1 product in patients who receive an initial immunization followed by boosters. The primary endpoint wss the change in HDL cholesterol measured after the six-month booster. In

October 2003, AVANT completed the CETi-1 vaccine Phase II efficacy study. The results of the study demonstrated proof-of-concept in humans confirming that blocking cholesterol transfer could raise HDL levels. In addition, the CETi-1 vaccine worked as designed to elicit anti-CETP antibodies in a high percentage of patients treated, approximately 90%. During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $10.9 million in research, development and clinical costs associated with the CETi-1 program. We plan to seek a corporate partner to complete development and to commercialize the CETi-1 vaccine.

Bacterial Vaccines: Modern biotechnology offers great potential for bettering health conditions worldwide. New vaccine technologies, in particular, can provide avenues to disease prevention and treatment with notable advantages over drugs in terms of patient compliance and cost. They also offer strategies to solve global health problems, to protect both civilians and military from biowarfare threats, and to increase the safety of our food supply. Our goal is to become a leading developer of innovative vaccines that address health care needs on a global basis. In this regard, we have recently completed the acquisition of VitriLife®, a new technology with the potential to reduce manufacturing costs and improve product stability, eliminating the need for vaccine refrigeration. With this technology and our *Cholera*- and *Salmonella*-vectored delivery technologies, named VibrioVec™ and SalmoVec™, we can now develop a new generation of vaccines that have an ideal product profile: safe, effective, oral, single-dose, rapidly protective and requiring no refrigeration.

Development of a safe, effective cholera vaccine is the first step in establishing AVANT's single-dose, oral bacterial vaccine franchise. During 2002, AVANT completed a Phase II dose-ranging study with CholeraGarde™ which confirmed the safety and activity of this vaccine and supported the start of Phase II trials in December 2002 with the International Vaccine Institute (IVI) in Bangladesh where cholera is endemic. IVI is assessing the safety and immunogenicity of the vaccine in adults before moving into progressively younger pediatric populations, eventually studying the vaccine in infants as young as nine months. To date, IVI has completed testing in adults and is now vaccinating toddlers, ages 2 to 5 years. In January 2004, we announced positive preliminary results of the adult portion from the Phase II clinical trial of CholeraGarde™ in Bangladesh. In 70 adult subjects, enrolled as part of this ongoing study that is assessing the safety and immunogenicity of the vaccine in adults prior to moving into progressively younger pediatric populations, vaccination with the single-dose, oral cholera vaccine was well tolerated. Moreover, over 70% of the vaccinated adults responded with a favorable immune response. The study will complete in the second half of 2004.

In 2003, AVANT terminated its manufacturing contract with Bio Sidus, S.A., of Buenos Aires, Argentina, for the manufacture of its CholeraGarde™vaccine. The two companies resolved their contractual issues and settled all claims during the fourth quarter of 2003. Clinical material for the IVI trials in Bangladesh previously has been manufactured by the Walter Reed Army Institute of Research (WRAIR), and AVANT and WRAIR have entered into a manufacturing agreement to supply CholeraGarde™. During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $9.2 million in research, development and clinical costs on its CholeraGarde™ program.

In addition, the National Institute of Allergy and Infectious Disease (NIAID) of the National Institutes of Health (NIH) and AVANT have agreed for the NIAID to conduct a Phase I in-patient dose-ranging clinical trial aimed at demonstrating the safety and immunogenicity of the Ty800 typhoid fever vaccine. The trial is planned for a NIAID-funded clinical site using NIAID-funded clinical material. The NIAID trial seeks to confirm the safety and immunogenicity of the Ty800 oral vaccine observed in an earlier physician-sponsored Ty800 vaccine study. During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $4.3 million in research, development and clinical costs on its Ty800 program.

Finally, we are developing three additional bacterial vaccines against enterotoxigenic *E. coli*, *Shigella* and *Campylobacter*—all important causes of serious diarrheal diseases worldwide. These three

programs are in pre-clinical development. In 2004, we expect to allocate resources to further the development of a two-vaccine combination product containing ETEC and Campylobacter addressed to the travelers' market.

BioDefense Vaccines: The attenuated live bacteria used to create AVANT's single-dose oral vaccines can also serve as vectors for the development of vaccines against other bacterial and viral diseases. By engineering key disease antigens into the DNA of the vector organisms, AVANT expects to be able to extend the protective ability of its single-dose oral vaccines to a wide variety of illnesses. We believe our vector technologies may prove useful for improving and expanding America's vaccine arsenal against microbial agents used in war or terrorist attacks.

In October 2001, AVANT granted DynPort Vaccine Company LLC (DVC) a license for exclusive rights to use certain components of AVANT's anthrax vaccine technology. In October 2002, DVC announced the initiation of a Phase I clinical trial of a new injectable recombinant anthrax vaccine in approximately 70 volunteers. The vaccine candidate consists of a highly purified protein—Protective Antigen—derived from the anthrax bacterium using recombinant technology and production processes licensed from AVANT. DVC hopes this vaccine will offer a safe, effective product to support the country's need for a new-generation injectable anthrax vaccine. The Phase I trial is being conducted at WRAIR in conjunction with the Henry M. Jackson Foundation. The study will evaluate tolerability, safety and immunogenicity of DVC's new vaccine being developed for the U.S. Department of Defense (DoD) through the Joint Vaccine Acquisition Program (JVAP). In June 2003, AVANT was awarded a subcontract by DVC, in the amount of $344,000, which covers stability testing of DVC "s injectable anthrax vaccine. Payments under the subcontract agreement are made on a time and materials basis and receipt of the full amount is conditioned upon the project being fully funded through completion and AVANT performing and continuing to demonstrate that it has the capability to perform the funded work.

In July 2002, AVANT was awarded a Phase I Small Business Innovation Research (SBIR) grant to support the development of the Company's oral, single-dose bacterial vectors to immunize people against anthrax. Vaccine delivery using live, attenuated bacteria is particularly well suited for situations where ease of administration and rapid onset of immunity are required, such as for protection against biological warfare agents. The NIAID of the NIH awarded this Live Attenuated Vaccines Against Anthrax grant, which provides approximately $125,000 in funding to AVANT.

Further, in January 2003, AVANT was awarded a subcontract to develop for the U.S. Department of Defense an oral combination vaccine against anthrax and plague using AVANT's proprietary vaccine technologies. AVANT executed this initial subcontract with DVC and will be reimbursed on a time and materials basis for vaccine development research work performed by AVANT in the amount of $2.5 million. In June 2003, AVANT was awarded a second subcontract for approximately $1.3 million to support preclinical animal testing of vaccine constructs being developed by AVANT for the oral combination vaccine against anthrax and plague. AVANT expects to execute additional subcontracts with DVC. Under the subcontract agreement, AVANT may receive in excess of $8 million over a two-year period, covering vaccine development through preclinical testing. The Defense Appropriations Bill for Fiscal Year 2004 passed by Congress in September 2003 commits $3.0 million for the continued development of this combination vaccine. Payments under the subcontract agreement are made on a time and materials basis and receipt of the full amount is conditioned upon the project being fully funded through completion and AVANT performing and continuing to demonstrate that it has the capability to perform the funded work.

In August 2003, the Company announced that it had reached agreement with MassDevelopment, an economic development entity for the Commonwealth of Massachusetts, for AVANT to occupy and build-out a pilot-manufacturing facility in Fall River, Massachusetts. AVANT is establishing this 11,800

square foot facility to support the clinical development of its portfolio of bacterial vaccines, including vaccines for biodefense, as well as the continued development and product application of VitriLife®.

During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $3.8 million in research and development costs on its biodefense vaccine program.

Food Safety and Animal Health Vaccines: AVANT has also partnered with Pfizer, who will apply AVANT's vaccine technologies to animal health and human food safety markets. The Pfizer research programs are making progress and in late 2002 we achieved an important milestone, which resulted in a payment of $500,000 to AVANT. During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $1.5 million in research and development costs on its food safety and animal health vaccines program.

Rotavirus Vaccine: Rotavirus is a major cause of diarrhea and vomiting in infants and children. No vaccine against rotavirus is currently on the market. In 1997, we licensed our oral rotavirus vaccine to Glaxo. In 1999, after our Phase II study demonstrated 89% protection in a study involving 215 infants, Glaxo paid us an additional license fee and assumed full responsibility for funding and performing all remaining clinical development. Substantially all of the ongoing development is being conducted and funded by Glaxo. During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $1,100,000 in licensing fees and $79,000 in research and development costs. Prior to January 1, 2000, AVANT did not track research and development costs by program and, therefore, we are unable to disclose spending by program prior to that date. Glaxo has completed Phase I/II bridging studies in over 6,500 infants in Europe, Latin America and Asia using its two-dose oral rotavirus vaccine, called Rotarix®. Glaxo initiated global Phase III clinical trials of Rotarix® in the third quarter of 2003, and AVANT recognized a $1.0 million milestone. Assuming product development and commercialization continues satisfactorily, we may receive additional milestone payments totaling $7.5 million upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of Rotarix®.

Complement Inhibitors: In 1997, we entered into an agreement with Novartis relating to the development of our complement inhibitor, TP10, for use in xenotransplantation (animal organs into humans) and allotransplantation (human organs into humans). 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. As of September 6, 2002, Novartis and AVANT agreed to terminate the TP10 agreement pursuant to which Novartis paid a net termination fee of $1.9 million and returned to AVANT all pre-clinical and clinical TP10 material.

In February 2002, AVANT announced that TP10 had not achieved a significant reduction in the primary endpoint of death, myocardial infarction, prolonged intubation or prolonged intra-aortic balloon pumping following preliminary analysis of a Phase II adult cardiac surgery trial conducted in 564 patients. However, further analysis of the study data demonstrated an important treatment benefit in male patients participating in the trial, with no significant treatment benefit observed in female patients. Adverse events reported following treatment with TP10 were generally similar to those seen in placebo treated patients and were said by investigators to be routinely observed following cardiopulmonary bypass. Results of this Phase II adult trial were presented at the American Heart Association's Annual Meeting in November 2003.

The important treatment benefits seen in the male population were directly related to mortality and the benefit seen was impressive. This further analysis of the study data showed continued promise for this molecule and AVANT has announced its renewed commitment to its development. In February 2004, AVANT announced plans to start a Phase IIb double-blind, placebo-controlled trial of TP10 in approximately 300 women undergoing cardiopulmonary by-pass surgery. The trial will examine the effect of TP10 versus placebo, will conclude around year-end 2004, and will be conducted at approximately 25 sites throughout the United States. The goals of the trial are to clarify the effect that TP10 has for women undergoing cardiac surgery, as well as augment the safety data for that patient population to allow for the design of a subsequent registration-directed trial.

During the period January 1, 2000 through December 31, 2003, AVANT incurred approximately $22.8 million in research, development and clinical costs associated with its complement programs. With the termination of the Novartis agreement, AVANT can now offer a worldwide license for all fields, and may seek partnering arrangements to capture the value inherent in this program and its strong intellectual property portfolio.

Technology Licensing

AVANT has adopted a business strategy of out-licensing technology that does not match its development focus or where it lacks sufficient resources for the technology's efficient development. For example, when AVANT acquired Megan it also signed an agreement with Pfizer to leverage the value of Megan's oral vaccine technology in a significant market opportunity (animal health and food safety) outside of AVANT's own focus on human health care.

DynPort License: In October 2001, AVANT granted a license to DynPort Vaccine Company LLC (DVC) for exclusive rights to use certain components of AVANT's vaccine technology. Financial terms of the agreement with DVC include license fees, milestone payments and royalties. DVC, a private company, is chartered with providing an integrated approach for the advanced development of specific vaccines and other products to protect against the threat of biological warfare agents. DVC has a 10-year contract with the U.S. Department of Defense for the development of vaccines against certain acute infectious diseases and contagious diseases, initiated under the 1997 Joint Vaccine Acquisition Program. We see this licensing opportunity as a way to further leverage our vaccine technology.

Formation of Parallel Solutions: During October 2001, AVANT contributed its polyphosphazene polymer adjuvant business (the "PCPP business"), including Adjumer® and Micromer®, into a newly formed, privately held company, Parallel Solutions, Inc. ("Parallel"), in exchange for a non-controlling minority ownership position in Parallel. AVANT believes that Parallel's plans to expand the PCPP business beyond vaccine adjuvants, and indeed beyond human therapeutics, offer greater opportunities to create value. This transaction allows AVANT to further leverage this technology with the potential for significant upside benefits as a shareholder of Parallel, while divesting its obligations for manufacturing PCPP and the burden of funding the PCPP business. In connection with this transaction, AVANT has assigned all of its rights and obligations under the Aventis license agreements to Parallel. AVANT has no future funding commitments or other obligations to Parallel and has neither a role in the management of Parallel nor representation on the Parallel board of directors.

CRITICAL ACCOUNTING POLICIES

Our significant accounting policies are described in Note 1 to the consolidated financial statements included in Item 8 of this Form 10-K. We believe our most critical accounting policies include revenue recognition for agreements entered into with various collaborators and the amortization policy for acquired intangible assets.

Revenue Recognition: AVANT has entered into various license and development agreements with pharmaceutical and biotechnology companies. The terms of the agreements typically include non-refundable license fees, funding of research and development, payments based upon achievement of certain milestones and royalties on net product sales. Non-refundable license fees are recognized as contract and license fee revenue when AVANT has a contractual right to receive such payments, provided a contractual arrangement exists, the contract price is fixed or determinable, the collection of the resulting receivable is reasonably assured and AVANT has no further performance obligations under the license agreement. When we have performance obligations under the terms of a contract,

non-refundable fees are recognized as revenue as we complete our obligations. Where AVANT's level of effort is relatively constant over the performance period, the revenue is recognized on a straight-line basis. The determination of the performance period involves judgment on management's part. Funding

of research and development is recognized over the term of the applicable contract as costs are incurred related to that contract. Revenues from milestone payments related to arrangements under which we have no continuing performance obligations are recognized upon achievement of the related milestone. Revenues from milestone payments related to arrangements under which we have continuing performance obligations are recognized as revenue upon achievement of the milestone only if all of the following conditions are met: the milestone payments are non-refundable; achievement of the milestone was not reasonably assured at the inception of the arrangement; substantive effort is involved in achieving the milestone; and, the amount of the milestone is reasonable in relation to the effort expended or the risk associated with achievement of the milestone. If any of these conditions are not met, the milestone payments are deferred and recognized as revenue over the term of the arrangement as AVANT completes its performance obligations. Option fees are recognized over the related option period. Revenues from government contracts are recorded as effort is expended on the contracted work and billed to the government. Royalty revenue consists of payments received from licensees for a portion of sales proceeds from products that utilize AVANT's licensed technologies and would be recognized when the amount of and basis for such royalty payments are reported to us in accurate and appropriate form and in accordance with the related license agreement. Payments received in advance of activities being performed are recorded as deferred revenue. Any significant changes in our estimates or assumptions could impact our revenue recognition. Revenues from product sales are recorded when the product is shipped providing no significant post-delivery obligations remain and collection of the related receivable is reasonably assured. Effective July 1, 2003, we adopted EITF 00-21, *Accounting For Revenue Arrangements with Multiple Deliverables*, which establishes criteria for whether revenue on a deliverable can be recognized separately from other deliverables in a multiple deliverable arrangement. The criteria considers whether the delivered item has stand-alone value to the customer, whether the fair value of the delivered item can be reliably determined and the customer's right of return for the delivered item. The adoption of EITF 00-21 did not have a material impact on our financial statements.

Amortization of Intangible Assets: We have acquired intangible assets, which include core technology, developed technology and strategic partner agreement, through the acquisition of Megan and UPT. These acquired intangible assets are being amortized on a straight-line basis over their estimated lives which range from 5 to 17 years. The determination of the amortization period involves estimates and judgment on management's part. Any significant changes in our estimates or assumptions could impact the carrying value of acquired intangible assets. We evaluate the recoverability of these assets when facts and circumstances suggest the asset could be impaired in accordance with Statement of Financial Accounting Standards No. 144 ("SFAS 144"), "Accounting for the Impairment of Long-Lived Assets".

In 2003, we changed our accounting for patent costs and now expense all patent costs as incurred. As a result of this change, we recorded a non-cash charge for the cumulative effect of the change in accounting principle of approximately $1.2 million, or $.02 per share, for the year ended December 31, 2003.

As a result of the adoption of SFAS No. 142, effective January 1, 2002, we ceased amortization of goodwill and performed an initial assessment of impairment of our goodwill in the first quarter of 2002. This initial assessment involved comparing our fair value to our net assets. We determined our fair value based on quoted market prices adjusted to provide for a control premium. Our fair value was in excess of our net assets and, therefore, we concluded that our goodwill was not impaired. SFAS No. 142 requires us to perform an impairment assessment annually or whenever events or changes in circumstances indicate that our goodwill may be impaired. On July 1 2003 and 2002, we conducted an annual impairment assessment as required under SFAS No. 142 by comparing our fair value to our net assets, including goodwill, as of June 30, 2003 and 2002. Because our fair value exceeded the carrying value of our net assets at June 30, 2003 and 2002, we determined that our goodwill was not impaired.

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

RESULTS OF OPERATIONS

Fiscal Year Ended December 31, 2003 compared with Fiscal Year ended December 31, 2002

AVANT reported a net loss of $12,669,500, or $0.20 per share, for the year ended December 31, 2003, a decrease of $1,159,700, or 8%, compared to a net loss of $13,829,200, or $0.23 per share, for the year ended December 31, 2002. The weighted average common shares outstanding used to calculate the net loss per common share was 62,512,900 in 2003 and 60,461,600 in 2002.

Revenue

Total revenue decreased $2,071,900, or 31%, to $4,632,900 in 2003 from $6,704,800 in 2002.

Product development and licensing revenue decreased $4,608,500, or 72%, to $1,803,900 in 2003 from $6,412,400 in 2002. In 2003, the decrease in product development and licensing revenue consisted primarily of a decrease of $2,461,700 in the amortization of a nonrefundable license fee and the recognition of a $1.9 million net termination fee from Novartis due to the termination of the TP10 agreement with Novartis in 2002, offset in part by the recognition of a one-time milestone payment from Glaxo of $1 million upon initiation of the Rotarix® Phase III clinical trials in 2003. The decrease in product development and licensing revenue in 2003 further consists of a decrease of $319,700 in the amortization of nonrefundable license fees from Pfizer due to an extension of the amortization period, a one-time milestone of $500,000 received from Pfizer in 2002, a decrease of $75,000 in milestone payments from DynPort received in 2002, offset partly by a one-time $50,000 distribution fee from LAHI and $58,700 received in connection with government SBIR grants.

During 2003, AVANT received three subcontracts from its partner, DVC, to develop anthrax and plague vaccines for the U.S. Department of Defense. AVANT will be reimbursed by DVC on a time and materials basis for vaccine development research work performed by AVANT in the aggregate amount of $4.1 million. Under these agreements, AVANT recognized $2,661,200 in government contract revenue during 2003.

As of September 1, 2002, we transferred the marketing and distribution of the Megan poultry product line to our partner, LAHI, and during 2003 AVANT received a percentage of all Megan®Vac 1 product sales as product royalty payments totaling $167,800. Product sales in 2002 totaled $292,400 and were derived

from sales of our Megan®Vac 1 salmonella vaccine product.

Operating Expense

Total operating expense decreased $4,769,800, or 23%, to $16,366,900 in 2003 compared to $21,136,700 in 2002. The decrease in total operating expense in 2003 compared to 2002 is primarily due to a reduction in costs associated with conducting sponsored research and clinical trials, a decrease in contract manufacturing activities and consulting costs associated with the bacterial vaccines programs, and a decrease in personnel and related expenses. In 2003, AVANT terminated its manufacturing contract with Bio Sidus, S.A., of Buenos Aires, Argentina, for the manufacture of its CholeraGarde™ vaccine. The two companies resolved their contractual issues and settled all claims during the fourth quarter of 2003.

Research and development expense decreased $4,687,200, or 32%, to $10,021,300 in 2003 compared to $14,708,500 in 2002. The decrease in 2003 compared to 2002 is primarily due to reductions in contract manufacturing costs of $2,766,500, sponsored research costs of $84,000 and clinical trial costs of $1,342,000 associated with the company's bacterial vaccine programs. It also

reflects declines in personnel and related expenses of $266,000, and manufacturing consultancy costs of $383,600, offset partly by increases in facility-related expenses of $362,000.

Selling, general and administrative expense decreased $241,600, or 4%, to $5,350,500 in 2003 compared to $5,592,100 in 2002. The decrease in 2003 is primarily attributed to decreases in selling and marketing expense of $94,500, consulting costs of $650,300, offset partly by increases in legal and patent expenses of $363,800, insurance expenses of $91,000 and personnel and related expenses of $178,500.

Amortization expense of acquired intangible assets was $995,100 in 2003 compared to $795,100 in 2002.

Investment Income, Net

Net investment income decreased $362,900, or 60%, to $239,800 in 2003 compared to $602,700 in 2002. The decrease is primarily due to lower average cash balances and lower interest rates during 2003 compared to 2002. During 2003 and 2002, the average month-end cash balances were $21,198,200 and $31,412,600, respectively. The effective interest rates during 2003 and 2002 were 1.11% and 1.84%, respectively.

Fiscal Year Ended December 31, 2002 compared with Fiscal Year ended December 31, 2001

AVANT reported a net loss of $13,829,200, or $0.23 per share, for the year ended December 31, 2002, a decrease of $8,923,800, or 39%, compared to a net loss of $22,753,000, or $0.39 per share, for the year ended December 31, 2001. The weighted average common shares outstanding used to calculate the net loss per common share was 60,461,400 in 2002 and 57,981,800 in 2001.

Revenue

Total revenue increased $3,358,900, or 100%, to $6,704,800 in 2002 from $3,345,900 in 2001.

Product development and licensing revenue increased $3,412,600, or 114%, to $6,412,400 in 2002 from $2,999,800 in 2001. In 2002, product development and licensing revenue consisted primarily of a $1,900,000 net fee paid by Novartis for the termination of its agreement on TP10 in transplantation, the recognition of the remaining $2,461,700 in deferred revenue related to the Novartis agreement, $817,400 in the amortization of a nonrefundable license fee from Pfizer, a $500,000 milestone payment from Pfizer, $458,400 from Pfizer's funding of research and development at Megan, annual license and milestone payments of $137,500 from DynPort and $137,400 received in connection with our SBIR and STTR grants. The Novartis-related revenue in 2002 is non-recurring in nature and the deferred revenue portion represents non-cash revenue. In 2001, product development and licensing revenue consisted primarily of $1,601,300 in the amortization of nonrefundable license fees from Novartis and Pfizer, Pfizer's funding of research and development at Megan, annual license and milestone payments of $212,500 from DynPort and $480,000 received in connection with our SBIR and STTR grants.

Product sales decreased $53,700, or 16%, to $292,400 in 2002 from $346,100 in 2001 and were derived from sales of our Megan®Vac 1 product, a vaccine for use in chickens for protection against multiple strains of *Salmonella* bacteria. As of September 1, 2002, we transferred the marketing and distribution of this product line to our partner, Lohmann Animal Health International (LAHI), and in the future AVANT will receive a percentage of all Megan®Vac 1 product sales in the form of royalty payments.

Operating Expense

Total operating expense decreased $6,770,600, or 24%, to $21,136,700 for 2002 compared to $27,907,300 for 2001. The decrease in total operating expense for 2002 compared to 2001 is primarily due to decreased clinical trials costs of approximately $6,240,700 and decreased clinical materials costs

of approximately $1,155,800 incurred in connection with the Company's clinical programs. Also contributing to this decrease was the elimination of goodwill amortization of $580,800, offset in part by an increase in consultancy, legal, insurance and facility-related expenses.

Research and development expense decreased $6,872,000, or 32%, to $14,708,500 in 2002 from $21,580,500 in 2001. The decrease in 2002 compared to 2001 is primarily due to (1) the Company's terminated TP10 programs; (2) a decrease in non-TP10 clinical trials expenses due to fewer clinical trials in progress during 2002; and (3) a decrease in manufacturing costs as a result of delays in production runs for the bacterial vaccines programs. This decrease was offset in part by increases in manufacturing consultancy expenses of $494,600 and facility-related expenses of $508,000.

Selling, general and administrative expense increased $678,000, or 14%, to $5,592,100 in 2002 compared to $4,914,100 in 2001. The increase in expense in 2002 compared to 2001 is primarily attributed to increased consultancy expense of $357,100, legal expense of $159,700, insurance costs of $112,900 and corporate communications costs of $101,100 offset in part by a decrease in selling and marketing expenses of $136,100.

Investment Income, Net

Interest income decreased $1,205,700, or 67%, to $602,700 for 2002 compared to $1,808,400 for 2001. The decrease in interest income is primarily due to significantly lower interest rates and lower average cash balances in 2002. During 2002 and 2001, the average month-end cash balances were $31,412,600 and $42,374,600, respectively. The effective interest rates during 2002 and 2001 were 1.84% and 4.14%, respectively.

Liquidity and Capital Resources

AVANT's cash, cash equivalents and marketable securities at December 31, 2003 was $20,251,000 compared to $25,070,700 at December 31, 2002.

Net cash used in operating activities decreased to $11,739,400 in 2003 compared with $16,659,400 in 2002. The decrease is attributed to a decrease in net loss incurred in 2003 compared to 2002 and increases in deferred revenue, offset by an increase in accounts receivable and decreases in accounts payable and accrued expenses.

Net cash used in investing activities increased to $2,210,100 in 2003 compared to $840,600 in 2002. The increase is primarily due to $2 million of cash paid for certain assets of Universal Preservation Technologies, Inc., offset in part by decreased investment in property and equipment in 2003 compared to 2002.

Net cash provided by financing activities was $9,129,800 in 2003 compared to net cash used in financing activities of $95,200 in 2002. The increase is due primarily to the completion of a private placement in July 2003 and a reduction in purchases of treasury stock under a share repurchase plan, offset by a decrease in proceeds from the exercise of stock options and warrants in 2003 compared to 2002.

In connection with our acquisition of the technology and intellectual property portfolio of UPT and the licensure of certain patents from Elan in 2003, AVANT paid an aggregate of $2,000,000 in consideration in the transaction. In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer whereby Pfizer made an initial license payment of $2.5 million together with a $3 million equity investment in AVANT. In July 1999, Novartis exercised its option to license TP10 for use in the field of transplantation. The decision to license TP10 resulted in a $6 million payment by Novartis which was received by AVANT in January 2000. As of September 6, 2002, Novartis and AVANT agreed to terminate the TP10 agreement pursuant to which Novartis paid a net termination fee of $1.9 million and returned to AVANT all pre-clinical and clinical TP10 material.

In August 2002, our Board of Directors approved a share repurchase plan, which authorized the buyback of up to two million shares of our common stock in the open market or through privately negotiated transactions through August 31, 2003. Under the plan, we acquired 220,300 shares at an aggregate cost of approximately $227,600 and an average price of $1.03 per share.

In February 2004, we completed a direct equity placement of 8,965,000 shares of common stock to institutional investors at a price of $2.75 per share which generated gross proceeds totaling approximately $24.7 million. Expenses associated with the transaction totaled approximately $1,573,700.

In July 2003, AVANT completed a private placement of approximately 4,444,444 shares and warrants to purchase 444,444 shares of common stock at $3.00 per share to an institutional investor. Gross proceeds from the offering totaled $10 million. Expenses associated with the transaction totaled approximately $792,300.

In October 2001, we completed a direct equity placement of approximately 3,057,900 shares of common stock to institutional investors at an average price of $4.58 per share which generated net proceeds totaling approximately $13,575,200. In July 2000, we completed a private placement of 4,650,900 newly issued shares of common stock at $7.85 per share which generated net proceeds totaling approximately $34,481,000 after deducting all associated expenses.

Aggregate Contractual Obligations

As of December 31, 2003, AVANT had future payments required under contractual obligations and other commitments approximately as follows:

	Total	Less than One Year	1-3 Years	3-5 Years	Over 5 Years
Operating lease obligations	$ 11,288,900	$ 3,129,400	$ 7,527,500	$ 421,400	$ 210,600
Licensing obligations	920,000	310,000	355,000	170,000	85,000
Total future obligations	$ 12,208,900	$ 3,439,400	$ 7,882,500	$ 591,400	$ 295,600

AVANT believes that cash inflows from existing grants and collaborations, interest income on invested funds and our current cash and cash equivalents will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2004. The working capital requirements of AVANT are dependent on several factors including, but not limited to, the costs associated with research and development programs, pre-clinical and clinical studies, manufacture of clinical and commercial grade materials and the scope of collaborative arrangements. During 2004, we may take steps to raise additional capital including, but not limited to, licensing of technology programs with existing or new collaborative partners, possible business combinations, or the issuance of common stock via private placement or public offering. There can be no assurance that such efforts will be successful.

RECENT ACCOUNTING PRONOUNCEMENTS

Effective July 1, 2003, we adopted EITF 00-21, *Accounting For Revenue Arrangements with Multiple Deliverables*, which establishes criteria for whether revenue on a deliverable can be recognized separately from other deliverables in a multiple deliverable arrangement. The criteria considers whether the delivered item has stand-alone value to the customer, whether the fair value of the delivered item can be reliably determined and the customer's right of return for the delivered item. The adoption of EITF 00-21 did not have a material impact on our financial statements.

On December 17, 2003, the Staff of the Securities and Exchange Commission (SEC or the Staff) issued SAB 104, *Revenue Recognition*, which amends SAB 101, *Revenue Recognition in Financial*

Statements. SAB 104's primary purpose is to rescind accounting guidance contained in SAB 101 related to multiple element revenue arrangements, superseded as a result of the issuance of EITF 00-21. Additionally, SAB 104 rescinds the SEC's *Revenue Recognition in Financial Statements Frequently Asked Questions and Answers* (the FAQ) issued with SAB 101 that had been codified in SEC Topic 13, *Revenue Recognition*. Selected portions of the FAQ have been incorporated into SAB 104. While the wording of SAB 104 has changed to reflect the issuance of EITF 00-21, the revenue recognition principles of SAB 101 remain largely unchanged by the issuance of SAB 104. The adoption of SAB 104 did not have a material impact on our financial statements.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Report of Independent Auditors

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 operations, stockholders' equity and cash flows present fairly, in all material respects, the financial position of AVANT Immunotherapeutics, Inc. and its subsidiaries (the "Company") at December 31, 2003 and 2002, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2003, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with auditing standards generally accepted in the United States of America, which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As discussed in Note 1 to the consolidated financial statements, the Company changed its method of accounting for certain patent costs in 2003.

As discussed in Note 4 to the consolidated financial statements, the Company changed its method of accounting for goodwill in 2002.

PricewaterhouseCoopers LLP
Boston, Massachusetts
February 18, 2004

AVANT IMMUNOTHERAPEUTICS, INC.
CONSOLIDATED BALANCE SHEET

	December 31, 2003	December 31, 2002
ASSETS		
Current Assets:		
Cash and Cash Equivalents	$ 20,251,000	$ 25,070,700
Accounts Receivable	1,472,800	230,900

Prepaid and Other Current Assets	585,200	558,400
Total Current Assets	22,309,000	25,860,000
Property and Equipment, Net	912,700	1,119,500
Intangible and Other Assets	7,047,100	7,217,400
Goodwill	1,036,300	1,036,300
Total Assets	$ 31,305,100	$ 35,233,200
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts Payable	$ 475,800	$ 836,000
Accrued Expenses	1,453,400	2,098,900
Current Portion Deferred Revenue	1,456,200	497,700
Total Current Liabilities	3,385,400	3,432,600
Long-Term Deferred Revenue	—	456,200
Commitments and Contingent Liabilities (Note 3)		
Stockholders' Equity:		
Convertible Preferred Stock, 4,513,102 Shares Authorized; None Issued and Outstanding at December 31, 2003 and 2002	—	—
Common Stock, $.001 Par Value 100,000,000 Shares Authorized; 64,928,400 Issued and 64,708,100 Outstanding at December 31, 2003; 60,464,900 Issued and 60,332,300 Outstanding at December 31, 2002	64,900	60,500
Additional Paid-In Capital	233,643,500	223,322,900
Deferred Compensation	(989,000)	—
Less: 220,300 and 132,600 Common Treasury Shares at Cost at December 31, 2003 and 2002, respectively	(227,600)	(136,400)
Accumulated Deficit	(204,572,100)	(191,902,600)
Total Stockholders' Equity	27,919,700	31,344,400
Total Liabilities and Stockholders' Equity	$ 31,305,100	$ 35,233,200

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

AVANT IMMUNOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENT OF OPERATIONS

	Year Ended December 31, 2003	Year Ended December 31, 2002	Year Ended December 31, 2001
REVENUE:			
Product Development and Licensing Agreements	$ 1,803,900	$ 6,412,400	$ 2,999,800
Government Contracts	2,661,200	—	—
Product Royalties	167,800	—	—
Product Sales	—	292,400	346,100
Total Revenue	4,632,900	6,704,800	3,345,900
OPERATING EXPENSE:			
Research and Development	10,021,300	14,708,500	21,580,500
Selling, General and Administrative	5,350,500	5,592,100	4,914,100
Cost of Product Sales	—	41,000	36,800
Amortization of Acquired Intangible Assets	995,100	795,100	795,100
Amortization of Goodwill	—	—	580,800
Total Operating Expense	16,366,900	21,136,700	27,907,300
Operating Loss	(11,734,000)	(14,431,900)	(24,561,400)
Investment Income, Net	239,800	602,700	1,808,400
Net Loss Before Cumulative Effect of Change in Accounting Principle	(11,494,200)	(13,829,200)	(22,753,000)
Cumulative Effect of Change in Accounting Principle	(1,175,300)	—	—

Net Loss	$ (12,669,500)	$ (13,829,200)	$ (22,753,000)
Basic and Diluted Net Loss Per Common Share:			
Net Loss Before Cumulative Effect of Change in Accounting Principle	(0.18)	(0.23)	(0.39)
Cumulative Effect of Change in Accounting Principle	(0.02)	—	—
Net Loss	$ (0.20)	$ (0.23)	$ (0.39)
Weighted Average Common Shares Outstanding	62,512,900	60,461,600	57,981,800

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

AVANT IMMUNOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2003, 2002 AND 2001

	Shares	Common Stock Par Value	Additional Paid-In Capital	Deferred Compensation	Treasury Stock Cost	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2000	**57,144,200**	**$ 57,100**	**$ 209,195,300**	**$ —**	**$ —**	**$ (155,320,400)**	**$ 53,932,000**
Shares Issued upon Exercise of Stock Options	228,900	200	461,100	—	—	—	461,300
Shares Issued upon Exercise of Warrants	4,800	—	5,600	—	—	—	5,600
Employee Stock Purchase Plan Issuance	13,300	—	47,700	—	—	—	47,700
Net Proceeds from Stock Issuance	3,057,900	3,100	13,572,100	—	—	—	13,575,200
Net Loss	—	—	—	—	—	(22,753,000)	(22,753,000)
Balance at December 31, 2001	**60,449,100**	**60,400**	**223,281,800**	**—**	**—**	**(178,073,400)**	**45,268,800**
Employee Stock Purchase Plan Issuance	15,800	100	41,100	—	—	—	41,200
Purchase of 132,600 Shares of Treasury Stock at Cost	—	—	—	—	(136,400)	—	(136,400)
Net Loss	—	—	—	—	—	(13,829,200)	(13,829,200)
Balance at December 31, 2002	**60,464,900**	**60,500**	**223,322,900**	**—**	**(136,400)**	**(191,902,600)**	**31,344,400**
Shares Issued upon Exercise of Stock Options	2,100	—	2,600	—	—	—	2,600
Shares Issued upon Cashless Exercise of Warrants	5,600	—	—	—	—	—	—
Employee Stock Purchase Plan Issuance	11,400	—	10,700	—	—	—	10,700
Net Proceeds from Stock Issuance	4,444,400	4,400	9,203,300	—	—	—	9,207,700
Purchase of 87,700 Shares of Treasury Stock at Cost	—	—	—	—	(91,200)	—	(91,200)
Issuance of Restricted Stock Units	—	—	1,104,000	(1,104,000)	—	—	—
Amortization of Deferred Compensation	—	—	—	115,000	—	—	115,000
Net Loss	—	—	—	—	—	(12,669,500)	(12,669,500)
Balance at December 31, 2003	**64,928,400**	**$ 64,900**	**$ 233,643,500**	**$ (989,000)**	**$ (227,600)**	**$ (204,572,100)**	**$ 27,919,700**

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

AVANT IMMUNOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENT OF CASH FLOWS

Increase (Decrease) in Cash and Cash Equivalents	Year Ended December 31, 2003	Year Ended December 31, 2002	Year Ended December 31, 2001
Cash Flows From Operating Activities:			
Net Loss	$ (12,669,500)	$ (13,829,200)	$ (22,753,000)
Adjustments to Reconcile Net Loss to Cash Used in Operating Activities:			
Cumulative Effect of Change in Accounting Principle	1,175,300	—	—
Depreciation and Amortization	1,412,000	1,622,100	2,257,300
Write-off of Capitalized Patent Costs	—	—	22,400
Loss On Disposal of Assets	—	—	67,300
Amortization of Deferred Compensation	115,000	—	—
Changes in Assets and Liabilities, Net of Acquisition:			
Accounts Receivable	(1,241,900)	36,300	(113,700)
Inventories	—	71,500	(12,300)
Prepaid and Other Current Assets	(26,800)	(219,600)	682,400
Accounts Payable and Accrued Expenses	(1,005,800)	(927,200)	278,200
Deferred Revenue	502,300	(3,399,900)	(1,418,800)
Lease Receivable	—	—	395,700
Lease Payable	—	—	(274,500)
Other Non Current Assets	—	(13,400)	43,500
Net Cash Used in Operating Activities	(11,739,400)	(16,659,400)	(20,825,500)
Cash Flows From Investing Activities:			
Acquisition of Property and Equipment	(210,100)	(567,700)	(605,200)
Increase in Patents and Licenses	—	(272,900)	(170,200)
Decrease in Long-Term Restricted Cash	—	—	—
Cash Paid for Acquisition of Universal Preservation Technologies, Inc. Assets	(2,000,000)	—	—
Net Cash Used in Investing Activities	(2,210,100)	(840,600)	(775,400)
Cash Flows From Financing Activities:			
Net Proceeds from Stock Issuance	9,207,700	—	13,575,200
Proceeds from Exercise of Stock Options and Warrants	13,300	41,200	514,600
Purchases of Treasury Stock	(91,200)	(136,400)	—
Net Cash Provided by (Used in) Financing Activities	9,129,800	(95,200)	14,089,800
Increase (Decrease) in Cash and Cash Equivalents	(4,819,700)	(17,595,200)	(7,511,100)
Cash and Cash Equivalents at Beginning of Period	25,070,700	42,665,900	50,177,000
Cash and Cash Equivalents at End of Period	$ 20,251,000	$ 25,070,700	$ 42,665,900

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

AVANT IMMUNOTHERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2003, 2002 and 2001

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(A) Nature of Business and Overview

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. Since its inception, AVANT has focused on unlocking the power of the immune system. We have actively developed and acquired innovative technologies—especially novel approaches to vaccine creation—that harness the immune response to prevent or fight disease. Today our broad intellectual property position allows us to respond quickly and leverage our expertise into many different areas as opportunities and needs arise. We develop and commercialize products on a proprietary basis and in collaboration with established pharmaceutical partners and other collaborators, including GlaxoSmithKline plc, Pfizer Inc, DynPort Vaccine Company LLC and Lohmann Animal Health International.

In February 2004, we completed a direct equity placement of 8,965,000 shares of common stock to institutional investors at a price of $2.75 per share which generated net proceeds totaling approximately $23,080,000. In July 2003, we closed a private placement of approximately 4.4 million shares of common stock at $2.25 per share and warrants to purchase 444,444 shares of common stock at $3.00 per share to an institutional investor which generated net proceeds totaling approximately $9,207,700. In October 2001, we completed a direct equity placement of approximately 3,057,900 shares of common stock to institutional investors at an average price of $4.58 per share which generated net proceeds totaling approximately $13,575,200. In July 2000, we completed a private placement of approximately 4,650,900 shares of common stock to institutional investors at a price of $7.85 per share which generated net proceeds totaling approximately $34,481,000.

On December 1, 2000, AVANT acquired all of the outstanding capital stock of Megan Health, Inc. ("Megan"), a company engaged in the discovery and development of human and animal vaccines using patented gene modification technologies. 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 systems for the delivery of vaccines and immunotherapeutics and novel vaccines.

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

AVANT's cash and cash equivalents at December 31, 2003 was $20,251,000. Our working capital at December 31, 2003 was $18,923,600. We incurred a loss of $12,669,500 for the year ended December 31, 2003. We believe that cash inflows from existing grants and collaborations, interest income on invested funds and our current cash and cash equivalents will be sufficient to meet estimated working capital requirements and fund operations beyond December 31, 2004. The working capital requirements of AVANT are dependent on several factors including, but not limited to, the costs associated with research and development programs, pre-clinical and clinical studies, manufacture of clinical materials and the scope of collaborative arrangements. During 2004, we may raise additional capital, including, but not limited to, licensing of technology programs with existing or new collaborative partners, possible business combinations, or the issuance of common stock via private placement or public offering. There can be no assurances that such efforts will be successful.

(B) Basis of Presentation

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

(C) Cash Equivalents and Investments

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

We invest our non-operating cash in debt instruments of financial institutions, government entities and corporations, and mutual funds. We have established guidelines relative to credit ratings, diversification and maturities to mitigate risk and maintain 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, 2003 and 2002, 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. The terms of the agreements typically include non-refundable license fees, funding of research and development, payments based upon achievement of certain milestones and royalties on net product sales. Non-refundable license fees are recognized as contract and license fee revenue when AVANT has a contractual right to receive such payments, provided a contractual arrangement exists, the contract price is fixed or determinable, the collection of the resulting receivable is reasonably assured and AVANT has no further performance obligations under the license agreement. When we have performance obligations under the terms of a contact, non-refundable fees are recognized as revenue as we complete our obligations. Where AVANT's level of effort is relatively constant over the performance period, the revenue is recognized on a straight-line basis. The determination of the performance period involves judgment on management's part. Funding of research and development is recognized over the term of the applicable contract as costs are incurred related to that contract. Revenues from milestone payments related to arrangements under which we have no continuing performance obligations are recognized upon achievement of the related milestone. Revenues from milestone payments related to arrangements under which we have continuing performance obligations are recognized as revenue upon achievement of the milestone only if all of the following conditions are met: the milestone payments are non-refundable; achievement of the milestone was not reasonably assured at the inception of the arrangement; substantive effort is involved in achieving the milestone; and, the amount of the milestone is reasonable in relation to the effort expended or the risk associated with achievement of the milestone. If any of these conditions are not met, the milestone payments are deferred and recognized as revenue over the term of the arrangement as AVANT completes its performance obligations. Option fees are recognized over the related option

period. Revenues from government contracts are recorded as effort is expended on the contracted work and billed to the government. Royalty revenue consists of payments received from licensees for a portion of sales proceeds from products that utilize AVANT's licensed technologies and would be recognized when the amount of and basis for such royalty payments are reported to us in accurate and appropriate form and in accordance with the related license agreement. Payments received in advance of activities being performed are recorded as deferred revenue. Any significant changes in our estimates or assumptions could impact our revenue recognition. Revenues from product sales are recorded when the product is shipped providing no significant post-delivery obligations remain and collection of the related receivable is reasonably assured. Effective July 1, 2003, we adopted EITF 00-21, *Accounting For Revenue Arrangements with Multiple Deliverables*, which establishes criteria for whether revenue on a deliverable can be recognized separately from other deliverables in a multiple deliverable

arrangement. The criteria considers whether the delivered item has stand-alone value to the customer, whether the fair value of the delivered item can be reliably determined and the customer's right of return for the delivered item. The adoption of EITF 00-21 did not have a material impact on our financial statements.

(F) Research and Development Costs

Research and development costs, including internal and contract research costs, are expensed as incurred.

(G) 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.

(H) Licenses, Patents and Trademarks

Included in other assets at December 31, 2002 are 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 evaluate the recoverability of these assets when facts and circumstances suggest the asset could be impaired in accordance with Statement of Financial Accounting Standards No. 144 ("SFAS 144"), "Accounting for the Impairment of Long-Lived Assets".

(I) Change in Accounting for Patent Related Costs

In the fourth quarter of 2003, the Company changed its method of accounting for legal costs associated with the application for patents effective January 1, 2003. Prior to the change, the Company capitalized these patent costs and amortized them over the estimated remaining economic life of the patent. Under the new method, these costs are expensed as incurred. The Company believes that this change is preferable because it will provide a better comparison with the Company's industry peers, the majority of which expense these costs as incurred. The $1,175,300 cumulative effect of the change on

prior years is included as a charge to net income as of January 1, 2003. The effect of the change for the year ended December 31, 2003 was to increase net loss $1,175,300, or $0.02 per basic and diluted share.

Pro forma net loss for the years ended December 31, 2002 and 2001 would have been $13.7 million and $22.6 million, respectively, had the change in accounting for these patent related costs occurred at the beginning of 2001. Reported net loss for the years ended December 31, 2002 and 2001 was $13.8 million and $22.8 million, respectively. Pro forma net loss per basic and per diluted share for the years ended December 31, 2002 and 2001 would have been $0.23 and $0.39, respectively. Reported net loss per basic and per diluted years ended December 31, 2002 and 2001 was $0.23 and $0.39, respectively. The pro forma amounts reflect the effect of retroactive application of this change had the new method been in effect for all periods presented.

(J) Loss Per Share

We compute and report earnings per share in accordance with the provisions of SFAS No. 128, "Earnings Per Share". The computations of basic and diluted loss per common share are based upon the weighted average number of common shares outstanding and potentially dilutive securities. Potentially dilutive securities include stock options and warrants. Options and warrants to purchase 3,860,457, 4,963,092 and 5,113,466 shares of common stock were not included in the 2003, 2002 and 2001 computation of diluted net loss per share, respectively, because inclusion of such shares would have an anti-dilutive effect on net loss per share.

(K) Comprehensive Income

Comprehensive income is comprised of two components, net income and other comprehensive income. For the years ended December 31, 2003, 2002 and 2001, the Company had no other comprehensive income.

(L) Stock-Based 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" and related interpretations, including FASB Interpretation No. 44, "Accounting for Certain Transactions Involving Stock Compensation." We adopted the disclosure requirements of Statement of Financial Accounting Standards No. 123 ("SFAS 123"), "Accounting for Stock-Based Compensation". All stock based awards to non-employees are accounted for at their fair value as prescribed by SFAS 123 and Emerging Issues Task Force (EITF) 96-18, "Accounting for Equity Instruments that are issued to other than Employees for Acquiring, or in conjunction with Selling, Goods and Services" (see Note 7). Accordingly, no compensation cost has been recognized under SFAS 123 for the Company's employee stock option plan. Had compensation cost for the awards under the plan been determined based on the grant date

fair values, consistent with the method required under SFAS 123, the Company's net loss and net loss per share would have been reduced to the pro forma amounts indicated below:

	2003	2002	2001
Net Loss:			
As reported	$ 12,669,500	$ 13,829,200	$ 22,753,000
Add: Stock-based employee compensation expense as reported	115,000	—	—
Deduct: Stock-based employee compensation expense determined under fair value based method for all awards, net of related tax effects	854,700	917,300	1,026,800

Pro forma	13,409,200	14,746,500	23,779,800
Basic and Diluted Net Loss Per Share:			
As reported	$ 0.20	$ 0.23	$ 0.39
Pro forma	0.21	0.24	0.41

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:

	2003	2002	2001
Expected dividend yield	0%	0%	0%
Expected stock price volatility	109%	109%	109%
Risk-free interest rate	1.0%—3.4%	1.0%—4.6%	3.3%—4.7%
Expected option term	5 Years	2.5 Years	2.5 Years

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

(M) Use of Estimates

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

(N) Segments

Management uses consolidated financial information in determining how to allocate resources and assess performance. For this reason, AVANT has determined that it is engaged in one industry segment. Substantially all of our revenue since inception has been generated in the United States and all of our assets are in the United States.

(O) Recent Pronouncements

Effective July 1, 2003, we adopted EITF 00-21, *Accounting For Revenue Arrangements with Multiple Deliverables*, which establishes criteria for whether revenue on a deliverable can be recognized separately from other deliverables in a multiple deliverable arrangement. The criteria considers whether the delivered item has stand-alone value to the customer, whether the fair value of the delivered item can be reliably determined and the customer's right of return for the delivered item. The adoption of EITF 00-21 did not have a material impact on our financial statements.

On December 17, 2003, the Staff of the Securities and Exchange Commission (SEC or the Staff) issued SAB 104, *Revenue Recognition*, which amends SAB 101, *Revenue Recognition in Financial Statements*. SAB 104's primary purpose is to rescind accounting guidance contained in SAB 101 related to multiple element revenue arrangements, superseded as a result of the issuance of EITF 00-21. Additionally, SAB 104 rescinds the SEC's *Revenue Recognition in Financial Statements Frequently Asked Questions and Answers* (the FAQ) issued with SAB 101 that had been codified in SEC Topic 13, *Revenue Recognition*. Selected portions of the FAQ have been incorporated into SAB 104. While the wording of SAB 104 has changed to reflect the issuance of EITF 00-21, the revenue recognition principles of SAB 101 remain largely unchanged by the issuance of SAB 104. The adoption of SAB 104 did not have a material impact on our financial statements.

2. SHORT-TERM INVESTMENTS

We invest 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, 2003 and 2002, our investments that met the definition of cash equivalents were recorded at cost, which approximated fair value.

3. PROPERTY, EQUIPMENT AND LEASES

Property and equipment includes the following:

	December 31, 2003	December 31, 2002
Laboratory Equipment	$ 2,422,100	$ 2,323,800
Office Furniture and Equipment	1,633,500	1,577,500
Leasehold Improvements	1,668,400	1,612,600
Total Property and Equipment	5,724,000	5,513,900
Less Accumulated Depreciation	(4,811,300)	(4,394,400)
	$ 912,700	$ 1,119,500

During 2003 and 2001, we wrote off approximately $5,000 and $504,800, respectively, of fully depreciated equipment no longer used in our operations. Depreciation expense related to equipment and leasehold improvements was approximately $422,000, $436,000 and $587,974 for the years ended December 31, 2003, 2002 and 2001, respectively.

In August 2001, we extended our lease of approximately 54,300 sq. ft. of laboratory and office space in Needham, Massachusetts through April 30, 2007. In February 2004, we extended our lease of approximately 12,400 sq. ft. of laboratory and office space in St. Louis, Missouri through September 30, 2007. In 2003, we reached agreement with MassDevelopment, an economic development entity for the Commonwealth of Massachusetts, for AVANT to occupy and build-out an 11,800 square foot pilot-manufacturing facility in Fall River, Massachusetts. The lease has an initial seven-year term which expires in December 2010.

Obligations for base rent under these and other noncancelable operating leases as of December 31, 2003 are approximately as follows:

Year ending December 31,	2004	$ 3,129,400
	2005	3,132,100
	2006	3,112,500
	2007	1,282,900
	2008 and thereafter	632,000
	Total minimum lease payments	$ 11,288,900

Our total rent for all operating leases (including rent expense net of sublease income) was approximately $2,307,000, $1,905,300, and $1,343,800 for the years ended December 31, 2003, 2002 and 2001, respectively.

4. GOODWILL, INTANGIBLE AND OTHER ASSETS

In June 2001, the Financial Accounting Standards Board issued SFAS 142, "Goodwill and Other Intangible Assets". Under SFAS 142, goodwill and intangible assets with indefinite lives are no longer amortized but are reviewed at least annually for impairment. Under SFAS 142, AVANT was required to cease amortization of goodwill effective January 1, 2002.

Goodwill: We adopted SFAS 142 in January 2002. Prior to the adoption, the carrying amount of goodwill was approximately $1,036,300. As a result of our adoption of SFAS 142, we reclassified our assembled workforce intangible assets of $277,800 to goodwill. AVANT has concluded that it currently has one reporting unit and has assigned the entire balance of goodwill to this reporting unit for purposes of performing a transitional impairment test as of January 1, 2002 and an annual impairment test as of July 1, 2002 and 2003. The fair value of the reporting unit was determined using AVANT's market capitalization as of January 2, 2002, July 1, 2002 and July 1, 2003, adjusted for a control premium. The fair value on January 1, 2002, July 1, 2002 and July 1, 2003 exceeded the net assets of the reporting unit, including goodwill. Accordingly, we concluded that no impairment existed as of these dates.

Adjusted Net Loss: The following table presents the impact SFAS 142 would have had on our net loss and net loss per share had the standard been in effect for the year ended December 31, 2001:

	The Year Ended December 31, 2001		
	As Reported	Goodwill Amortization Adjustment	As Adjusted
Net Loss	$ (22,753,000)	$ (795,100)	$ (21,957,900)
Net Loss per Common Share	$ (0.39)	$ (0.01)	$ (0.38)

Intangible and Other Assets: Intangible and other assets include the following:

	Estimated Lives	December 31, 2003	December 31, 2002
Capitalized Patent Costs	10 years	$ —	$ 2,743,600
Accumulated Amortization		—	(1,568,300)
Capitalized Patent Costs, Net		—	1,175,300
Acquired Intangible Assets:			
Collaborative Relationships	5 years	1,090,000	1,090,000
Core Technology	10 years	3,786,900	1,786,900
Developed Technology	7 years	3,263,100	3,263,100
Strategic Partner Agreement	17 years	2,563,900	2,563,900
Accumulated Amortization		(3,741,600)	(2,746,500)
Acquired Intangible Assets, Net		6,962,300	5,957,400
Other Non Current Assets		84,800	84,700
		$ 7,047,100	$ 7,217,400

In January 2003, AVANT completed the acquisition of certain technology and intellectual property of UPT and the licensure of certain patent rights from Elan Drug Delivery Limited (EDD). Through this transaction, AVANT gained exclusive rights to UPT's VitriLife® process for use in AVANT's oral vaccines and certain other non-injectable applications. We have determined that this technology has alternative future uses and will be incorporated into a number of AVANT's bacterial vaccine programs. AVANT paid an aggregate of $2,000,000 in consideration in the transaction, recorded this value to acquired intangible assets, Core Technology, and is amortizing these assets over their estimated lives of ten years.

In accordance with SFAS 121, we evaluated and subsequently wrote off approximately $22,400 in 2001 of capitalized patent costs relating to certain abandoned patent applications in our complement and our SMIR programs. These write offs were included in operating expense as general and administrative expense.

In 2003, we changed our accounting for patent costs and now expense all patent costs as incurred. As a result of this change, we recorded a non-cash charge for the cumulative effect of the change in accounting principle of approximately $1.2 million, or $.02 per share, for the year ended December 31,

2003. Amortization expense for the years ended December 31, 2002 and 2001 relating to the capitalized costs of purchased licenses, patents and trademarks was approximately $391,000 and $293,455, respectively.

All of our intangible assets are amortized over their useful lives. Total amortization expense for intangible assets for the years ended December 31, 2003, 2002 and 2001 was approximately $995,100, $795,100 and $795,100, respectively.

The estimated future amortization expense of intangible assets as of December 31, 2003 and for the five succeeding years is as follows:

Year ending December 31,	Estimated Amortization Expense
2004	$ 995,100
2005	995,100
2006	995,100
2007	956,300
2008	529,500

5. ACCRUED EXPENSES

Accrued expenses include the following:

	December 31, 2003	December 31, 2002
Accrued License Fees	$ 200,000	$ 400,000
Accrued Payroll and Employee Benefits	479,600	91,100
Accrued Clinical Trials	150,000	232,500
Accrued Professional Fees	197,100	115,000
Other Accrued Expenses	426,700	1,260,300
	$ 1,453,400	$ 2,098,900

6. INCOME TAXES

	Year Ended December 31,		
	2003	2002	2001
Income tax benefit (provision):			
Federal	$ 4,848,600	$ 5,441,500	$ 13,616,000
State	1,024,800	1,508,300	1,692,000
	5,873,400	6,949,800	15,308,000
Deferred tax valuation allowance	(5,873,400)	(6,949,800)	(15,308,000)
	$ —	$ —	$ —

Deferred tax assets and liabilities are comprised of the following:

	December 31, 2003	December 31, 2002

Gross Deferred Tax Assets		
Net Operating Loss Carryforwards	$ 64,571,000	$ 65,455,000
Tax Credit Carryforwards	7,760,000	7,572,000
Deferred Expenses	4,943,000	913,000
Fixed Assets	454,000	373,000
Accrued Expenses and Other	256,000	762,000
Deferred Revenue	599,000	396,000
	78,583,000	75,471,000
Gross Deferred Tax Liabilities		
Acquired Intangibles	(2,079,000)	(2,399,000)
Deferred Tax Assets Valuation Allowance	(76,504,000)	(73,072,000)
Net Deferred Tax Asset (Liability)	$ —	$ —

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

	2003	2002	2001
Pre-tax book income (loss)	$ (12,669,500)	$ (13,829,200)	$ (22,753,000)
Loss at Statutory Rates	(4,307,600)	(4,701,900)	(7,736,000)
Research and Development Credits	(544,200)	(745,300)	(585,600)
State Taxes, net of federal benefit	(1,024,800)	(1,508,300)	(1,691,600)
Other	3,200	5,700	386,900
Expiration of State NOLS	2,441,000	567,700	387,000
Increase in valuation allowance	3,432,400	6,382,100	9,239,300
	$ —	$ —	$ —

As of December 31, 2003, the Company had federal net operating loss and tax credit carryforwards of approximately $176,397,000 and $5,898,000, respectively, which may be available to offset future federal income tax liabilities and that expire at various dates from 2004 through 2023. As required by Statement of Financial Accounting Standards No. 109, management of the Company has evaluated the positive and negative evidence bearing upon the realizability of its net deferred tax assets, which are comprised principally of net operating loss and tax credit carryforwards. Management has determined that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets and, as a result, a valuation allowance of approximately $76,504,000 has been established at December 31, 2003. The future realization, if any, of the deferred tax assets attributable to disqualifying dispositions of incentive stock options and the exercise of nonqualified stock options will not be recognized as a tax benefit in the statement of operations, but rather as a component of stockholders' equity.

Ownership changes, as defined in the Internal Revenue Code, may have limited the amount of net operating loss and tax credit carryforwards that can be utilized annually to offset future taxable income. Subsequent ownership changes could further affect the limitation in future years.

7. STOCKHOLDERS' EQUITY

(A) Public and Private Stock Offerings

In February 2004, we completed a direct equity placement of 8,965,000 shares of common stock to institutional investors at a price of $2.75 per share which generated gross proceeds totaling approximately $24.7 million. Expenses associated with the transaction totaled approximately $1,573,700.

AVANT filed a shelf registration statement in November 2003 with the Securities and Exchange Commission to register 15 million shares of common stock and warrants to purchase 2.25 million shares of common stock.

In July 2003, we closed a private placement of approximately 4.4 million shares of common stock at $2.25 per share and warrants to purchase 444,444 shares of common stock at $3.00 per share to an institutional investor which generated net proceeds totaling approximately $9,207,700.

We filed a shelf registration statement in July 2001 with the Securities and Exchange Commission to register 10 million shares of common stock and warrants to purchase 1 million shares of common stock. On October 17, 2001, we completed a direct equity placement of approximately 3,057,900 shares of common stock from the shelf registration which generated net proceeds totaling approximately $13,575,200 after deducting all associated expenses of approximately $424,800.

In July 2000, we completed a private placement of 4,650,900 newly issued shares of common stock which generated net proceeds totaling approximately $34,481,000 after deducting all associated expenses of approximately $2,019,000.

(B) Preferred Stock

At December 31, 2003 and 2002, 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, 2003 and 2002.

(C) Warrants

AVANT has issued warrants to purchase common stock in connection with the private placement of approximately 4.4 million shares in July 2003. The warrants are exercisable at $3.00 per share and expire July 1, 2008. In connection with the acquisition of VRI in August 1998, we 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, 2003 are as follows:

Security	Number of Shares	Exercise Price Per Share	Expiration Date
Common stock	34,181	$ .62	February 9, 2004
Common stock	56,033	1.26	December 14, 2005
Common stock	444,444	3.00	July 1, 2008

During January and February 2004, all 34,181 warrants due to expire on February 9, 2004 were exercised as cashless exercises. In 2003, 12,324 warrants were exercised as cashless exercises.

(D) Stock Options and Employee Stock Purchase Plans

Stock Options

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

The 1999 Plan, as amended in 2002, allows for a maximum of 3,500,000 shares of common stock to be issued prior to May 6, 2009. The Board of Directors determines the term of each option, option price, number of shares for which each option is granted and the rate at which each option vests. The term of each option cannot exceed ten years (five years for options granted to holders of more than 10% of the voting stock of AVANT) and the exercise price of stock options cannot be less than the fair market value of the common stock at the date of grant (110% of fair market value for options granted to holders of more than 10% of the voting stock of AVANT).

In connection with the acquisition of Megan, we assumed the obligations of Megan under Megan's Stock Option Plan (the "Megan Plan") and each outstanding option to purchase Megan common stock (a "Megan Stock Option") granted under the Megan Plan. Each Megan Stock Option assumed by AVANT is deemed to constitute an option to acquire, on the same terms and conditions as were applicable under the Megan Plan, shares of AVANT's common stock which has been adjusted consistent with the ratio at which our common stock was issued in exchange for Megan's common stock in the acquisition. As of the date the acquisition was completed we assumed options to acquire 31,910 shares of our common stock at a weighted average exercise price of $4.39. The Megan Stock Options are fully vested as of December 1, 2000 and the term of each option cannot exceed ten years from the date of grant.

A summary of stock option activity for the years ended December 31, 2003, 2002 and 2001 is as follows:

	2003		2002		2001	
	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,	3,084,910	$ 2.83	3,235,284	$ 2.97	3,209,289	$ 2.96
Granted	412,100	1.31	60,000	1.30	499,000	3.58
Assumed in acquisition	—	—	—	—	—	—
Exercised	(2,125)	1.22	—	—	(228,859)	2.02
Canceled	(169,086)	4.94	(210,374)	4.58	(244,146)	4.96
Outstanding at December 31,	3,325,799	$ 2.54	3,084,910	$ 2.83	3,235,284	$ 2.97
At December 31,						
Options exercisable	2,613,188		2,342,663		1,923,532	
Available for grant	1,974,528		2,218,239		572,713	
Weighted average fair value of options granted during year		$ 1.08		$ 1.20		$ 2.26

The following tables summarize information about the stock options outstanding at December 31, 2003:

Range of Exercise Prices	Options Outstanding		
	Number Outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price per Share
$0.30—1.31	956,669	4.99	$ 1.0166
1.41—2.28	914,327	4.93	1.9029
2.41—2.99	920,597	5.15	2.6641
3.00—10.47	531,706	5.00	6.0931
14.69—14.69	2,500	6.19	14.6875
$0.30—14.69	3,325,799	5.02	$ 2.5381

Range of Exercise Prices	Options Exercisable	
	Number Exercisable	Weighted Average Exercise Price per Share
$0.30—1.31	642,070	$ 0.9560
1.41—2.28	802,077	1.8884
2.41—2.99	697,166	2.6298
3.00—10.47	470,000	5.8604
14.69—14.69	1,875	14.6875
$0.30—14.69	2,613,188	$ 2.5807

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 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.

(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, 2003 and 2002, 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) Share Repurchase Plan

On August 16, 2002, the Company announced that its Board of Directors had authorized the repurchase of up to 2 million shares of the Company's common stock. The repurchased stock provides the Company with treasury shares for general corporate purposes, such as stock to be issued under employee stock option and stock purchase plans. The share repurchase plan expired as of August 31, 2003. The Company purchased 220,300 shares through December 31, 2003 at a cost of $227,600.

(G) Deferred Compensation

On September 18, 2003, the Company awarded Una Ryan, AVANT's President and CEO, 400,000 Restricted Stock Units which vest over four years. The Company determined the value of the Restricted Stock Units as $1,104,000, based on $2.76 per share, the closing price of AVANT's common stock on the award date. The value of the Restricted Stock Units is being amortized over their vesting period, or four years, and being recorded as compensation expense. In 2003, the Company recognized $115,000 in compensation expense.

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 $476,000, $413,500 and $307,500 for the years ended December 31, 2002, 2001 and 2000, respectively.

9. PRODUCT DEVELOPMENT AND LICENSING AGREEMENTS

Our revenue from product development and licensing agreements was received pursuant to contracts with different organizations. Total revenue recognized by us in connection with these contracts for the years ended December 31, 2003, 2002 and 2001 were approximately $1,803,900, $6,412,400 and $2,999,800, 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. AVANT has no obligation to incur any research and development costs in connection with this agreement. As of September 6, 2002, Novartis and AVANT agreed to terminate the TP10 agreement pursuant to which Novartis paid a net termination fee of $1.9 million and returned to AVANT all pre-clinical and clinical TP10 material. The termination resulted in a non-recurring recognition of the remaining $2,461,700 in deferred revenue related to the Novartis agreement.

(B) GlaxoSmithKline plc

During 1997, AVANT entered into an agreement with GlaxoSmithKline plc ("Glaxo") to collaborate on the development and commercialization of our oral rotavirus vaccine. Under the terms of the agreement, Glaxo 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. Glaxo made an initial license payment of $250,000 in 1997 upon execution of the agreement. In June 1999, we received a milestone payment of $500,000 from Glaxo for

the successful completion of the Phase II clinical efficacy study and the establishment of a commercially viable process for manufacture of the vaccine. Glaxo has assumed responsibility for all subsequent clinical trials and all other development activities. Glaxo initiated global Phase III clinical trials of Rotarix® in the third quarter of 2003, and AVANT recognized a $1.0 million milestone. AVANT has no obligation to incur any research and development costs in connection with this agreement. AVANT is obligated to maintain a license with an academic institution with respect to this agreement and incurred licensing fees of $200,000, $400,000 and $300,000 in 2003, 2002 and 2001, respectively. The term of this agreement is through the expiration of the last of the patents covered by the agreement, although Glaxo may terminate the agreement upon 90 days prior written notice. Glaxo has agreed to make further payments, which could total up to $7.5 million, upon the achievement of specified milestones. In addition, we will be entitled to royalties based on net sales of Rotarix®.

(C) Aventis Pasteur

In 1994, AVANT entered into a license agreement with Aventis Pasteur ("Aventis") which granted Aventis the exclusive right to make, use and sell Adjumer®-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. 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 respiratory syncytial virus ("RSV"). AVANT has no obligation to incur any research and development costs in connection with this agreement. In connection with formation of Parallel Solutions, Inc. in October 2001, AVANT assigned all of its rights and obligations under the Aventis license agreements to Parallel (see Note 10).

(D) Pfizer Inc

In connection with our acquisition of Megan, we entered into a licensing agreement with Pfizer Inc, Animal Health Division ("Pfizer"), whereby Pfizer has licensed Megan's technology for the development of animal health and food safety vaccines. Upon execution of the agreement, Pfizer made an initial license payment of $2.5 million together with a $3 million equity investment. In December 2002, we received a milestone payment of $500,000 from Pfizer as a result of the submission of an application with the USDA for licensure of a food safety vaccine. Under the agreement, we may receive additional milestone payments of up to $3 million based upon attainment of specified milestones. We have received research and development funding totaling $1 million from Pfizer through November 2002 while incurring $1,057,000 in associated research and development costs. AVANT may receive royalty payments on eventual product sales. The term of this agreement is through the expiration of the last of the patents covered by the agreement. AVANT has no obligation to incur any research and development costs in connection with this agreement.

(E) DynPort Vaccine Company LLC

In October 2001, we granted DynPort Vaccine Company LLC (DVC) a license for exclusive rights to use certain components of AVANT's anthrax vaccine technology. In October 2001, in connection with the execution of the agreement, AVANT received a $200,000 materials transfer fee. Under the agreement, AVANT is also entitled to annual $50,000 license maintenance payments**,** with respect to which AVANT has received $100,000, and milestone payments of up to $700,000 in the aggregate, $100,000 of which AVANT has already received. AVANT is also entitled to specified royalties on eventual product sales. The term of this agreement is through the expiration of the last of the patents covered by the agreement, although DVC may terminate the agreement upon 90 days prior written notice. DVC, a privately-held company, is chartered with providing an integrated approach for the advanced development of specific vaccines and other products to protect against the threat of biological warfare agents. DVC has a 10-year contract with the U.S. Department of Defense for the development of vaccines against certain acute infectious and contagious diseases, initiated under the 1997 Joint Vaccine Acquisition Program. AVANT has no obligation to incur any research and development costs in connection with this agreement.

10. FORMATION OF PARALLEL SOLUTIONS, INC.

During October 2001, AVANT contributed its polyphosphazene polymer adjuvant business (the "PCPP business"), including Adjumer® and Micromer®, into a newly formed, privately held company, Parallel Solutions, Inc. ("Parallel"), in exchange for a non-controlling minority ownership position in Parallel. In connection with this transaction, AVANT has assigned all of its rights and obligations under the Aventis Pasteur license agreements to Parallel. The assets

contributed to Parallel, primarily laboratory equipment, had a carrying value of $67,300. AVANT has no future funding commitments or other obligations to Parallel and has neither a role in the management of Parallel nor representation on the Parallel board of directors.

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 $12,000 ($14,000 if participant is over the age of 50), of their total salary in 2003. 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 $37,300, $38,200 and $30,400 for the years ended December 31, 2003, 2002 and 2001, respectively.

12. FOREIGN SALES

Product sales were generated geographically as follows:

Net Product Sales for the Twelve Months Ended	USA	Asia	Total
December 31, 2003	$ —	$ —	$ —
December 31, 2002	214,800	77,600	292,400
December 31, 2001	331,600	14,500	346,100

13. SELECTED QUARTERLY FINANCIAL DATA (Unaudited)

2003	Q1 2003	Q2 2003	Q3 2003	Q4 2003
Total revenue	$ 681,700	$ 1,078,400	$ 2,015,100	$ 857,700
Net loss before cumulative effect of change in accounting principle	(3,362,200)	(3,183,300)	(2,115,700)	(2,924,800)
Cumulative effect of change in accounting principle	(1,175,300)	—	—	—
Net loss	(4,537,500)	(3,183,300)	(2,115,700)	(2,924,800)
Basic and diluted net loss per common share:	(0.06)	(0.05)	(0.03)	(0.05)
Net loss before cumulative effect of change in accounting principle	(0.06)	(0.05)	(0.03)	(0.05)
Cumulative effect of change in accounting principle	(0.02)	—	—	
Net loss	(0.08)	(0.05)	(0.03)	(0.05)

2002	Q1 2002	Q2 2002	Q3 2002	Q4 2002
Total revenue	$ 690,900	$ 642,800	$ 4,560,400	$ 810,800
Net loss	(4,913,600)	(5,164,300)	(276,200)	(3,475,100)
Basic and diluted net loss per common share	(0.08)	(0.09)	(0.01)	(0.06)

In the fourth quarter of 2003, the Company changed its method of accounting for legal costs associated with the application for patents effective January 1, 2003. The $1,175,300 cumulative effect of the change on prior years is included as a charge to net income as of January 1, 2003. The effect of the change for the quarter ended March 31, 2003 was to increase net loss $1,175,300, or $0.02 per basic and diluted share.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ONACCOUNTING AND FINANCIAL DISCLOSURES

None.

Item 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures.

As required by Rule 13a-15 under the Securities Exchange Act of 1934, as of the end of the period covered by this Annual Report on Form 10-K, we carried out an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. In designing and evaluating our disclosure controls and procedures, we and our management recognize that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and our management necessarily was required to apply its judgment in evaluating and implementing possible controls and procedures. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that they believe that, as of the date of completion of the evaluation, our disclosure controls and procedures were reasonably effective to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the

time periods specified in the Securities and Exchange Commission's rules and forms. In connection with the new rules, we will continue to review and document our disclosure controls and procedures, including our internal controls and procedures for financial reporting, on an ongoing basis, and may from time to time make changes aimed at enhancing their effectiveness and to ensure that our systems evolve with our business.

Changes in Internal Control Over Financial Reporting.

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the period covered by this Annual Report on Form 10-K that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART III

Item 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Information in response to this Item appears under the caption "Proposal 2—Election of Directors" and "Management" in the Registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be filed with the SEC pursuant to Regulation 14A, not later than 120 days after the close of the fiscal year, and is incorporated by reference.

Item 11. EXECUTIVE COMPENSATION

Information in response to this Item appears under the caption "Management" of the Registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be filed with the SEC pursuant to Regulation 14A, not later than 120 days after the close of the fiscal year, and is incorporated by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

Equity Compensation Plan Information

The following table provides information as of December 31, 2003 regarding shares of common stock of the Company that may be issued under our existing equity compensation plans, including the Company's 1999 Stock Option and Incentive Plan (the "1999 Plan") and the Company's 1994 Employee Stock Purchase Plan (the "1994 Plan"). Footnote (4) to the table sets forth the total number of shares of common stock of the Company issuable upon the exercise of assumed options as of December 31,

2003, and of assumed options and warrants as of August 21, 1998, and the weighted average exercise price of these options and warrants.

	Equity Compensation Plan Information		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights[1]	Weighted Average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plan (excluding securities referenced in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders[2]	3,255,545[3,4]	$ 2.56	1,974,528[5]

1 Does not include any Restricted Stock as such shares are already reflected in the Company's outstanding shares.

2 Consists of the 1999 Plan and the 1994 Plan.

3 Does not include purchase rights accruing under the 1994 Plan because the purchase price (and therefore the number of shares to be purchased) will not be determined until the end of the purchase period.

4 Does not include: (i) outstanding options to acquire 14,594 shares, at a weighted-average exercise price of $5.70 per share, that were assumed in connection with the 2000 merger of Megan with and into the Company, under Megan's Stock Option Plan—no future options may be granted under Megan's Stock Option Plan; (ii) outstanding options to acquire 500,104 shares, at a weighted-average exercise price of $1.68 per share, that were assumed in connection with the 1998 merger of VRI with and into the Company, under the VRI Stock Option Plan—no future options may be granted under the VRI Stock Option Plan; and (iii) outstanding warrants to acquire 90,214 shares, at a weighted-average exercise price of $1.02 per share, that were assumed in connection with the 1998 merger of VRI with and into the Company.

5 Includes shares available for future issuance under the 1994 Plan.

Additional information in response to this Item appears under the caption "Beneficial Ownership of Common Stock" of the Registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be filed with the SEC pursuant to Regulation 14A, not later than 120 days after the close of the fiscal year, and is incorporated by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Information in response to this Item appears under the caption "Proposal 2—Election of Directors" and "Management" of the Registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be filed with the SEC pursuant to Regulation 14A, not later than 120 days after the close of the fiscal year, and is incorporated by reference.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information in response to this Item appears under the caption "Principal Accountant Fees and Services" in the Registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be filed with the SEC pursuant to Regulation 14A, not later than 120 days after the close of the fiscal year, and is incorporated by reference.

PART IV

Item 15. 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 November 20, 2000, by and among AVANT, AVANT Acquisition Corp., and Megan Health, Inc.	Incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K filed December 12, 2000
2.2	First Amendment to Agreement and Plan of Merger, dated as of November 20, 2000, by and among AVANT, AVANT Acquisition Corp., and Megan Health, Inc.	Incorporated by reference to Exhibit 2.2 of the Company's Current Report on Form 8-K filed December 12, 2000
3.1	Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.2	Certificate of Amendment of Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.3	Certificate of Designation for Series C-1 Junior Participating Cumulative Preferred Stock	Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.4	Second Certificate of Amendment of Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.2 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998
3.5	Amended and Restated By-Laws of the Company as of November 10, 1994	Incorporated by reference to Exhibit 3.3 of the Company's Registration Statement on Form S-4 (Reg. No. 333-59215), filed July 16, 1998

3.6	Third Certificate of Amendment of Third Restated Certificate of Incorporation of the Company	Incorporated by reference to Exhibit 3.1 of the Company's Quarterly Report on Form 10-Q, filed May 10, 2002
4.1	Shareholder Rights Agreement dated November 10, 1994 between the Company and State Street Bank and Trust Company as Rights Agent	Incorporated by reference to Exhibit 4.1 of the Company's Annual Report on Form 10-K filed March 28, 2000
4.2	Amendment to Shareholder Rights Agreement between State Street Bank and Trust Company and AVANT Immunotherapeutics, Inc. dated as of December 17, 2001	Incorporated by reference to Exhibit 4.2 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001

10.1	AVANT Immunotherapeutics, Inc. 1994 Employee Stock Purchase Plan	Incorporated by reference to Exhibit 10.1 of the Company's Registration Statement on Form S-8 filed June 8, 1994
10.2	Megan Health, Inc. Stock Option Plan	Incorporated by reference to Exhibit 4.6 of the Company's Registration Statement on Form S-8 (Reg. No. 333-52796), filed December 27, 2000
10.3	AVANT Immunotherapeutics, Inc. 1999 Stock Option and Incentive Plan	Incorporated by reference to Exhibit A to the Company's Proxy Statement on Schedule 14A filed on April 1, 1999
10.4	Virus Research Institute, Inc. 1992 Equity Incentive Plan as amended and restated	Incorporated by reference to Exhibit 10.4 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.5	Performance Plan of the Company	Incorporated by reference to Exhibit 10.5 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.6	Form of Agreement relating to Change of Control	Incorporated by reference to Exhibit 10.6 of the Company's Annual Report on Form 10-K filed March 28, 2000
10.7	Amended and Restated Employment Agreement between the Company and Una S. Ryan, Ph.D. dated August 20, 1998	Incorporated by reference to Exhibit 10.8 of he Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1998
10.8	Commercial Lease Agreement of May 1, 1996 between the Company and Fourth Avenue Ventures Limited Partnership	Incorporated by reference to Exhibit 10.11 of the Company's quarterly report on Form 10-Q/A for the quarterly period ended June 30, 1996 (File No. 0-15006)
10.9	Extension of Lease Agreement of May 1, 1997 between the Company and DIV Needham 53 LLC (successor in interest to Fourth Avenue Ventures Limited Partnership) dated as of August 23, 2001	Incorporated by reference to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001

10.10	Option Agreement by and between the Company and Novartis Pharma AG dated as of October 31, 1997, portions of which are subject to a request for confidential treatment	Incorporated by reference to Exhibit 10.16 of the Company's Quarterly Report on Form 10-Q/A for the quarterly period ended September 30, 1997
10.11	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 Exhibit 10.15 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1997
10.12	Agreement between Lonza Biologics plc and the Company dated as of April 19, 2000, portions of which are subject to confidential treatment	Incorporated by reference to Exhibit 10.11 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2000
10.13	Stock Purchase Agreement dated December 1, 2000 by and between the Company and Pfizer Inc	Incorporated by reference to Exhibit 10.12 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2000
10.14	License and Royalty Agreement by and between Pfizer Inc, the Company and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to confidential treatment	Incorporated by reference to Exhibit 10.13 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2000
10.15	Amendment to License and Royalty Agreement by and between Pfizer Inc., the Company and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to confidential treatment	Incorporated by reference to Exhibit 10.14 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2000
10.16	Collaborative Research and Development Agreement by and between Pfizer Inc. and Megan Health, Inc. dated as of December 1, 2000, portions of which are subject to confidential treatment	Incorporated by reference to Exhibit 10.15 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2000
10.17	Exclusive License Agreement between AVANT	Incorporated by reference to Exhibit 10.17 of the

	Immunotherapeutics, Inc. and DynPort Vaccine Company, LLC dated as of October 10, 2001, portions of which are subject to a request for confidential treatment	Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001
10.18	First Amendment to AVANT Immunotherapeutics, Inc. 1999 Stock Option and Incentive Plan	Incorporated by reference to Exhibit 10.18 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001
10.19	First Amendment to Amended and Restated Employment Agreement between the Company and Una S. Ryan, Ph.D. dated as of December 23, 2002	Incorporated by reference to Exhibit 10.19 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2002

10.20	License Agreement between Virus Research Institute, Inc. and SmithKline Beecham PLC dated as of December 1, 1997, portions of which are subject to confidential treatment	Incorporated by reference to Exhibit 10.20 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1999
10.21	Amendment Agreement, dated January 9, 2003, between the Company and SmithKline Beecham PLC	Incorporated by reference to Exhibit 10.21 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.21	Amendment Agreement, dated January 9, 2003, between the Company and SmithKline Beecham PLC	Incorporated by reference to Exhibit 10.21 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.22	License Agreement, dated as of January 31, 2003, by and between the Company and Elan Drug Delivery Limited	Incorporated by reference to Exhibit 10.22 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.23	License and Clinical Trials Agreement, effective as of February 27, 1995, between Virus Research Institute, Inc. and the James N. Gamble Institute of Medical Research	Incorporated by reference to Exhibit 10.23 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.24	License Agreement, dated as of May 1, 1992, by and between the President and Fellows of Harvard College and Virus Research Institute, Inc.	Incorporated by reference to Exhibit 10.24 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.25	Amendment to License Agreement, dated July 23, 1993, by and between the President and Fellows of Harvard College and Virus Research Institute, Inc.	Incorporated by reference to Exhibit 10.25 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.26	Amendment to License Agreement, dated as of August 2, 2000, by and between the President and Fellows of Harvard College and the Company	Incorporated by reference to Exhibit 10.26 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.27	PHS Patent License Agreement, dated March 25, 1998, by and between the National Institutes of Health and Virus Research Institute, Inc.	Incorporated by reference to Exhibit 10.27 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.28	License Agreement, dated as of November 25, 1988, by and among The Johns Hopkins University, Brigham and Women's Hospital and the Company f/k/a T Cell Sciences, Inc.	Incorporated by reference to Exhibit 10.28 of the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2002
10.29	Subcontractor Service Agreement by and between DynPort Vaccine Company LLC and AVANT, dated January 15, 2003	Incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003

10.30	Subcontract modification by and between DynPort Vaccine Company LLC and AVANT, dated May 27, 2003	Incorporated by reference to Exhibit 10.2 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003
10.31	Subcontract by and between DynPort Vaccine Company LLC and AVANT, dated May 27, 2003	Incorporated by reference to Exhibit 10.3 of the

		Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003
10.32	Second Amendment to Amended and Restated Employment Agreement between AVANT and Una S. Ryan, Ph.D., dated as of September 18, 2003	Incorporated by reference to Exhibit 10.4 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003
10.33	Restricted Stock Unit Agreement between AVANT and Una S. Ryan, dated September 18, 2003	Incorporated by reference to Exhibit 10.5 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003
10.34	Amendment to AVANT Immunotherapeutics, Inc. 1999 Stock Option and Incentive Plan	Filed herewith
18.0	Letter regarding Change in Accounting Principle	Filed herewith
21.0	List of Subsidiaries	Incorporated by reference to Exhibit 21.0 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001
23.1	Consent of Independent Auditors	Filed herewith
31.1	Certification of President and Chief Executive Officer	Filed herewith
31.2	Certification of Senior Vice President and Chief Financial Officer	Filed herewith
32	Section 1350 Certifications	Filed herewith

(B) Reports on Form 8-K.

A Form 8-K (Item 12) was filed on October 31, 2003 regarding a press release announcing that AVANT had reported its financial results for the third quarter ended September 30, 2003.

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 March 11, 2004 by: /s/ UNA S. RYAN

Una S. Ryan
President and Chief Executive Officer

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 11, 2004
/s/ UNA S. RYAN (Una S. Ryan)	President, Chief Executive Officer, and Director	March 11, 2004
/s/ AVERY W. CATLIN (Avery W. Catlin)	Senior Vice President, Chief Financial Officer and Treasurer	March 11, 2004
/s/ FREDERICK W. KYLE (Frederick W. Kyle)	Director	March 11, 2004
/s/ THOMAS R. OSTERMUELLER	Director	March 11, 2004

(Thomas R. Ostermueller)		
/s/ HARRY H. PENNER, JR.	Director	March 11, 2004
(Harry H. Penner, Jr.)		
/s/ PETER A. SEARS	Director	March 11, 2004
(Peter A. Sears)		
/s/ KAREN S. LIPTON	Director	March 11, 2004
(Karen S. Lipton)		

QuickLinks

EXHIBIT 10.34

AVANT IMMUNOTHERAPEUTICS, INC.

1999 STOCK OPTION AND INCENTIVE PLAN

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the AVANT Immunotherapeutics, Inc. 1999 Stock Option and Incentive Plan (the "Plan"). The purpose of the Plan is to encourage and enable the officers, employees, Independent Directors and other key persons (including consultants) of AVANT Immunotherapeutics, Inc. (the "Company") and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company's welfare will assure a closer identification of their interests with those of the Company, thereby stimulating their efforts on the Company's behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

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

"ADMINISTRATOR" is defined in Section 2(a).

"AWARD" or "AWARDS," except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Deferred Stock Awards, Restricted Stock Awards, Unrestricted Stock Awards, Performance Share Awards and Dividend Equivalent Rights.

"BOARD" means the Board of Directors of the Company.

"CHANGE OF CONTROL" is defined in Section 17.

"CODE" means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

"COMMITTEE" means the Committee of the Board referred to in Section 2.

"COVERED EMPLOYEE" means an employee who is a "Covered Employee" within the meaning of Section 162(m) of the Code.

"DEFERRED STOCK AWARD" means Awards granted pursuant to Section 8.

"DIVIDEND EQUIVALENT RIGHT" means Awards granted pursuant to Section 12.

"EFFECTIVE DATE" means the date on which the Plan is approved by stockholders as set forth in Section 19.

"FAIR MARKET VALUE" of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that (i) if the Stock is admitted to quotation on the National Association of Securities Dealers Automated Quotation System ("NASDAQ"), NASDAQ National System or a national securities exchange, the determination shall be made by reference to market quotations. If there are no market quotations for such date, the determination shall be made by reference to the last date preceding such date for which there are market quotations.

"INCENTIVE STOCK OPTION" means any Stock Option designated and qualified as an "incentive stock option" as defined in Section 422 of the Code.

"INDEPENDENT DIRECTOR" means a member of the Board who is not also an employee of the Company or any Subsidiary.

"NON-QUALIFIED STOCK OPTION" means any Stock Option that is not an Incentive Stock Option.

"OPTION" or "STOCK OPTION" means any option to purchase shares of Stock granted pursuant to Section 5.

"PERFORMANCE SHARE AWARD" means Awards granted pursuant to Section 10.

"PERFORMANCE CYCLE" means one or more periods of time, which may be of varying and overlapping durations, as the Administrator may select, over which

the attainment of one or more performance criteria will be measured for the purpose of determining a participant's right to and the payment of a Performance Share Award, Restricted Stock Award or Deferred Stock Award.

"RESTRICTED STOCK AWARD" means Awards granted pursuant to Section 7.

"STOCK" means the Common Stock, par value $.01 per share, of the Company, subject to adjustments pursuant to Section 3.

"STOCK APPRECIATION RIGHT" means any Award granted pursuant to Section 6.

"SUBSIDIARY" means any corporation or other entity (other than the Company) in any unbroken chain of corporations or other entities beginning with the Company if each of the corporations or entities (other than the last corporation or entity in the unbroken chain) owns stock or other interests possessing 50 percent or more of the economic interest or the total combined voting power of all classes of stock or other interests in one of the other corporations or entities in the chain.

"UNRESTRICTED STOCK AWARD" means any Award granted pursuant to Section 9.

SECTION 2. ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT PARTICIPANTS AND DETERMINE AWARDS

(a) COMMITTEE. The Plan shall be administered by either the Board or a committee of not less than two Independent Directors (in either case, the "Administrator").

(b) POWERS OF ADMINISTRATOR. The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Deferred Stock Awards, Unrestricted Stock Awards, Performance Share Awards and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more participants;

(iii) to determine the number of shares of Stock to be covered by any Award;

(iv) to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and participants, and to approve the form of written instruments evidencing the Awards;

(v) to accelerate the exercisability or vesting of all or any portion of any Award in circumstances involving a Change of Control or the death, disability or termination of employment of a Plan participant;

(vi) subject to the provisions of Section 5(a)(ii), to extend at any time the period in which Stock Options may be exercised; and

(vii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan participants.

(c) DELEGATION OF AUTHORITY TO GRANT AWARDS. The Administrator, in its discretion, may delegate to the Chief Executive Officer of the Company all or part of the Administrator's authority and duties with respect to the granting of Awards at Fair Market Value, to individuals who are not subject to the reporting and other provisions of Section 16 of the Act or "covered employees" within the meaning of Section 162(m) of the Code. Any such delegation by the Administrator shall include a limitation as to the amount of Awards that may be granted during

the period of the delegation and shall contain guidelines as to the determination of the exercise price of any Stock Option or Stock Appreciation Right, the conversion ratio or price of other Awards and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator's delegate or delegates that were consistent with the terms of the Plan.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) STOCK ISSUABLE. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 2,000,000 shares; provided that not more than 500,000 shares shall be issued in the form of Unrestricted Stock Awards, Restricted Stock Awards or Performance Share Awards. For purposes of this limitation, the shares of Stock underlying any Awards granted under this Plan or the Amended and Restated 1991 Stock Compensation Plan which are forfeited, cancelled, reacquired by the Company, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) shall be added back to the shares of Stock available for issuance under the Plan. Subject to such overall limitation, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award; provided, however, that Stock Options or Stock Appreciation Rights with respect to no more than 500,000 shares of Stock may be granted to any one individual participant during any calendar year period. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company and held in its treasury.

(b) CHANGES IN STOCK. If, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, (ii) the number of Stock Options or Stock Appreciation Rights that can be granted to any one individual participant, (iii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, and (iv) the price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

The Administrator may also adjust the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration material changes in accounting practices or principles, extraordinary dividends, acquisitions or dispositions of stock or property or any other event if it is determined by the Administrator that such adjustment is appropriate to avoid distortion in the operation of the Plan, provided that no such adjustment shall be made in the case of an Incentive Stock Option, without the consent of

the participant, if it would constitute a modification, extension or renewal of the Option within the meaning of Section 424(h) of the Code.

(c) MERGERS AND OTHER TRANSACTIONS. In the case of and subject to the consummation of (i) the dissolution or liquidation of the Company, (ii) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (iii) a merger, reorganization or consolidation in which the holders of the Company's outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the surviving or resulting entity immediately upon completion of such transaction, (iv) the sale of all of the Stock of the Company to an unrelated person or entity or (v) any other transaction in which the owners of the Company's outstanding voting power prior to such transaction do not own at least a majority of the outstanding voting power of the relevant entity after the transaction (in each case, a "Covered Transaction"), all Options and Stock Appreciation Rights that are not exercisable shall become fully exercisable and all other Awards with conditions and restrictions relating solely to the passage of time and continued employment shall become fully vested, except as the Administrator may otherwise specify with respect to particular Awards. Upon the consummation of the Covered Transaction, the Plan and all outstanding Awards

granted hereunder shall terminate, unless provision is made in connection with the Covered Transaction for the assumption of Awards heretofore granted, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as provided in Section 3(b) above. In the event of such termination, each optionee shall be permitted, within a specified period of time determined by the Administrator prior to consummation of the Covered Transaction, to exercise all outstanding Options and Stock Appreciation Rights held by such optionee, including those that are not then exercisable, subject to the consummation of the Covered Transaction.

(d) SUBSTITUTE AWARDS. The Administrator may grant Awards under the Plan in substitution for stock and stock based awards held by employees of another corporation who become employees of the Company or a Subsidiary as the result of a merger or consolidation of the employing corporation with the Company or a Subsidiary or the acquisition by the Company or a Subsidiary of property or stock of the employing corporation. The Administrator may direct that the substitute awards be granted on such terms and conditions as the Administrator considers appropriate in the circumstances. Any substitute Awards granted under the Plan shall not count against the share limitation set forth in Section 3(a).

SECTION 4. ELIGIBILITY

Participants in the Plan will be such full or part-time officers and other employees, Independent Directors and key persons (including consultants and prospective employees) of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

SECTION 5. STOCK OPTIONS

Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a "subsidiary corporation" within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

No Incentive Stock Option shall be granted under the Plan after May 8, 2012

(a) STOCK OPTIONS GRANTED TO EMPLOYEES AND KEY PERSONS. The Administrator in its discretion may grant Stock Options to eligible employees and key persons of the Company or any Subsidiary. Stock Options granted pursuant to this Section 5(a) shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the participant's election, subject to such terms and conditions as the Administrator may establish.

(i) EXERCISE PRICE. The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5(a) shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant unless the Stock Option is granted in lieu of cash compensation. If an employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation and an Incentive Stock Option is granted to such employee, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date.

(ii) OPTION TERM. The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the option is granted. If an employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation and an Incentive Stock Option is granted to such employee, the term of such option shall be no more than five years from the date of grant.

(iii) EXERCISABILITY; RIGHTS OF A STOCKHOLDER. Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date; provided, however, that Stock Options granted in lieu of compensation shall be exercisable in full as of the grant date. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a

Stock Option and not as to unexercised Stock Options.

(iv) METHOD OF EXERCISE. Stock Options may be exercised in whole or in part, by giving written notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods to the extent provided in the Option Award agreement:

(A) In cash, by certified or bank check or other instrument acceptable to the Administrator;

(B) Through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the optionee on the open market or that have been beneficially owned by the optionee for at least six months and are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date;

(C) By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition of such payment procedure; or

(D) By the optionee delivering to the Company a promissory note if the Board has expressly authorized the loan of funds to the optionee for the purpose of enabling or assisting the optionee to effect the exercise of his Stock Option; provided that at least so much of the exercise price as represents the par value of the Stock shall be paid other than with a promissory note.

Payment instruments will be received subject to collection. The delivery of certificates representing the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Stock Option or applicable provisions of laws. In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of shares attested to.

(v) ANNUAL LIMIT ON INCENTIVE STOCK OPTIONS. To the extent required for "incentive stock option" treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed $100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

(b) RELOAD OPTIONS. At the discretion of the Administrator, Options granted under the Plan may include a "reload" feature pursuant to which an optionee exercising an option by the delivery of a number of shares of Stock in accordance with Section 5(a)(iv)(B) hereof would automatically be granted an additional Option (with an exercise price equal to the Fair Market Value of the Stock on the date the additional Option is granted and with such other terms as the Administrator may provide) to purchase that number of shares of Stock equal to the sum of (i)

the number delivered to exercise the original Option and (ii) the number withheld to satisfy tax liabilities, with an Option term equal to the remainder of the original Option term unless the Administrator otherwise determines in the Award agreement for the original Option grant.

(c) STOCK OPTIONS GRANTED TO INDEPENDENT DIRECTORS.

(i) AUTOMATIC GRANT OF OPTIONS.

(A) Each Independent Director who is serving as Director of the Company on the fifth business day after each annual meeting of shareholders, beginning with the 1999 annual meeting, shall automatically be granted on such day a Non-Qualified Stock Option to acquire 10,000 shares of Stock.

(B) The exercise price per share for the Stock covered by a Stock Option granted under this Section 5(c) shall be equal to the Fair Market Value of the Stock on the date the Stock Option is granted.

(C) The Administrator, in its discretion, may grant additional Non-Qualified Stock Options to Independent Directors. Any such grant may vary among individual Independent Directors.

(ii) EXERCISE; TERMINATION.

(A) Unless otherwise determined by the Administrator, an Option granted under Section 5(c) shall be exercisable after the first anniversary of the grant date. An Option issued under this Section 5(c) shall not be exercisable after the expiration of ten years from the date of grant.

(B) Options granted under this Section 5(c) may be exercised only by written notice to the Company specifying the number of shares to be purchased. Payment of the full purchase price of the shares to be purchased may be made by one or more of the methods specified in Section 5(a)(iv). An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(d) NON-TRANSFERABILITY OF OPTIONS. No Stock Option shall be transferable by the optionee otherwise than by will or by the laws of descent and distribution and all Stock Options shall be exercisable, during the optionee's lifetime, only by the optionee, or by the optionee's legal representative or guardian in the event of the optionee's incapacity. Notwithstanding the foregoing, the Administrator, in its sole discretion, may provide in the Award agreement regarding a given Option that the optionee may transfer his Non-Qualified Stock Options to members of his immediate family, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Option.

SECTION 6. STOCK APPRECIATION RIGHTS.

(a) NATURE OF STOCK APPRECIATION RIGHTS. A Stock Appreciation Right is an Award entitling the recipient to receive an amount in cash or shares of Stock or a combination thereof having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right, which price shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant (or more than the option exercise price per share, if the Stock Appreciation Right was granted in tandem with a Stock Option) multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised, with the Administrator having the right to determine the form of payment.

(b) GRANT AND EXERCISE OF STOCK APPRECIATION RIGHTS. Stock Appreciation Rights may be granted by the Administrator in tandem with, or independently of, any Stock Option granted pursuant to Section 5 of the Plan. In the case of a Stock Appreciation Right granted in tandem with a Non-Qualified Stock Option, such Stock Appreciation Right may be granted either at or after the time of the grant of such Option. In the case of a Stock Appreciation Right granted in tandem with an Incentive Stock Option, such Stock Appreciation Right may be granted only at the time of the grant of the Option.

A Stock Appreciation Right or applicable portion thereof granted in tandem with a Stock Option shall terminate and no longer be exercisable upon the termination or exercise of the related Option.

(c) TERMS AND CONDITIONS OF STOCK APPRECIATION RIGHTS. Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined from time to time by the Administrator, subject to the following:

(i) Stock Appreciation Rights granted in tandem with Options shall be exercisable at such time or times and to the extent that the related Stock Options shall be exercisable.

(ii) Upon exercise of a Stock Appreciation Right, the applicable portion of any related Option shall be surrendered.

(iii) All Stock Appreciation Rights shall be exercisable during the participant's lifetime only by the participant or the participant's legal representative.

SECTION 7. RESTRICTED STOCK AWARDS

(a) NATURE OF RESTRICTED STOCK AWARDS. A Restricted Stock Award is an Award entitling the recipient to acquire, at par value or such other higher purchase price determined by the Administrator, shares of Stock subject to such restrictions and conditions as the Administrator may determine at the time of grant ("Restricted Stock"). Conditions may be based on continuing employment (or other business relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Restricted Stock Award is contingent on the participant executing the Restricted Stock Award agreement. The terms and conditions of each

such agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and participants.

(b) RIGHTS AS A STOCKHOLDER. Upon execution of a written instrument setting forth the Restricted Stock Award and payment of any applicable purchase price, a participant shall have the rights of a stockholder with respect to the voting of the Restricted Stock, subject to such conditions contained in the written instrument evidencing the Restricted Stock Award. Unless the Administrator shall otherwise determine, certificates evidencing the Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in Section 7(d) below, and the participant shall be required, as a condition of the grant, to deliver to the Company a stock power endorsed in blank.

(c) RESTRICTIONS. Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award agreement. If a participant's employment (or other business relationship) with the Company and its Subsidiaries terminates for any reason, the Company shall have the right to repurchase Restricted Stock that has not vested at the time of termination at its original purchase price, from the participant or the participant's legal representative.

(d) VESTING OF RESTRICTED STOCK. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Stock and the Company's right of repurchase or forfeiture shall lapse. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Stock and shall be deemed "vested." Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 15 below, in writing after the Award agreement is issued, a participant's rights in any shares of Restricted Stock that have not vested shall automatically terminate upon the participant's termination of employment (or other business relationship) with the Company and its Subsidiaries and such shares shall be subject to the Company's right of repurchase as provided in Section 7(c) above.

(e) WAIVER, DEFERRAL AND REINVESTMENT OF DIVIDENDS. The Restricted Stock Award agreement may require or permit the immediate payment, waiver, deferral or investment of dividends paid on the Restricted Stock.

SECTION 8. DEFERRED STOCK AWARDS

(a) NATURE OF DEFERRED STOCK AWARDS. A Deferred Stock Award is an Award of phantom stock units to a participant, subject to restrictions and conditions as the Administrator may determine at the time of grant. Conditions may be based on continuing employment (or other business relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Deferred Stock Award is contingent on the participant executing the Deferred Stock Award agreement. The terms and conditions of each such agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and participants. At the end of the deferral period, the Deferred Stock Award, to the extent vested, shall be paid to the participant in the form of shares of Stock.

(b) ELECTION TO RECEIVE DEFERRED STOCK AWARDS IN LIEU OF COMPENSATION. The Administrator may, in its sole discretion, permit a participant to elect to receive a portion of the cash compensation or Restricted Stock Award otherwise due to such participant in the form of a Deferred Stock Award. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with rules and procedures established by the Administrator. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate.

(c) RIGHTS AS A STOCKHOLDER. During the deferral period, a participant shall have no rights as a stockholder; provided, however, that the participant may be credited with Dividend Equivalent Rights with respect to the phantom stock units underlying his Deferred Stock Award, subject to such terms and conditions as the Administrator may determine.

(d) RESTRICTIONS. A Deferred Stock Award may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of during the deferral period.

(e) TERMINATION. Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 15 below, in writing after the Award agreement is issued, a participant's right in all Deferred Stock Awards that have not vested shall automatically terminate upon the participant's termination of employment (or cessation of business relationship) with the Company and its Subsidiaries for any reason.

SECTION 9. UNRESTRICTED STOCK AWARDS

GRANT OR SALE OF UNRESTRICTED STOCK. The Administrator may, in its sole discretion, grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award to any participant pursuant to which such participant may receive shares of Stock free of any restrictions ("Unrestricted Stock") under the Plan. Unrestricted Stock Awards may be granted or sold as described in the preceding sentence in respect of past services or other valid consideration, or in lieu of cash compensation due to such participant.

SECTION 10. PERFORMANCE SHARE AWARDS

(a) NATURE OF PERFORMANCE SHARE AWARDS. A Performance Share Award is an Award entitling the recipient to acquire shares of Stock upon the attainment of specified performance goals. The Administrator may make Performance Share Awards independent of or in connection with the granting of any other Award under the Plan. The Administrator in its sole discretion shall determine whether and to whom Performance Share Awards shall be made, the performance goals, the periods during which performance is to be measured, and all other limitations and conditions.

(b) RIGHTS AS A STOCKHOLDER. A participant receiving a Performance Share Award shall have the rights of a stockholder only as to shares actually received by the participant under the Plan and not with respect to shares subject to the Award but not actually received by the participant. A participant shall be entitled to receive a stock certificate evidencing the acquisition of shares of Stock under a Performance Share Award only upon satisfaction of all

conditions specified in the Performance Share Award agreement (or in a performance plan adopted by the Administrator).

(c) TERMINATION. Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 15 below, in writing after the Award agreement is issued, a participant's rights in all Performance Share Awards shall automatically terminate upon the participant's termination of employment (or cessation of business relationship) with the Company and its Subsidiaries for any reason.

(d) ACCELERATION, WAIVER, ETC. At any time prior to the participant's termination of employment (or other business relationship) by the Company and its Subsidiaries, the Administrator may in its sole discretion accelerate, waive or, subject to Section 15, amend any or all of the goals, restrictions or conditions applicable to a Performance Share Award.

SECTION 11. PERFORMANCE-BASED AWARDS TO COVERED EMPLOYEES

Notwithstanding anything to the contrary contained herein, if any Restricted Stock Award, Deferred Stock Award or Performance Share Award granted to a Covered Employee is intended to qualify as "Performance-based Compensation"

under Section 162(m) of the Code and the regulations promulgated thereunder (a "Performance-based Award"), such Award shall comply with the provisions set forth below:

(a) PERFORMANCE CRITERIA. The performance criteria used in performance goals governing Performance-based Awards granted to Covered Employees may include any or all of the following: (i) the Company's return on equity, assets, capital or investment, (ii) pre-tax or after-tax profit levels of the Company or any Subsidiary, a division, an operating unit or a business segment of the Company, or any combination of the foregoing; (iii) cash flow, funds from operations, year-end cash and equivalents balance or similar measure; (iv) total shareholder return; (v) changes in the market price of the Stock; (vi) sales or market share; (vii) earnings per share; (viii) partnerships, collaborations, joint ventures, alliances and similar arrangements involving the Company; (ix) mergers, acquisitions and business combinations of or by the Company; or (x) the Company's rights to intellectual property and scientific discoveries.

(b) GRANT OF PERFORMANCE-BASED AWARDS. With respect to each Performance-based Award granted to a Covered Employee, the Committee shall select, within the first 90 days of a Performance Cycle (or, if shorter, within the maximum period allowed under Section 162(m) of the Code) the performance criteria for such grant, and the achievement targets with respect to each performance criterion (including a threshold level of performance below which no amount will become payable with respect to such Award). Each Performance-based Award will specify the amount payable, or the formula for determining the amount payable, upon achievement of the various applicable performance targets. The performance criteria established by the Committee may be (but need not be) different for each Performance Cycle and different goals may be applicable to Performance-based Awards to different Covered Employees.

(c) PAYMENT OF PERFORMANCE-BASED AWARDS. Following the completion of a Performance Cycle, the Committee shall meet to review and certify in writing whether, and to what extent, the performance criteria for the Performance Cycle have been achieved and, if so, to

also calculate and certify in writing the amount of the Performance-based Awards earned for the Performance Cycle. The Committee shall then determine the actual size of each Covered Employee's Performance-based Award, and, in doing so, may reduce or eliminate the amount of the Performance-based Award for a Covered Employee if, in its sole judgment, such reduction or elimination is appropriate.

(d) MAXIMUM AWARD PAYABLE. The maximum Performance-based Award payable to any one Covered Employee under the Plan for a Performance Cycle is 250,000 Shares (subject to adjustment as provided in Section 3(b) hereof).

SECTION 12. DIVIDEND EQUIVALENT RIGHTS

(a) DIVIDEND EQUIVALENT RIGHTS. A Dividend Equivalent Right is an Award entitling the recipient to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the recipient. A Dividend Equivalent Right may be granted hereunder to any participant as a component of another Award or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the grant. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid currently or may be deemed to be reinvested in additional shares of Stock, which may thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of another Award may provide that such Dividend Equivalent Right shall be settled upon exercise, settlement, or payment of, or lapse of restrictions on, such other award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other award. A Dividend Equivalent Right granted as a component of another Award may also contain terms and conditions different from such other award.

(b) INTEREST EQUIVALENTS. Any Award under this Plan that is settled in whole or in part in cash on a deferred basis may provide in the grant for interest equivalents to be credited with respect to such cash payment. Interest equivalents may be compounded and shall be paid upon such terms and conditions as may be specified by the grant.

(c) TERMINATION. Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 15 below, in writing after the Award agreement is issued, a participant's rights in all Dividend Equivalent

Rights or interest equivalents shall automatically terminate upon the participant's termination of employment (or cessation of business relationship) with the Company and its Subsidiaries for any reason.

SECTION 13. TAX WITHHOLDING

(a) PAYMENT BY PARTICIPANT. Each participant shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the participant for Federal income tax purposes, pay to the

Company, or make arrangements satisfactory to the Administrator regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld with respect to such income. The Company and its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the participant. The Company's obligation to deliver stock certificates to any participant is subject to and conditioned on tax obligations being satisfied by the participant.

(b) PAYMENT IN STOCK. Subject to approval by the Administrator, a participant may elect to have such tax withholding obligation satisfied, in whole or in part, by (i) authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due, or (ii) transferring to the Company shares of Stock owned by the participant with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due.

SECTION 14. TRANSFER, LEAVE OF ABSENCE, ETC.

For purposes of the Plan, the following events shall not be deemed a termination of employment:

(a) a transfer to the employment of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or

(b) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

SECTION 15. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall (a) adversely affect rights under any outstanding Award without the holder's consent or (b) without the prior approval of the Company's stockholders, reduce the exercise price of or otherwise reprice, including through replacement grants, any outstanding Stock Option or Stock Appreciation Right. If and to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code or to ensure that compensation earned under Awards qualifies as performance-based compensation under Section 162(m) of the Code, if and to the extent intended to so qualify, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 15 shall limit the Administrator's authority to take any action permitted pursuant to Section 3(c).

SECTION 16. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a participant, a participant shall have no rights

greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

SECTION 17. CHANGE OF CONTROL PROVISIONS

Upon the occurrence of a Change of Control as defined in this Section 17:

(a) Except as otherwise provided in the applicable Award agreement, each outstanding Stock Option, Stock Appreciation Right and Dividend Equivalent Right shall automatically become fully exercisable.

(b) Except as otherwise provided in the applicable Award Agreement, conditions and restrictions on each outstanding Restricted Stock Award, Deferred Stock Award and Performance Share Award which relate solely to the passage of time and continued employment will be removed. Performance or other conditions (other than conditions and restrictions relating solely to the passage of time and continued employment) will continue to apply unless otherwise provided in the applicable Award Agreement.

(c) "Change of Control" shall mean the occurrence of any one of the following events:

(i) any "PERSON," as such term is used in Sections 13(d) and 14(d) of the Act (other than the Company, any of its Subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of the Company or any of its Subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Act) of such person, shall become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, of securities of the Company representing 25 percent or more of the combined voting power of the Company's then outstanding securities having the right to vote in an election of the Company's Board of Directors ("Voting Securities") (in such case other than as a result of an acquisition of securities directly from the Company); or

(ii) persons who, as of the Effective Date, constitute the Company's Board of Directors (the "Incumbent Directors") cease for any reason, including, without limitation, as a result of a tender offer, proxy contest, merger or similar transaction, to constitute at least a majority of the Board, provided that any person becoming a director of the Company subsequent to the Effective Date shall be considered an Incumbent Director if such person's election was approved by or such person was nominated for election by either (A) a vote of at least a majority of the Incumbent Directors or (B) a vote of at least a majority of the Incumbent Directors who are members of a nominating committee comprised, in the majority, of Incumbent Directors; but provided further, that any such person whose initial assumption of office is in connection with an actual or threatened election contest relating to the election of members of the Board of Directors or other actual or threatened solicitation of proxies or consents by or on behalf of a PERSON other

than the Board, including by reason of agreement intended to avoid or settle any such actual or threatened contest or solicitation, shall not be considered an Incumbent Director; or

(iii) the stockholders of the Company shall approve (A) any consolidation or merger of the Company where the stockholders of the Company, immediately prior to the consolidation or merger, would not, immediately after the consolidation or merger, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the corporation issuing cash or securities in the consolidation or merger (or of its ultimate parent corporation, if any), (B) any sale, lease, exchange or other transfer (in one transaction or a series of transactions contemplated or arranged by any party as a single plan) of all or substantially all of the assets of the Company or (C) any plan or proposal for the liquidation or dissolution of the Company.

Notwithstanding the foregoing, a "Change of Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by the Company which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of shares of Voting Securities beneficially owned by any person to 25 percent or more of the combined voting power of all then outstanding Voting Securities; PROVIDED, HOWEVER, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from the Company), then a "CHANGE OF CONTROL" shall be deemed to have occurred for purposes of the foregoing clause (i).

SECTION 18. GENERAL PROVISIONS

(a) NO DISTRIBUTION; COMPLIANCE WITH LEGAL REQUIREMENTS. The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

No shares of Stock shall be issued pursuant to an Award until all applicable securities law and other legal and stock exchange or similar requirements have been satisfied. The Administrator may require the placing of such stop-orders and restrictive legends on certificates for Stock and Awards as it deems appropriate.

(b) DELIVERY OF STOCK CERTIFICATES. Stock certificates to participants under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the participant, at the participant's last known address on file with the Company.

(c) OTHER COMPENSATION ARRANGEMENTS; NO EMPLOYMENT RIGHTS. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not

confer upon any employee any right to continued employment with the Company or any Subsidiary.

(d) TRADING POLICY RESTRICTIONS. Option exercises and other Awards under the Plan shall be subject to such Company's insider trading policy, as in effect from time to time.

SECTION 19. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon approval by the holders of a majority of the votes cast at a meeting of stockholders at which a quorum is present. Subject to such approval by the stockholders and to the requirement that no Stock may be issued hereunder prior to such approval, Stock Options and other Awards may be granted hereunder on and after adoption of this Plan by the Board.

No Stock Options or other Awards shall be granted hereunder after May 8, 2012.

SECTION 20. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with, the laws of the State of Delaware, applied without regard to conflict of law principles.

DATE APPROVED BY BOARD OF DIRECTORS: March 18, 1999

DATE APPROVED BY STOCKHOLDERS: May 8, 1999

DATE FIRST AMENDED BY STOCKHOLDERS: May 8, 2002

Exhibit 18

PricewaterhouseCoopers LLP
One Post Office Square
Boston, MA 02109

March 11, 2004

Board of Directors
AVANT Immunotherapeutics, Inc.
119 Fourth Avenue
Needham, MA 02494

Dear Directors:

We are providing this letter to you for inclusion as an exhibit to your Form 10-K filing pursuant to Item 601 of Regulation S-K.

We have audited the consolidated financial statements in the Company's Annual Report on Form 10-K for the year ended December 31, 2003 and issued our report thereon dated February 18, 2004. Note 1 to the consolidated financial statements describes a change in accounting principle from the capitalization of patent application fees to expensing of patent application fees. It should be understood that the preferability of one acceptable method of accounting over another for patent application fees has not been addressed in any authoritative accounting literature, and in expressing our concurrence below we have relied on management's determination that this change in accounting principle is preferable. Based on our reading of management's stated reasons and justification for this change in accounting principle in the Form 10-K, and our discussions with management as to their judgment about the relevant business planning factors relating to the change, we concur with management that such change represents, in the Company's circumstances, the adoption of a preferable accounting principle in conformity with Accounting Principles Board Opinion No. 20.

Very truly yours,

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

Exhibit 23.1

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in the Registration Statements on Forms S-8, (File Nos. 333-52796, 333-34780, 33-80036, 33-80050 and 333-62017) and the Registration Statements on Forms S-3 (File Nos. 333-64704, 333-43204, 333-52736, 33-64021, 333-08607, 333-56755, 333-64761, 333-89341, 333-109583 and 333-106918), of AVANT Immunotherapeutics, Inc. (f/k/a TCell Sciences, Inc.) of our report dated February 18, 2004 relating to the financial statements of AVANT Immunotherapeutics, Inc. (f/k/a TCell Sciences, Inc) which appears in the Annual Report on Form 10-K for the year ended December 31, 2003.

Boston, Massachusetts
March 11, 2004

EXHIBIT 31.1

CERTIFICATION

I, Una S. Ryan, certify that:

1. I have reviewed this report on Form 10-K of AVANT Immunotherapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 11, 2004

By: /s/ Una S. Ryan

Name: Una S. Ryan, Ph.D.
Title: President and Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

I, Avery W. Catlin, certify that:

1. I have reviewed this report on Form 10-K of AVANT Immunotherapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 11, 2004

By: /s/ Avery W. Catlin

Name: Avery W. Catlin
Title: Senior Vice President and Chief Financial Officer

EXHIBIT 32

The undersigned officers of AVANT Immunotherapeutics, Inc. (the "Company") hereby certify to our knowledge that the Company's annual report on Form 10-K to which this certification is attached (the "Report"), as filed with the Securities and Exchange Commission on the date hereof, fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 11, 2004

By: /s/ Una S. Ryan

Name: Una S. Ryan, Ph.D.
Title: President and Chief Executive Officer

Date: March 11, 2004

By: /s/ Avery W. Catlin

Name: Avery W. Catlin
Title: Senior Vice President and Chief Financial Officer