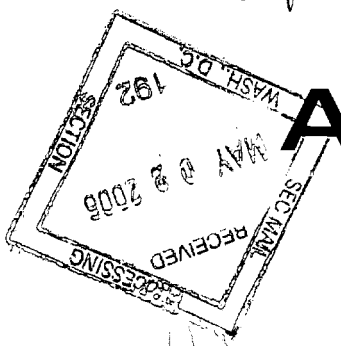


Avalon®
pharmaceuticals

Innovation. Discovery. Medicine.

2005 Annual Report

INNOVATION. DISCOVERY. MEDICINE.

Avalon Pharmaceuticals' business is discovering and developing novel drugs. Avalon is focused on oncology drugs for its own portfolio, but the AvalonRx™ Drug Discovery Engine can be used to discover drugs in essentially all therapeutic areas. Recently, we have initiated a program to harness the power of RNAi gene disruption signatures for the isolation of drugs against previously "intractable" targets.

Dear Shareholders,

Avalon's vision is to build a pipeline of novel therapeutic products that are more effective and safer than those that are currently marketed. We are doing this using our proprietary systems-biology engine, AvalonRx®, to drive discovery of new drugs for Avalon and its partners, to analyze high-quality lead compounds from others for potential acquisition, and to enhance product development by identifying key clinical biomarkers.

2005—A Year of Executing Our Strategy

During 2005, we took significant strides toward fulfilling our vision by establishing our first clinical stage drug program, advancing the progress of our pre-clinical pipeline, establishing partnerships with Novartis and MedImmune, and improving our financial position with our initial public offering.

Our internal programs are focused on cancer—a disease for which there is a continuing, desperate need for novel effective medicines. In 2005, cancer surpassed cardiovascular disease as the number one cause of death for Americans under age 85. Our lead cancer drug, AVN944, has the potential to be a best-in-class drug in many cancer types. We acquired the rights to develop and commercialize AVN944 from Vertex Pharmaceuticals Incorporated early in 2005. We are excited about this opportunity, both because AVN944 is a promising, clinical-stage drug and because we believe AvalonRx® will be able to enhance, and possibly accelerate, its development and commercialization.

During 2005, we also made significant progress using AvalonRx® for a growing list of discovery programs for our partners and ourselves. The unique approach enabled by AvalonRx® is providing great value in speed and flexibility in screen design, screening, selection of hits, optimization of hits to lead compounds and biomarker selection. Our two lead pre-clinical programs focus on important cellular targets in solid tumors, ß-Catenin and Aurora Kinase, while our partnerships with MedImmune and Novartis are important opportunities to validate the use of AvalonRx® in other disease areas. Partnerships also bring financial support to Avalon that can include upfront payments, research support, milestone payments and royalties.

A Look Ahead—2006

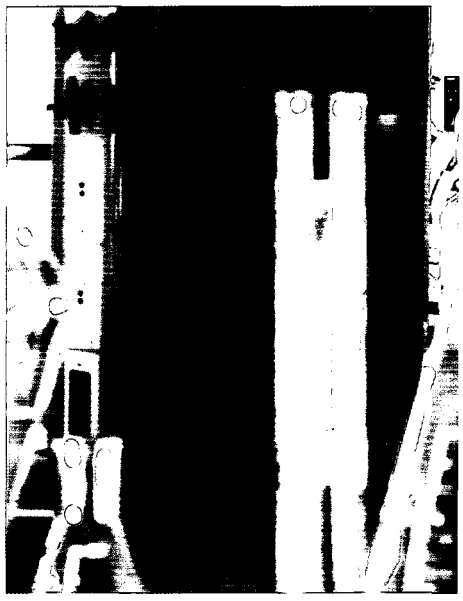
Heading into 2006, we plan to make additional progress toward bringing better medicines to the market while further validating the use of AvalonRx® during all stages of the process. In the second half of the year, we expect to complete enrollment in our Phase I clinical trial of AVN944 and initiate a Phase II study. We plan to identify two lead candidates from our internal programs for IND-enabling development studies by year-end and to make significant progress on our partnership programs. We will also continue to use AvalonRx® to enhance analysis of promising drug candidates from other organizations for potential acquisition.

In closing, I would like to recognize the talented team that is making Avalon's vision a reality and thank you, our shareholders, for your ongoing support. I look forward to sharing our continued success with you.

Sincerely,

Kenneth C. Carter, Ph.D.
President and CEO

AVALONRx®
A Unique Approach to Drug Discovery



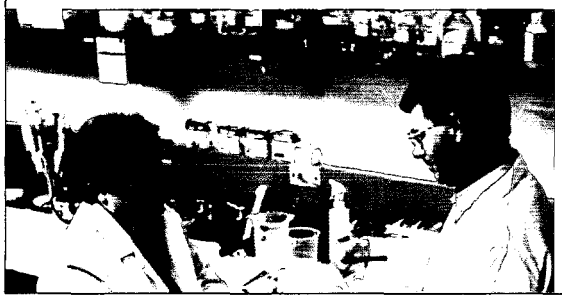
The long-term value of Avalon is rooted in the use of our proprietary technology, AvalonRx®, which provides the first fully integrated systems biology approach to drug discovery and development. Most problems in drug discovery, development, and commercialization occur because of the enormous complexity of the control mechanisms and pathways within cells. Conventional drug discovery efforts focus on only a small fraction of this complexity—usually by trying to identify a single cellular target for therapeutic intervention by a drug candidate. In contrast, at Avalon, we use AvalonRx®, which allows for highly accurate measurements of gene expression that reflect changes in complex control mechanisms and pathways. AvalonRx® also integrates the resulting data creating a unique, powerful, unifying system allowing us to make more informed decisions in all stages of drug discovery and development.

Screening and characterization of drugs: AvalonRx® addresses a major need for an alternative to traditional high-throughput screening (HTS) of chemical compound libraries. Traditional HTS has many problems including: long lead times; hard-to-design screens; and inadequate information related to on- and off-target effects of screening hits. Also, many promising targets are considered "intractable" or "undruggable" because there are no conventional technologies by which the targets can be easily subjected to HTS. AvalonRx® provides precise information about a compound's actions across multiple pathways within a cell for virtually any target or pathway and allows for quicker and better decision making regarding the progression of hit compounds from screening into optimization.

Drug candidate optimization: We are able to optimize drugs using AvalonRx® by comparing the effects of different chemical structures across a broad array of cellular control mechanisms and pathways. In contrast to conventional optimization, AvalonRx® empowers scientists by incorporating more information at critical points in the optimization process.

Clinical biomarkers: Using AvalonRx®, we are able to rapidly identify biomarkers that we believe will have great advantages in clinical development and commercialization of drugs by guiding clinical trial design, patient stratification, dosage effects, combination therapy choices and other key aspects of clinical strategy.

We are using AvalonRx® to drive discovery and development of new drugs for Avalon and our partners, to analyze high-quality lead compounds from others for potential acquisition, and to enhance product development by identifying key clinical biomarkers. There are also several other potential applications of AvalonRx®, notably in the area of diagnostic product development. We continue to explore additional opportunities for the technology, but until we identify a compelling commercial strategy for other applications, we will remain focused exclusively on its use in drug discovery and development.



"We focus on outcomes—
global and specific change in cellular gene expression...
—not just on single targets."

Next Generation Medicines
A Growing Pipeline

AVN944: Potential Best-in-Class Medicine

In February 2005, Avalon licensed the rights to develop and commercialize the drug AVN944 (formerly VX944) from Vertex Pharmaceuticals Incorporated. AVN944 is a potent, highly specific inhibitor of inosine monophosphate dehydrogenase (IMPDH) and a large set of pre-clinical and clinical data indicates it kills cancer cells in a variety of model systems, has good pharmaceutical properties, is safe, and is likely to be more effective than first generation IMPDH inhibitors.

IMPDH is an enzyme required for the de novo synthesis of DNA and RNA—therefore its activity is required for cells to divide. IMPDH is highly upregulated in many hematologic and solid tumor cancers. Earlier generation IMPDH inhibitors showed signs of activity in cancer in limited clinical trials, but also had "off-target" side effects that limited the doses that could be used or the ability of patients to complete courses of therapy.

Avalon has tested AVN944 and other first generation IMPDH inhibitors using AvalonRx® and determined that over a range of concentrations AVN944 shows little, if any, effect on genes or pathways other than those expected for an IMPDH inhibitor. In a Phase I trial in the United Kingdom in healthy volunteers AVN944 fully inhibited IMPDH at doses where no side effects were noted in the subjects.

In 2005, Avalon filed an IND and initiated a multi-dose Phase I trial in patients with leukemias, lymphomas and multiple myelomas at four leading cancer centers in the U.S. Patients are being dosed in a series of escalating concentrations aimed at determining the maximum tolerated dose. As we move into Phase II studies to begin examining the efficacy of AVN944, currently planned for late 2006, we will be guided by the outcome of the Phase I results and by the use of AvalonRx®. We are using our technology during Phase I to monitor a wide range of cellular activity that we believe will provide biomarkers that will guide patient stratification, dosing, combination therapy choices and other key aspects of future clinical trial designs.

Next Generation Medicines

While AvalonRx® can be applied to many therapeutic areas, we are applying it internally for the discovery of therapeutics for the treatment of cancer.

ß-Catenin Program

The ß-catenin protein and its associated cellular control pathway is abnormally activated in many cancers including colon cancer, but is typically classified as "undruggable" because there are no known enzymatic targets in the pathway. Using AvalonRx® to create a gene expression signature that mimics decreased ß-catenin activity, Avalon scientists screened and identified multiple compound families that appear to inhibit the pathway. Several of the compounds reduce the cellular activation of ß-catenin and reduce the level of gene expression of specific genes normally mediated through effects of ß-catenin. Avalon has initiated drug lead optimization and plans to select a compound for pre-clinical development in 2006.

"Using AvalonRx® we are making more informed choices about the discovery and development of novel therapeutics including AVN944."

Product Pipeline

Aurora Kinase Program

Aurora kinases are a family of serine/threonine kinases that play multiple roles in the development and progression of cancer. They are overexpressed in many tumor types, including breast cancer, colon cancer, and leukemia. Amplification of the Aurora genes is also associated with progression of colorectal cancer and poor prognosis in breast cancer. Inhibition of Aurora kinase disrupts cell cycle and blocks proliferation of cancer cells.

Application of AvalonRx® has enabled us to identify multiple compound families that appear to affect Aurora kinase pathways. Some of these compounds inhibit the proliferation of cancer cells at lower concentrations than those required for other kinase inhibitors currently in clinical trials from other companies. Avalon has initiated lead optimization and plans to select a compound for preclinical development in 2006.

Drug Discovery Partnerships

A key part of our corporate strategy is to leverage the use of AvalonRx® in partnerships for drug discovery and development. This strategy provides opportunities for Avalon to discover a broader array of drugs for additional disease indications, to collaborate with larger companies and outstanding academic and clinical institutions, and financial support to Avalon that can include upfront payments, research support, milestone payments and royalties.

MedImmune, Inc. (Nasdaq: MEDI): We entered into an agreement with MedImmune in 2005 for a collaboration to discover and develop small molecule therapeutic compounds in the area of inflammatory disease. Under the terms of the agreement, we are using AvalonRx® to identify lead compounds for development.

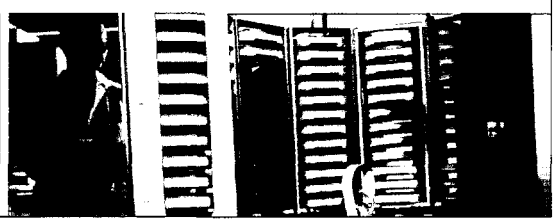
Novartis AG (NYSE: NVS): Novartis Institutes for Biomedical Research, Novartis' global research organization, and Avalon entered into an agreement in late 2005 to discover small molecule therapeutic compounds targeted against a pathway selected by Novartis. Avalon will use its AvalonRx® to identify screening hits from Novartis' chemical library.

Medarex, Inc. (Nasdaq: MEDX): Avalon is working with Mederex to discover and develop antibody products based on proprietary drug targets identified at Avalon.

All of these partnerships are progressing well and we expect that during 2006 each one will progress toward the discovery of novel drug candidates.

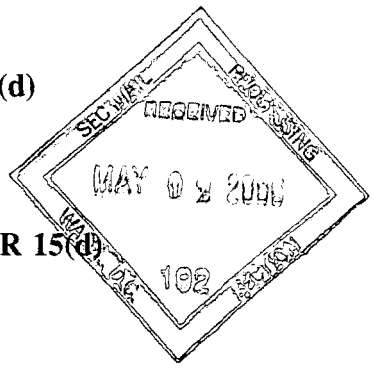
Program	Status	Planned Activities	Commercial Rights
IMPDH Inhibitor (AVN944)	U.S. Phase I ongoing	U.S. Phase I solid tumor study initiated by end of 2006.	Avalon
ß-catenin Pathway Inhibitor	Lead optimization	Optimize and select a candidate for preclinical development in 2006.	Avalon
Aurora Kinase Pathway Inhibitors	Lead optimization	Optimize and select a candidate for preclinical development in 2006.	Avalon
Therapeutic Antibodies	Novel target identified	Identify active antibodies in 2006.	Avalon/Medarex

Avalon is developing a pipeline of small molecule drugs for the treatment of both solid tumors and hematological malignancies.



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

Form 10-K



☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the fiscal year ended December 31, 2005

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the transition period from to

Commission File Number: 001-32629

AVALON PHARMACEUTICALS, INC.

(Exact name of Registrant as specified in its charter)

Delaware	**52-2209310**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
20358 Seneca Meadows Parkway, Germantown, Maryland	**20876**
(Address of principal executive offices)	*(Zip Code)*

Registrant's telephone number, including area code:
(301) 556-9900

Securities registered pursuant to Section 12(b) of the Act:
Common Stock, par value $0.01 per share

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☑

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☑

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 ☐

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 the 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. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer (as defined in Rule 12b-2 of the Exchange Act) (Check one):

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☑

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☑

As of June 30, 2005, the last business day of our most recently completed second fiscal quarter, our Common Stock was not listed on any exchange or market system. Our Common Stock began trading on the NASDAQ National Market and the Pacific Exchange (Archipelago) on September 29, 2005.

Indicate the number of shares outstanding of each of the registrant's classes of Common Stock, as of the most recent practicable date.

Class	Outstanding on March 15, 2006
Common Stock, par value $0.01 per share	10,083,828 shares

DOCUMENTS INCORPORATED BY REFERENCE

None.

TABLE OF CONTENTS

When used in this Annual Report on Form 10-K, except where the context otherwise requires, the terms "we," "us," "our," "Avalon" and "the Company" refer to Avalon Pharmaceuticals, Inc.

Cautionary Advice Regarding Forward-Looking Statements

Statements contained in this Form 10-K which are not historical facts may be forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 (the "Exchange Act"). We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 21E of the Exchange Act. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date this Form 10-K is filed with the Securities and Exchange Commission ("SEC").

The forward-looking statements are based on our beliefs, assumptions and expectations of our future performance, taking into account all information currently available to us. These beliefs, assumptions and expectations can change as a result of many possible events or factors, not all of which are known to us or are within our control. If a change occurs, our business, financial condition and results of operations may vary materially from those expressed in our forward-looking statements. These statements (none of which is intended as a guarantee of performance) are subject to certain risks and uncertainties which could cause our actual future results, achievements or transactions to differ materially from those projected or anticipated. Some of the important factors that could cause our actual results, performance or financial condition to differ materially from expectations are:

- risks relating to the early stage of product candidates under development;
- risks relating to our ability to secure and maintain relationships with collaborators;
- uncertainties with, and unexpected results and related analyses relating to clinical trials of our product candidates;
- the timing and content of future U.S. Food and Drug Administration regulatory actions;
- dependence on efforts of third parties;
- dependence on intellectual property;
- risks that we may lack the financial resources and access to capital to fund our operations;
- and risks relating to the commercialization, if any, of our product candidates (such as marketing, regulatory, patent, product liability, supply, competition and other risks).

Further information on the factors and risks that could affect our business, financial conditions and results of operations, are contained below in Item 1A. "Risk Factors."

PART I

ITEM 1. *BUSINESS*

Overview

We are a biopharmaceutical company focused on the discovery and development of small molecule therapeutics for the treatment of cancer. Our pipeline of drug candidates includes our lead candidate, AVN944. AVN944 is an oral delivery, small molecule drug candidate that was discovered by Vertex Pharmaceuticals Incorporated and that we licensed from Vertex in February 2005. AVN944 is currently in early stage clinical development for the treatment of hematological cancers. We seek to discover and develop novel therapeutics through the use of a comprehensive, innovative and proprietary suite of technologies based upon large-scale gene expression analysis, which we call AvalonRx®. We believe that AvalonRx® has the potential to expedite and improve the success rate of the drug discovery and development process, including enhancing the development of AVN944.

Our discovery and development programs focus on targets and pathways critical to cancer pathogenesis. AVN944 is a small molecule inhibitor of inosine 5'-monophosphate dehydrogenase, or IMPDH, an enzyme elevated in the cells of many cancer patients, particularly those with leukemia and lymphoma. Before we licensed AVN944 from Vertex, Vertex conducted a single-dose, dose-escalation Phase I clinical trial of AVN944 in the United Kingdom in healthy volunteers. This trial demonstrated that AVN944 was orally bioavailable and well tolerated. Under an Investigational New Drug application, or IND, for AVN944, we are currently conducting a U.S. Phase I clinical trial of AVN944 in cancer patients. We used AvalonRx® in our second program to identify a series of compounds impacting the beta *(B)*-catenin regulatory pathway, a pathway important in many cancers, but one that has previously been difficult to target therapeutically. Our third program targets Aurora kinases, a family of key enzymes involved in cell proliferation believed to play a critical role in the uncontrolled growth of cancer cells.

AvalonRx® incorporates specific tools that monitor changes in gene expression throughout drug discovery and development, from the initial screening of compound libraries to the analysis of patient samples following treatment in the clinic. These tools consist of a combination of software, hardware and processes and employ recently-developed technologies in the fields of robotics, microfluidics and bioinformatics. To facilitate drug discovery, we believe that we can design screens to identify compounds that are active against any target encoded by the human genome, even key disease targets that have not been possible to screen with conventional methods. We can also make informed decisions about which compounds to advance towards clinical trials, based upon comprehensive comparisons of compound activity across thousands of genes during lead selection and optimization. To facilitate drug development, including the development of AVN944, we intend to use AvalonRx® to identify gene expression patterns, or signatures, that can serve as early indicators, or biomarkers, of efficacy in patients, define which patients are most likely to respond to drug treatment, and discover additional appropriate clinical applications for our drug candidates.

Our Drug Discovery and Development Programs

Program	Status	Planned Activities	Commercial Rights
IMPDH Inhibitor (AVN944)	U.S. Phase I ongoing	U.S. Phase I solid tumor study initiated by end of 2006	Avalon
B-catenin Pathway Inhibitors	Lead optimization	Optimize and select a candidate for preclinical development in 2006	Avalon
Aurora Kinase Pathway Inhibitors	Lead optimization	Optimize and select a candidate for preclinical development in 2006	Avalon
Therapeutic Antibodies	Novel target identified	Identify active antibodies in 2006	Avalon/ Medarex

AVN944 Program

AVN944 is an oral delivery, small molecule drug candidate discovered by Vertex that we licensed from Vertex in February 2005. Before we licensed AVN944 from Vertex, Vertex conducted preclinical studies on AVN944 beginning in September 1999 and concluded active experimentation on AVN944 in December 2004. Results from these preclinical studies of AVN944 indicate that AVN944 can inhibit the proliferation of leukemia cells and prolong survival of mice with leukemia. In a Phase I clinical trial of AVN944 conducted in the United Kingdom in healthy volunteers, AVN944 demonstrated a favorable safety profile and a significant inhibitory effect on IMPDH enzyme activity. We believe that these results, in combination with results from preclinical testing, indicate that AVN944 has the potential to have clinical benefit for patients with cancer.

We filed an IND with the Food and Drug Administration ("FDA") in 2005 and initiated U.S. Phase I clinical trials of AVN944 in cancer patients in January 2006 for the treatment of hematological cancers such as leukemia and lymphoma, which afflict approximately 700,000 people in the United States and lead to over 54,000 deaths, or nearly 10% of all cancer deaths, in the United States each year. This Phase I trial is evaluating the maximum tolerated dose of AVN944. It is focusing on patients with hematological cancers that have failed prior therapies, or for whom there is no recommended treatment, and includes pharmacokinetic analysis of the drug candidate and analysis of a number of biomarkers that correlate with IMPDH inhibition. We intend to use AvalonRx® to analyze the gene expression responses that are characteristic of IMPDH inhibition from both *in vitro* and *in vivo* experiments in solid tumor models and hematological cancers, and translate those responses for clinical trial use.

B-Catenin Program

For more than 10 years, cancer researchers have known that proteins within the *B*-catenin pathway play key roles in the initiation and progression of cancer. It has been estimated that the *B*-catenin pathway is abnormally activated in more than 85% of colon cancer, which is the fourth most common type of cancer, causing approximately 105,000 new cancer cases and over 56,000 deaths each year in the United States. Using AvalonRx® we have identified structurally distinct compounds that appear to affect the *B*-catenin pathway. We have used a gene expression signature that tracks decreased *B*-catenin activity as a tool to identify nine active compound families from our library that appear to inhibit the *B*-catenin pathway and that represent different core chemical structures. We have initiated medicinal chemistry efforts in lead optimization around two of the active compound families identified from this effort. We have used AvalonRx® to demonstrate that specific analogs can slow the growth of tumors in animal models. Our current plans are to complete optimization on one of these compound families and select a compound for preclinical development in 2006. To date, we are not aware of any specific inhibitors of the *B*-catenin pathway that are on the market or in clinical development.

Aurora Kinase Program

Aurora kinases are key regulators of cell division and are overexpressed in many human cancers, including colon and breast cancers, as well as leukemia. Inhibition of Aurora kinase pathways is known to slow the uncontrolled cell growth that characterizes cancer. Application of AvalonRx® has enabled us to identify structurally distinct compounds that appear to affect Aurora kinase pathways. Some of the compounds that we have identified in our screen inhibit the proliferation of cancer cells at lower concentrations than those required for other kinase inhibitors that are currently in clinical trials from other companies. We are pursuing lead optimization for one of the active compound families identified from this effort and intend to select a compound for preclinical development in 2006.

Antibody Development

In addition to our small molecule efforts, we have used AvalonRx® as a basis for establishing a partnership related to antibody drug candidates. Under a development agreement with Medarex, Inc., we have identified a novel extracellular protein that is strongly associated with cancer. Our collaboration partner Medarex is working to generate therapeutic antibodies and may pursue *in vivo* proof of concept in animal models. After completion of these studies by Medarex, a biologics drug development program in this area, jointly resourced with Medarex, could commence.

Our Technologies

AvalonRx® uses microarray technology, robotics and bioinformatics to enable fast, fully-automated, large-scale analysis of gene expression and its application to the discovery and development of drugs. AvalonRx® is a suite of technologies the use of which represents a fundamental change in approach that can overcome many of the limitations of conventional drug discovery. We believe AvalonRx® has three key advantages compared to conventional technologies. First, the high-throughput capability of AvalonRx® produces a large amount of information related to each drug candidate. We believe that this extensive information can lead to a deeper understanding of a drug candidate's mechanism of action, faster and improved decision-making regarding which compound should be advanced into the next stage of development, and more accurate prediction of a drug candidate's safety and efficacy profile. Second, AvalonRx® can identify gene expression signatures that we intend to use as biomarkers of how a drug could behave in the human body. These gene expression signatures and biomarkers can be valuable in guiding drug candidate selection, clinical trial design and drug commercialization. Third, unlike conventional drug discovery technologies that use isolated proteins as drug screening targets, AvalonRx® screens for drug candidates based on how they impact the cell and expression of its genes.

This approach enables drug screening based on multiple cellular effects and can be applied on pathways that cannot be approached using conventional methods. For these reasons, AvalonRx® has the potential to discover drugs that conventional technologies are inherently unable to find and to move lead compounds and drug candidates through the development process with greater success.

AvalonRx® is comprised of multiple gene-expression based components designed to identify, prioritize, optimize and develop drug candidates. We use AvalonRx® in an integrated systematic process for *de novo* discovery for ourselves and our partners. For example, in June 2005 we entered into a drug discovery collaboration with MedImmune, Inc. in the area of inflammation, and in September 2005, we entered into a collaboration with Novartis Institutes for Biomedical Research, Inc. for the discovery of small molecule therapeutic compounds targeted against a pathway selected by Novartis. Additionally, we use individual components of AvalonRx® to improve existing discovery and development efforts in collaborations with others or to advance programs that we in-license, as is the case with AVN944.

Our Strategy

Our objective is to be a leading biopharmaceutical company focused on the discovery, development and commercialization of small molecule drug candidates for the treatment of cancer. The key elements of our business strategy are as follows:

- *Develop our anticancer therapeutic candidates.* We began conducting a U.S. Phase I trial for AVN944 in hematological cancer patients in January 2006. During the clinical development of AVN944 and the development of all of our subsequent drug candidates, we intend to leverage AvalonRx® to accelerate decision-making by: (1) selecting biomarkers of responsive cancers; (2) identifying responsive patient populations for improved clinical trial design and outcome; and (3) determining appropriate drug combinations more quickly than conventional methods.

- *Discover new therapeutic candidates using our proprietary AvalonRx® technology.* We use AvalonRx® to discover compounds that affect the expression levels of genes identified by methods such as: (1) RNA interference, or RNAi, knockdown of selected targets; (2) compound-specific activity; and (3) disease pathology. We use AvalonRx® for target identification and high-throughput screening, selection of leads and optimization of development candidates, compound analysis and efficacy prediction. We intend to apply AvalonRx® to explore the development of therapeutics against proprietary Avalon cancer targets and well-known cancer targets proven to be difficult for conventional technologies to address.

- *Apply AvalonRx® to select and add value to in-licensing candidates.* AvalonRx® provides us with unique insight into the properties of compounds and their potential as therapeutics. We intend to use AvalonRx® to analyze and in-license compounds discovered by others to identify: (1) mechanisms of action; (2) the type of cancer most likely to respond to the in-licensing candidate; and (3) the optimal dose and dose schedule for the in-licensing candidate. With these capabilities, we believe that we are better positioned to select

compounds for in-licensing. Once in-licensed, we will continue to use AvalonRx® to add value in the development of compounds.

- *Leverage our technology by collaborating with partners.* We have formed partnerships to develop novel therapeutics and have also formed discovery partnerships with MedImmune, Novartis and Medarex. We may form new partnerships for both cancer and other therapeutic fields to: (1) discover novel drug candidates for selected targets; (2) identify drug targets or biomarkers; (3) select and optimize lead candidates in aid of our partners' discovery efforts; and (4) improve the design of clinical trials and the analysis of patients' drug response. In each case, we intend to receive upfront payments for access to our technology, research and development funding, additional fees for the achievement of development milestones, and royalties on sales of products developed in the collaboration.

Collaborative Relationships

MedImmune

In June 2005, we entered into a collaboration and license agreement with MedImmune, Inc. for the discovery of small molecule therapeutic compounds in the area of inflammatory disease. Under the terms of the agreement, we are using AvalonRx® to identify lead compounds. MedImmune is responsible for preclinical and clinical testing of any resulting product candidates, as well as all future development, sales and marketing activities.

We received an upfront technology access fee payment of $1,500,000 and MedImmune is funding all research and development activities at Avalon and MedImmune for the purpose of the collaboration. We will receive milestone payments from MedImmune based on the achievement of the following milestones: (1) selection of one or more compound families for lead compound optimization; (2) proof of concept of a compound hit or lead compound in an animal model; (3) selection of a clinical candidate; (4) first dosing in a human being in a Phase I clinical trial; (5) first dosing in a human being in a pivotal registration clinical trial or the date of agreement by the FDA that a trial not originally designated as a pivotal registration clinical trial could be used for registration; (6) filing of an NDA for a product; (7) approval of an NDA for a product; (8) first commercial sale in Europe; (9) first commercial sale in Japan; and (10) clinical validation of the first target biomarker (this milestone payment will not be due if achievement of this milestone event is part of a development program for a product). Assuming we achieve all of these milestones, we will receive approximately $16 million in milestone payments. We will also receive royalties on net sales of any products discovered in the collaboration.

Additionally, MedImmune has the option to initiate two additional small molecule drug discovery collaborations with us under similar terms including the payment of an option exercise fee for each collaboration.

The term of the agreement expires on the earlier of (i) fifty years from the date of the agreement or, (ii) such time as MedImmune's obligation to pay royalties expires. The agreement also expires if, after the research is completed, MedImmune does not select a clinical candidate. The license agreement may be terminated sooner by either us or MedImmune upon, among other events, a material, uncured breach by the other party or by MedImmune for reason other than our material breach, upon 90 days notice.

Novartis

In September 2005, we entered into a collaboration with Novartis Institutes for Biomedical Research, Inc. for the discovery of small molecule therapeutic compounds targeted against a pathway selected by Novartis. We are using AvalonRx® in a pilot study with Novartis to identify hits from compounds in Novartis' chemical library. Novartis is responsible for lead optimization, preclinical and clinical testing of any resulting product candidates, as well as all future development and sales and marketing activities.

We received an upfront technology access fee payment of $500,000 and Novartis is funding all research activities at Avalon for the purpose of the collaboration. We will receive milestone payments from Novartis based on the achievement of the following milestones: (1) identification of a validated hit compound and (2) identification of a lead compound. Assuming we achieve these milestones, we will receive $1 million in milestone payments.

The term of the collaboration expires 18 months from the date of inception. The collaboration may be terminated sooner by either us or Novartis upon a material, uncured breach by the other party upon 60 days notice.

Medarex

In October 2003, we entered into a collaboration with Medarex, Inc. to jointly research, develop and commercialize human antibodies against Avalon cancer targets. Using AvalonRx®, we have identified what we believe are some of the key cancer genes based on the amplification of DNA and overexpression of RNA in certain cancer cells. Medarex plans to use its UltiMAb Human Antibody Development System to generate antibodies to the identified disease targets. We intend to develop jointly with Medarex these antibodies for therapeutic intervention. Under the agreement, each party is obligated to use commercially reasonable efforts to conduct their respective research activities in accordance with jointly developed project plans and budgets for the research, development, manufacture and commercialization of human antibodies identified by Medarex against cancer targets designated by Avalon. The agreement generally provides that all costs associated with the research, development, manufacturing and commercialization of any such antibodies are to be shared equally between Avalon and Medarex and that any operating profits or losses with respect to commercial products derived from the collaboration are to be similarly shared equally between the two parties. In addition, the agreement provides that each of the parties shall own an equal, undivided interest in any intellectual property and technology derived from the collaboration. The agreement further provides that either party may voluntarily opt-out of its research, development and commercialization obligations. Upon the exercise of such opt-out right, the non-terminating party has the option to unilaterally continue research, development, manufacture and commercialization activities with respect to these antibodies. This right is subject to the payment to the terminating party of specified royalties based on the phase of development during which such opt-out right is exercised. The non-terminating party could be obligated for between $6.5 million and $8.5 million per unilateral product in additional payments based on the achievement of various development and commercialization milestones, with the terminating party continuing to be responsible for all of its budgeted costs and expenses associated with completing the particular research and development phase applicable to such antibody. To date, no such royalty or milestone payments have been made by or paid to either party.

The term of the agreement continues until the later of: (1) the first anniversary of the completion of all research activities contemplated by the agreement; or (2) such time as neither of the parties is engaged in any research, development, manufacture or commercialization activities with respect to the human antibodies which are the subject of the parties' collaboration. The agreement may be terminated sooner by either us or Medarex upon, among other events, a material breach by the other party of the terms of the agreement (subject to prior notice and an opportunity to cure).

Other Collaborations

We have a funded collaboration with the University of Louisville to identify biomarkers in diabetes. We have sole rights to any inventions for which we or our employees are sole inventors, and we have joint rights to any inventions created jointly by us with university employees. Furthermore, we are under no current obligation to provide royalty or milestone payments under this collaboration. Our rights to intellectual property arising from this collaboration are subject to certain rights of the United States government, as defined in federal regulations.

We have additional collaborations or licenses from various academic or private research institutes through which we have access to various materials, such as samples of disease tissue, cell lines, RNA and DNA samples, or cytogenetic preparations. The materials from these collaborations are used in our drug and target discovery programs. In these relationships, we have sole rights to any inventions that we may derive for the use of materials, and we are under no obligation to provide any royalty or milestone payments.

Patents, Licenses and Proprietary Rights

We generally seek patent protection for our product candidates in the United States and abroad and protect our technologies through patents and trade secrets. We have submitted patent applications that are pending in the United

States and other countries. The patent position of biotechnology firms generally is highly uncertain and involves complex legal and factual questions. Our success will depend, in part, on whether we can:

- obtain patents to protect our own products;
- obtain licenses to use the technologies of third parties, which may be protected by patents;
- protect our trade secrets and know-how; and
- operate without infringing the intellectual property and proprietary rights of others.

Vertex license

In February 2005, we entered into a license agreement with Vertex Pharmaceuticals Incorporated for the development of AVN944 in oncology indications. Under the terms of the license, we hold exclusive rights to develop and commercialize AVN944 worldwide for the treatment or prevention of cancer. In consideration for this license, we paid Vertex a total of $5 million in upfront license fees. In addition, we have agreed to pay Vertex milestone payments based on the achievement of the following milestones: (1) initiation of the first human clinical trial, the results of which are designed to demonstrate the safety and efficacy of AVN944 on a sufficient number of patients to support regulatory approval of the drug in any country (generally a Phase III clinical trial); (2) first filing of a new drug application for AVN944 in any country; and (3) first regulatory approval of AVN944 in any country. Assuming we achieve each of these milestones in both hematological and solid tumor indications, we will owe Vertex up to $68 million in milestone payments.

Upon commercialization, we will pay Vertex royalties on product sales. In the event we decide to contract with a third party to market or commercialize AVN944 in the United States, the United Kingdom, France, Germany, Italy, Spain or Japan, Vertex has the right of first negotiation on the marketing and commercialization of the drug product. If we fail to obtain regulatory approval and initiate sales and marketing efforts in any other countries within a year after there are commercial sales in all of the forgoing countries, Vertex has the right to market and sell AVN944 drug product on our behalf in any such other countries.

The term of the agreement expires with respect to a particular country upon the later to occur of: (1) the expiration of the last Vertex patent in such country containing a valid patent claim covering AVN944 for use in the treatment or prevention of cancer; or (2) if there is no such valid patent claim under a Vertex patent, 10 years from the earlier of the date regulatory approval is received in that country for sale of AVN944 in a drug product or the first commercial sale of AVN944 in a drug product in that country. In all events, the term of the agreement expires on February 14, 2055. Upon the expiration of the term of the agreement, either as to a particular country or in full, we are entitled to receive a fully paid up license to any of Vertex's proprietary material and information relating to the development, utilization, manufacture or use of AVN944 or any drug product derived therefrom.

The license agreement may be terminated sooner by either us or Vertex upon, among other events, a material breach by the other party of the terms of the license agreement (subject to prior notice and an opportunity to cure) or by Vertex upon our failure to achieve key development and commercialization milestones by specified dates. Upon termination of the license agreement (other than because of a material breach by Vertex), all licensed rights to AVN944 revert to Vertex.

Patent rights; licenses

Our licensors and we have patents and continue to seek patent protection for technologies that relate to our product candidates, as well as technologies that may prove useful for future product candidates. As of December 31, 2005, we held or had licenses to 97 issued, allowed or pending patents worldwide, of which 3 are issued or allowed in the U.S. These patents and patent applications pertain to compounds, gene targets and methods and processes of discovering future product candidates.

We anticipate that we will continue to seek to improve existing technologies and to develop new technologies and, when possible, secure patent protection for such improvements and new technologies.

Trade secrets

It is our policy to require our employees, consultants, contractors, manufacturers, collaborators and other advisors to execute confidentiality agreements upon the commencement of employment, consulting or collaborative relationships with us. We also require signed confidentiality agreements from any entity that is to receive confidential data. With respect to employees, consultants and contractors, the agreements generally provide that all inventions made by the individual while rendering services to us shall be assigned to us as our property.

Competition

The pharmaceutical and biotechnology industries are very competitive and characterized by rapid and continuous technological innovation. We believe that there are a significant number of potential drugs in preclinical studies and clinical trials to treat cancer that may result in effective, commercially successful treatments for the same cancers that we target.

We face competition from many pharmaceutical and biotechnology companies. We are aware that most large pharmaceutical companies have small molecule development programs. For example, Merck & Co., Inc., through its acquisition of Rosetta Pharmaceuticals, Inc. in 2001, gained the ability to develop small molecule cancer drugs using gene expression analysis technologies. We also compete with a large number of biotechnology companies, such as Amgen, Inc., Ariad Pharmaceuticals, Inc., ArQule, Inc., Array Biopharma, Inc., Millennium Pharmaceuticals, Inc., Onyx Pharmaceuticals, Inc, OSI Pharmaceuticals, Inc., Oxigene, Inc., and Telik, Inc. that are developing small molecule therapeutics as treatments for cancer. With respect to IMPDH inhibitors, we are aware of one company, Pharmasset, Inc., that is currently developing IMPDH inhibitors for use as potential cancer therapeutics. We are also aware of other companies that are developing IMPDH inhibitors as potential therapeutics for diseases other than cancer.

Some of our competitors have a broader range of capabilities and have greater access to financial, technical, scientific, business development, recruiting and other resources than we do. Their access to greater resources may allow them to develop processes or technologies that would render our technologies obsolete or uneconomical, or drug candidates that are more effective, safer or less costly than drug candidates we develop or for which they obtain FDA approval more rapidly than we do. We anticipate that we will face increased competition in the future as new companies enter the market and advanced technologies become available.

Manufacturing and Supply

We currently use third party manufacturers who employ the FDA's current Good Manufacturing Practices, or cGMP, for production of our product candidates for future clinical trials. We have a research and development facility in Germantown, MD and have established laboratories and staff to support the non-cGMP production and process development of more advanced manufacturing processes and product characterization methods for our product candidates.

We currently have only one supplier for certain of our manufacturing components, including components necessary for AVN944. Currently, we procure raw materials, known as starting materials, for our production of AVN944 from a limited number of suppliers. We have plans in place to develop multiple suppliers for all critical supplies before the time we would put any of our product candidates into commercial production.

Marketing and Sales

We continue to explore opportunities for corporate alliances and partners to help develop and ultimately commercialize and market our product candidates. Our strategy is to enter into collaborative arrangements with pharmaceutical and other companies for some or all aspects of development, manufacturing, marketing and sales of our products that will require broad marketing capabilities and overseas marketing. These collaborators are generally expected to be responsible for funding or reimbursing all or a portion of the development costs, including the costs of clinical testing necessary to obtain regulatory clearances and for commercial scale manufacturing, in exchange for rights to market specific products in particular geographic territories. We hold exclusive rights to develop and commercialize AVN944 worldwide for the treatment or prevention of cancer.

Government Regulation

Government authorities in the United States at the federal, state, and local levels extensively regulate, among other things, the research, development, testing, manufacture, labeling, promotion, advertising, distribution, sampling, marketing, and import and export of pharmaceutical products, biologics, and medical devices. Our drug candidates are subject to regulatory approval by the FDA prior to commercialization. Various federal, state, and local statutes and regulations also govern testing, manufacturing, safety, labeling, storage, and record-keeping related to such products and their marketing. We will very likely be required to obtain regulatory approval from comparable agencies in foreign countries before commercial marketing in those countries. Before a drug candidate is approved by the FDA for commercial marketing, rigorous preclinical and human clinical testing are conducted to test the safety and effectiveness of the product.

Pharmaceutical Product Regulation

In the United States, the FDA regulates drugs under the Federal Food, Drug and Cosmetic Act, or FDCA, and implementing regulations that are adopted under the FDCA. If we fail to comply with the applicable requirements under these laws and regulations at any time during the product development process, approval process, or after approval, we may become subject to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawals of approvals, clinical holds, warning letters, product recalls, product seizures, total or partial suspension of our operations, injunctions, fines, civil penalties or criminal prosecution. Any agency enforcement action could have a material adverse effect on us.

Under the United States regulatory scheme, the development process for new pharmaceutical products can be divided into two distinct phases:

- *Preclinical Phase.* The preclinical phase involves the discovery, characterization, product formulation and animal testing necessary to prepare an IND for submission to the FDA. The IND must be accepted by the FDA before the drug can be tested in humans. The review period for an IND submission is 30 days, after which, if no comments are made by the FDA, the product candidate can be studied in Phase I clinical trials. Certain preclinical tests must be conducted in compliance with the FDA's good laboratory practice regulations and the United States Department of Agriculture's Animal Welfare Act.
- *Clinical Phase.* The clinical phase of development follows a successful IND submission and involves the activities necessary to demonstrate the safety, tolerability, efficacy, and dosage of the drug in humans, as well as the ability to produce the drug in accordance with cGMP requirements. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study and the parameters to be used in assessing the safety and the efficacy of the drug. Each protocol must be submitted to the FDA as part of the IND prior to beginning the trial. Each trial must be reviewed, approved, and conducted under the auspices of an Institutional Review Board, or IRB, and each trial, with limited exceptions, must include the patient's informed consent. Typically, clinical evaluation involves the following time-consuming and costly three-phase sequential process:
  - *Phase I.* In Phase I clinical trials, a small number of volunteers are tested with the drug to determine the drug's safety and tolerability and includes biological analyses to determine the availability and metabolism of the active ingredient following administration.
  - *Phase II.* Phase II clinical trials involve administering the drug to individuals who suffer from the target disease or condition to determine the drug's potential efficacy and ideal dose. These clinical trials are typically well controlled, closely monitored, and conducted in a relatively small number of patients, usually involving no more than several hundred subjects.
  - *Phase III.* Phase III clinical trials are performed after preliminary evidence suggesting effectiveness of a drug has been obtained and safety, tolerability, and an ideal dosing regimen have been established. Phase III clinical trials are intended to gather additional information about the effectiveness and safety that is needed to evaluate the overall benefit-risk relationship of the drug and to complete the information needed to provide adequate instructions for the use of the drug. Phase III trials usually include from several hundred to several thousand subjects.

Throughout the clinical phase, samples of the product made in different batches are tested for stability to establish shelf life constraints. In addition, large-scale production protocols and written standard operating procedures for each aspect of commercial manufacture and testing must be developed. These trials require scale up for manufacture of increasingly larger batches of bulk chemical. These batches require validation analysis to confirm the consistent composition of the product.

Phase I, II, and III testing may not be completed successfully within any specified time period, if at all. The FDA closely monitors the progress of each of the three phases of clinical trials that are conducted under an IND and may, at its discretion, reevaluate, alter, suspend (place on "clinical hold"), or terminate the testing based upon the data accumulated to that point and the agency's assessment of the risk/benefit ratio to the patient. The FDA may suspend or terminate clinical trials at any time for various reasons, including a finding that the subjects or patients are being exposed to an unacceptable health risk. The FDA can also request additional clinical trials be conducted as a condition to product approval. Additionally, new government requirements may be established that could delay or prevent regulatory approval of products under development. Furthermore, IRBs, which are independent entities constituted to protect human subjects in the institutions in which clinical trials are being conducted, have the authority to suspend clinical trials in their respective institutions at any time for a variety of reasons, including safety issues.

New Drug Application

After the successful completion of Phase III clinical trials, the sponsor of the new drug submits a New Drug Application, or NDA, to the FDA requesting approval to market the product for one or more indications. An NDA is a comprehensive, multi-volume application that includes, among other things, the results of all preclinical studies and clinical trials, information about the drug's composition, and the sponsor's plans for producing, packaging, and labeling the drug. Under the Pediatric Research Equity Act of 2003, an application also is required to include an assessment, generally based on clinical study data, on the safety and efficacy of drugs for all relevant pediatric populations before the NDA is submitted. The statute provides for waivers or deferrals in certain situation. In most cases, the NDA must be accompanied by a substantial user fee. In return, the FDA assigns a goal of 10 months from acceptance of the application to return of a first "complete response," in which the FDA may approve the product or request additional information.

The submission of the application is no guarantee that the FDA will find it complete and accept it for filing. The FDA reviews all NDAs submitted before it accepts them for filing. It may refuse to file the application and request additional information rather than accept the application for filing, in which case, the application must be resubmitted with the supplemental information. After the application is deemed filed by the FDA, agency staff reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use. The FDA has substantial discretion in the approval process and may disagree with an applicant's interpretation of the data submitted in its NDA. As part of this review, the FDA may refer the application to an appropriate advisory committee, typically a panel of physicians, for review, evaluation, and an approval recommendation. The FDA is not bound by the opinion of the advisory committee. Drugs that successfully complete NDA review may be marketed in the United States, subject to all conditions imposed by the FDA.

Prior to granting approval, the FDA generally conducts an inspection of the facilities, including outsourced facilities, that will be involved in the manufacture, production, packaging, testing, and control of the drug candidate for cGMP compliance. The FDA will not approve the application unless cGMP compliance is satisfactory. If the FDA determines that the marketing application, manufacturing process, or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and will often request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the marketing application does not satisfy the regulatory criteria for approval and refuse to approve the application by issuing a "not approvable" letter.

The length of the FDA's review ranges from a few months, for some drugs related to life-threatening circumstances, to many years.

Post Approval Phase

If the FDA approves the NDA, the pharmaceutical product becomes available for physicians to prescribe in the United States. After approval, the NDA holder is still subject to continuing regulation by the FDA, including record keeping requirements, submitting periodic reports to the FDA, reporting of any adverse experiences with the product, and complying with drug sampling and distribution requirements. In addition, the NDA holder is required to maintain and provide updated safety and efficacy information to the FDA. The NDA holder is also required to comply with requirements concerning advertising and promotional labeling, including prohibitions against promoting any non-FDA approved or "off-label" indications of products. Failure to comply with those requirements could result in significant enforcement action by the FDA, including warning letters, orders to pull the promotional materials, and substantial fines. Also, quality control and manufacturing procedures must continue to conform to cGMP after approval.

Drug manufacturers and their subcontractors are required to register their facilities and products manufactured annually with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA to assess compliance with cGMP regulations. Facilities may also be subject to inspections by other federal, foreign, state or local agencies. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

In addition, following FDA approval of a product, discovery of problems with a product or the failure to comply with requirements may result in restrictions on a product, manufacturer, or holder of an approved marketing application, including withdrawal or recall of the product from the market or other voluntary or FDA-initiated action that could delay further marketing. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications. Also, the FDA may require post-market testing and surveillance to monitor the product's safety or efficacy, including additional clinical studies, known as Phase IV trials, to evaluate long-term effects.

Hatch-Waxman Act

Approved products would also be subject to the provisions of the Drug Price Competition and Patent Term Restoration Act of 1984 (known as the "Hatch-Waxman Act"). Under the Hatch-Waxman Act, newly approved drug products and changes to the conditions of use of approved products may benefit from periods of non-patent marketing exclusivity. During this period (ranging from up to five years for "new chemical entities" to up to three years for "new use" approval of an existing drug), the FDA may not approve generic versions of the drug product. The Hatch-Waxman Act also provides for the restoration of up to five years of the patent term lost during product development and FDA review of an application.

The Hatch-Waxman Act also provides a legal pathway for approving generic versions of the innovator's drug product once the marketing exclusivity period has ended and all relevant patents have expired (or have been successfully challenged and defeated). Thus, the marketing life of the innovator product will run through the remaining life of its patent(s) and any additional non-patent marketing exclusivity, unless the marketing life is shortened by a successful patent challenge.

Pediatric Exclusivity

The FDA Modernization Act of 1997 included a pediatric exclusivity provision that was reauthorized by the Best Pharmaceuticals for Children Act of 2002. Pediatric exclusivity provides an incentive to pioneer drug manufacturers for conducting research into the safety and effectiveness of their products in children. Manufacturers are eligible for pediatric exclusivity when they conduct and submit the results of pediatric studies requested by the FDA. When granted, pediatric exclusivity provides an additional six months of marketing exclusivity or patent protection in the United States. The current pediatric exclusivity provision is scheduled to expire on October 1, 2007, and there can be no guarantee that it will be reauthorized.

Orphan Drug Designation and Exclusivity

Some jurisdictions, including the United States and the European Union, designate drugs intended for relatively small patient populations as "orphan drugs." The FDA, for example, grants orphan drug designation to drugs intended to treat rare diseases or conditions that affect fewer than 200,000 individuals in the United States or drugs for which there is no reasonable expectation that the cost of developing and making the drugs available in the United States will be recovered. In the United States, orphan drug designation must be requested before submitting an application for approval of the product.

Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. If a product which has an orphan drug designation subsequently receives the first FDA approval for the indication for which it has such designation, the product is entitled to seven years of marketing exclusivity. During this time, the FDA may not approve another drug application to market the "same drug" for the same indication. The only exception is where the second product is shown to be "clinically superior" to the product with orphan drug exclusivity, as that phrase if defined by the FDA, and if there is an inadequate supply.

Foreign Regulation

Whether or not we obtain FDA approval for a product, we must obtain product approval by the comparable regulatory authorities of foreign countries before we can commence clinical trials or marketing of the product in those countries. The approval process varies from country to country, and the time may be longer or shorter than that required for FDA approval. Although governed by the applicable country, clinical trials conducted outside of the United States typically are administered under a three-phase sequential process similar to that discussed above for pharmaceutical products in the United States.

In Europe, this process now includes obtaining regulatory authorization, similar to pursuit of IRB approval, to begin clinical studies. The AVN944 dose-escalation study in the United Kingdom was not conducted under a United States IND. At the time, studies in healthy volunteers in the United Kingdom did not require regulatory approval and could commence after a favorable opinion from a private ethics committee. As of May 2004, pursuant to the EU Clinical Trials Directive, all U.K. clinical trials in humans require submission of and approval of a Clinical Trial Application by regulatory licensing authorities and a favorable ethics committee opinion.

Other Regulations

We are subject to other regulations, including regulations under the Occupational Safety and Health Act, regulations promulgated by the United States Department of Agriculture, and regulations under other federal, state and local laws. We ourselves are not directly regulated by the privacy regulations promulgated under the Heath Insurance Portability and Accountability Act of 1996, or HIPAA. However, we could face substantial criminal penalties if we knowingly receive individually identifiable health information from a healthcare provider that has not satisfied the privacy regulation's disclosure standards. Most healthcare providers, including research institutions from whom we or our third party contractors obtain patient information are subject to these privacy regulations. In addition, certain state privacy laws and genetic testing laws may apply directly to our operations and/or those of our partners and may impose restrictions on the use and dissemination of individuals' health information. Moreover, patients about whom we or our partners obtain information, as well as the providers who share this information with us, may have contractual rights that limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Other various federal, state and local laws and regulations relating to the use, manufacture, storage, handling and disposal of hazardous materials and waste products may also apply. These environmental laws generally impose liability regardless of the negligence or fault of a party and may expose us to liability for the conduct of, or conditions caused by, others. We have not incurred, and do not expect to incur, material costs to comply with these laws and regulations.

Employees

As of December 31, 2005, we had 43 full-time employees, 16 of whom hold M.D. or Ph.D. degrees and 21 of whom hold other advanced degrees. Of our total workforce, 28 are engaged primarily in research and development activities and 15 are engaged primarily in business development, finance, marketing and administration functions. None of our employees is represented by a labor union or covered by a collective bargaining agreement, and we consider our employee relations to be good.

Organization; Principal Executive Offices

We were incorporated in Delaware in 1999. Our principal executive offices are located at 20358 Seneca Meadows Parkway, Germantown, Maryland 20876 and our telephone number at that location is (301) 556-9900.

Available Information

For more information about us, visit our web site at www.avalonrx.com. Our electronic filings with the SEC (including our annual report on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and any amendments to these reports) are available free of charge through our web site as soon as reasonably practicable after we electronically file with or furnish them to the SEC.

ITEM 1A. *RISKS FACTORS*

Risks Related to Our Business

Because we have a limited operating history, there is a limited amount of information about us upon which you can evaluate our business and prospects.

Our operations began in January 2000, and we have only a limited operating history upon which you can evaluate our business and prospects. In addition, we have limited experience and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical area. For example, to execute our business plan, we will need to successfully:

- advance AVN944 through the development process;
- demonstrate the advantages and reliability of our proprietary drug discovery and development technology, AvalonRx®;
- select and develop in-licensed drug candidates;
- build and maintain a strong intellectual property portfolio;
- develop and maintain successful strategic relationships; and
- manage costs associated with our research and product development plans, conducting clinical trials, obtaining regulatory approvals and delivering pharmaceutical products to the market.

If we are unsuccessful in accomplishing these objectives, we may not be able to develop drug candidates, raise capital, expand our business or continue our operations.

We will need substantial additional funding, which may not be available to us on acceptable terms, or at all.

We will continue to expend substantial resources for research and development, including costs associated with developing our technology and conducting preclinical testing and clinical trials. During 2005 we completed an initial public offering of our common stock resulting in $25.1 million in net proceeds to us. Subsequent to December 31, 2005, we completed a private placement of our common stock raising an additional $7.3 million. Nevertheless, we will need to raise substantial additional capital to continue to fund our operations, including to:

- fund clinical trials and seek regulatory approvals;

- pursue the development of additional product candidates;
- maintain and expand our research and development activities;
- access manufacturing and commercialization capabilities;
- implement additional internal systems and infrastructure;
- maintain, defend and expand the scope of our intellectual property portfolio; and
- hire additional personnel.

Our future capital requirements will depend on a number of factors, including:

- the size and complexity of research and development programs;
- the scope and results of preclinical testing and clinical trials;
- continued scientific progress in our research and development programs;
- the time and expense involved in seeking regulatory approvals;
- competing technological and market developments;
- acquisition, licensing and protection of intellectual property rights; and
- the cost of establishing manufacturing capabilities and conducting commercialization activities.

Until we can generate a sufficient amount of product revenue to finance our cash requirements, which we may never do, we expect to finance future cash needs primarily through public or private equity offerings, debt financings or strategic collaborations. We do not know whether additional funding will be available on acceptable terms, or at all. If we are not able to secure additional funding when needed, we may have to delay, reduce the scope of, or eliminate one or more of our clinical trials or research and development programs. In addition, we may have to partner one or more of our drug candidate programs at an earlier stage of development, which would lower the economic value of those programs to our company.

We have a history of losses, we expect to continue to incur losses for the foreseeable future, and we may never achieve or sustain profitability.

We have experienced significant operating losses since our inception. We do not currently have any products that have been approved for marketing, and we continue to incur research and development and general and administrative expenses related to our operations. We had net losses of $19.3 million for the year ended December 31, 2005. We expect our annual operating losses to continue over the next several years. Our losses, among other things, have caused and will continue to cause our stockholders' equity and working capital to decrease. To date, we have derived all of our revenue in connection with collaborations. We do not anticipate that we will generate revenue from the sale of products for the foreseeable future. To become and remain profitable, we must succeed in developing and commercializing novel drugs with significant market potential. This will require us to succeed in a range of challenging activities, including conducting clinical trials, obtaining regulatory approvals, entering into appropriate collaborations, and manufacturing, marketing and selling commercial products. We may never succeed in these activities, and may never generate revenues sufficient to achieve profitability. If we do achieve profitability, we may not be able to sustain it. If we fail to earn profits, or if we cannot sustain profitability, the market price of our common stock is likely to decline. In addition, we may be unable to raise capital, expand our business, diversify our product offerings or continue our operations.

We have no products approved for commercial sale and do not expect to have any products approved for commercial sale for the next several years; our lead drug candidate, AVN944, is at an early stage of development, and we may not successfully develop it or any other future drug candidate into a commercial product.

The drug discovery and development process is highly uncertain, and we have not developed, and may never develop, a drug candidate that ultimately leads to a commercial product. AVN944 is in the early stages of

development, and we do not have any drugs approved for commercial sale. AVN944 may prove unsuccessful in clinical trials, may prove to be too costly to develop into a commercially viable product or may fail to receive regulatory approval for marketing. At any time, we may decide to discontinue the development of AVN944 or any other future drug candidate or not to commercialize a candidate.

The drug discovery methods we employ through AvalonRx® are new and unproven and may not lead to the development of commercially viable drugs.

The drug discovery methods we employ through AvalonRx® that are based upon gene expression are new and, in several ways, unproven. For instance, our drug discovery technology profiles the effects of compounds on thousands of genes in a cell rather than an isolated target, a process that is novel and unproven in its usefulness to develop commercially viable drugs. There is limited scientific understanding generally relating to the regulation of gene expression and the role of genes in complex diseases, and relatively few products based on gene discoveries have been developed and commercialized by drug manufacturers. Even if we are successful in identifying compounds that show effects on the pathways that cells use to control the expression of genes associated with cancer, these discoveries may not lead to the development of drugs. Furthermore, the safety and efficacy of drugs that alter gene expression have not yet been established. For example, in 2003 and 2004 we pursued development of a compound we identified through AvalonRx® that, while promising in numerous preclinical studies, had unacceptable toxicity levels in animals. Therefore, we cannot assure you that our research and development activities will result in any commercially viable drugs.

We may be unable to accelerate the drug discovery process.

Although we believe that one of the advantages of AvalonRx® is its ability to accelerate the drug discovery process, we have not yet identified a drug candidate using AvalonRx® that has advanced beyond *in vivo* preclinical testing. Therefore, we cannot confirm that AvalonRx® performs as reliably as conventional drug discovery methods. Our lead drug candidate, AVN944, was recently in-licensed from a third party and was not discovered or developed with AvalonRx®. Until we succeed in discovering compounds that become approved drugs, we will not be certain that the efficiency that we believe is afforded by AvalonRx® is commercially meaningful.

Preclinical and clinical testing are time consuming, expensive, and uncertain processes.

Before the FDA approves a drug candidate for marketing, it is tested for safety and efficacy in preclinical testing and human clinical trials. The preclinical phase involves the discovery, characterization, product formulation and animal testing necessary to prepare an IND for submission to the FDA. The IND must be accepted by the FDA before the drug can be tested in humans in the United States. The clinical phase of development follows a successful IND submission and involves the activities necessary to demonstrate the safety, tolerability, efficacy, dose and dose schedule of the product candidate in humans, as well as the ability to produce the substance in accordance with cGMP requirements. Preclinical testing and clinical development are long, expensive and uncertain processes. It may take us several years to complete our testing, and failure can occur at any stage of the process. During the process, we expect to incur significant expenses to conduct trials and follow required regulatory processes.

We do not know whether our IND for future products or the protocols for any future clinical trials will be accepted by the FDA. We do not know if our clinical trials will begin or be completed on schedule or at all. Even if completed, we do not know if these trials will produce clinically meaningful results sufficient to support an application for marketing approval. The commencement of our planned clinical trials could be substantially delayed or prevented by several factors, including:

- a limited number of, and competition for, suitable patients with particular types of cancer for enrollment in clinical trials;
- delays or failures in obtaining regulatory clearance to commence a clinical trial;
- delays or failures in obtaining sufficient clinical materials;

- delays or failures in reaching agreement on acceptable clinical trial agreement terms or clinical trial protocols with prospective sites; and
- delays or failures in obtaining Institutional Review Board, or IRB, approval to conduct a clinical trial at a prospective site.

The completion of our clinical trials could also be substantially delayed or prevented by several factors, including:

- slower than expected rates of patient recruitment and enrollment;
- failure of patients to complete the clinical trial;
- unforeseen safety issues;
- lack of efficacy during clinical trials;
- inability or unwillingness of patients or medical investigators to follow our clinical trial protocols;
- inability to monitor patients adequately during or after treatment; and
- regulatory action by the FDA for failure to comply with regulatory requirements.

Our clinical trials may be suspended or terminated at any time by the FDA, other regulatory authorities, or by us. Any failure or significant delay in completing clinical trials for our drug candidates could harm our financial results and the commercial prospects for our drug candidates.

If we achieve success at any stage of the clinical trial process, that success may not continue. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. Interim results of trials do not necessarily predict final results. A number of companies in the pharmaceutical industry, including biotechnology companies, have suffered significant setbacks in advanced clinical trials, even after promising results in earlier trials. For example, a single partial response or even a small number of partial responses in cancer patients is not necessarily indicative of success in demonstrating efficacy in Phase II and Phase III clinical trials. Other reasons why candidates that appear promising in preclinical testing or clinical trials may fail to become marketed drugs include:

- failing to demonstrate clinical effectiveness or having significantly lower efficacy than existing therapies;
- producing harmful side effects;
- denial of regulatory approvals by the FDA or other regulators;
- failing to acquire, on reasonable terms, intellectual property rights necessary for commercialization; and
- loss of market to competing drugs which are more effective or economical.

Any clinical trial may fail to produce results satisfactory to the FDA. Preclinical and clinical data can be interpreted in different ways, which could delay, limit or prevent regulatory approval. Negative or inconclusive results or adverse medical events during a clinical trial could cause a clinical trial to be repeated or a program to be terminated.

In addition, the FDA could determine that the design of a clinical trial is inadequate to produce reliable results and require us to alter the design of the clinical trial or terminate the clinical trial altogether. If we need to alter a clinical trial design or perform more or larger clinical trials than planned, our financial results will be harmed.

If we fail to enter into new strategic collaborations, we will not grow our revenue and our ability to exploit AvalonRx® to discover drugs for diseases other than cancer will be limited.

Our business strategy is based in part upon entering into strategic collaborations. To date, all of our revenue has been generated from strategic collaborations, and we continue to rely on our strategic collaborations with MedImmune, Inc., Medarex, Inc. and Novartis Institutes for Biomedical Research, Inc. as a means of furthering our research initiatives. If we are unable to secure strategic collaborations in the future, our revenue will not grow

and our business will be harmed. Strategic collaborations also provide us with insights into diseases other than cancer by exposing us to the expertise of collaboration partners which focus on these diseases. If we are unable to secure strategic collaborations which expand our disease expertise, we may harm our ability to broaden our drug discovery and development activities to diseases other than cancer.

We intend to rely on third parties to conduct clinical trials for our drug candidates and those third parties may not perform satisfactorily.

We do not have the ability to independently conduct clinical trials for drug candidates, and we intend to rely on third parties such as contract research organizations, medical institutions and clinical investigators to perform this function. If third parties do not perform satisfactorily, meet expected deadlines, or comply with regulatory requirements, any clinical trials conducted for our drug candidates may be extended, delayed, terminated, or subject to rejection by the FDA. We may not be able to locate any necessary replacements or enter into favorable agreements with them, if at all.

We do not have any manufacturing capabilities for any of our drug candidates.

We outsource all of our manufacturing to third parties, and we intend to rely on third parties to manufacture bulk compounds and finished investigational medicines for human clinical trials and for commercial quantities of any of our drug candidates. Consequently, in order to complete the commercialization process of any of our drug candidates, we must either: (1) acquire, build or expand our internal manufacturing capabilities to produce drug candidates in compliance with cGMP requirements; or (2) rely on third parties to manufacture these drug candidates in compliance with cGMPs. We cannot be sure that we will be able to accomplish either of these tasks. If we are not able to do so, it would impede our efforts to bring our drug candidates to market, which would adversely affect our business. Moreover, if we decide to manufacture one or more of our drug candidates ourselves (rather than engage a contract manufacturer), we would incur substantial start-up expenses and regulatory obligations and would need to expand our facilities and hire additional personnel. Additionally, the manufacture of drug candidates on a limited basis for investigational use in animal studies or human clinical trials does not guarantee that large-scale, commercial production is viable. Small changes in methods of manufacture can affect the safety, efficacy, controlled release or other characteristics of a product.

We have no sales, marketing or distribution experience.

To develop internal sales, distribution and marketing capabilities, we would have to invest significant amounts of financial and management resources. For drugs where we decide to perform sales, marketing and distribution functions ourselves, we could face a number of risks, including:

- we may not be able to attract and build a significant marketing or sales force;
- the cost of establishing, training, and providing regulatory oversight for a marketing or sales force may not be justifiable in light of the revenues generated by any particular product;
- our direct sales and marketing efforts may not be successful; and
- there are significant legal and regulatory risks in drug marketing and sales that we have never faced, and any failure to comply with all legal and regulatory requirements for sales, marketing, and distribution could result in enforcement action by the FDA or other authorities that could jeopardize our ability to market the product or could subject us to substantial liability.

Alternatively, we may rely on third parties to launch and market our drug candidates, if approved. We may have limited or no control over the sales, marketing and distribution activities of these third parties and our future revenue may depend on the success of these third parties. Additionally, if these third parties fail to comply with all applicable regulatory requirements, the FDA could take enforcement action that could jeopardize our ability to market the drug candidate.

Our chemical library may be insufficient to meet our needs.

We currently have approximately 85,000 individual compounds and 10,000 chemical extracts available for screening in our AvalonRx® drug discovery platform. This may not be a sufficient number of compounds to isolate rare hits against key drug targets or there may be an insufficient number with appropriate drug-like properties.

We face intense competition in the development and commercialization of our drug candidates.

Our business will be harmed if our competitors develop and market drugs that are more effective, have fewer side effects or are less expensive than our drug candidates. With respect to our drug discovery programs, other companies have drug candidates in clinical trials to treat types of cancer for which we are seeking to discover and develop drug candidates. These competing potential drugs are further advanced in development than are any of our potential drug candidates and may result in effective, commercially successful drugs. Even if we are successful in developing effective drugs, our products may not receive marketing approval or, if they do, may not be approved for a disease or with labeling that allows the products to compete effectively with these products or other successful products. Our competitors may succeed in developing and marketing drugs either that are more effective than those that we may develop or that are marketed before any drugs we develop are marketed.

In the area of small molecule anticancer therapeutics, we have identified a number of companies that have clinical development programs and focused research and development efforts in small molecule approaches to cancer treatment, such as Amgen, Inc., Ariad Pharmaceuticals, Inc., ArQule, Inc., Array Biopharma, Inc., Millennium Pharmaceuticals, Inc., Onyx Pharmaceuticals, Inc., OSI Pharmaceuticals, Inc., Oxigene, Inc., and Telik, Inc. In addition, large pharmaceutical companies with significant research capabilities are or may be pursuing similar approaches. For example, Merck & Co., Inc., through its acquisition of Rosetta Pharmaceuticals, Inc. in 2001, gained the ability to develop small molecule cancer drugs using gene expression analysis technologies.

With respect to IMPDH inhibitors, we are aware of one company, Pharmasset, Inc., that is currently developing IMPDH inhibitors for use as potential cancer therapeutics. We are also aware of other companies that are developing IMPDH inhibitors as potential therapeutics for diseases other than cancer. Additionally, our license from Vertex is limited to the compound AVN944 and does not prevent Vertex from developing or licensing to third parties the right to develop other IMPDH inhibitors, including compounds similar to AVN944 that could compete directly with it.

Many of the organizations competing with us have substantially greater capital resources, larger research and development staffs and facilities, greater experience in drug development and in obtaining regulatory approvals and greater marketing capabilities than we do. In addition, these organizations also compete with us to:

- attract qualified personnel;
- attract parties for acquisitions, joint ventures or other collaborations; and
- license technology that is competitive with our technology.

We may not be able to recruit and retain the experienced scientists and managers we need to compete in the drug research and development industry.

We had 43 full-time employees as of December 31, 2005, and our future success depends upon our ability to attract, retain and motivate highly skilled scientists and managers. We compete with pharmaceutical and biotechnology companies, contract research companies, government agencies and academic and research institutions to recruit scientists. We may not be successful in attracting new scientists or managers or in retaining or motivating our existing personnel.

Our future success also depends on the personal efforts and abilities of the principal members of our senior management and scientific staff to provide strategic direction, manage our operations and maintain a cohesive and stable environment. In particular, we rely on the services of Dr. Kenneth C. Carter, our President and Chief Executive Officer, Gary Lessing, Executive Vice President and Chief Financial Officer, and Dr. David K. Bol, Vice President of Pharmaceutical Development. Although we have employment and incentive compensation agreements with all of our executive officers and incentive and compensation plans for our other personnel providing them with

various economic incentives to remain employed with us, these incentives may not be sufficient to retain these key personnel. Additionally, although we maintain key man life insurance policies on our Chief Executive Officer and Chief Financial Officer in the amounts of $3 million and $1 million, respectively, such policies provide no assurance that we would not suffer material harm to our business, financial condition or results of operations in the event of the death or disability of either of these senior executive officers during their tenure with us. If we cannot attract and retain qualified scientists and managers, we will not be able to continue to provide or expand our drug discovery efforts. We are not aware of any plans by any of our executive officers or key personnel to retire or leave our company in the near future but there is no assurance that they will not do so.

We may face liability claims related to the use or misuse of our drug candidates in clinical trials. If our insurance coverage is not sufficient, a product liability claim against us could adversely affect our business.

The administration of our drug candidates to humans in clinical trials may expose us to liability claims. Such liability claims may be expensive to defend and may result in large judgments against us. We have obtained liability coverage for clinical trials. However, we cannot be certain that our insurance policies will be sufficient to cover all claims that may be made against us. We intend to increase our coverage limits as we progress into late-stage clinical trials. Liability insurance is expensive, difficult to obtain and may not be available in the future on acceptable terms.

Generally, our clinical trials will be conducted in patients with serious life-threatening diseases for whom conventional treatments have been unsuccessful or for whom no conventional treatment exists, and, during the course of treatment, these patients could suffer adverse medical effects or die for reasons that may or may not be related to our drug candidates. Any of these events could result in a claim of liability. Any such claims against us, regardless of their merit, could result in significant awards against us that could materially harm our business, financial condition and results of operations.

If we are not able to successfully manage our growth, our business could be materially harmed.

If we are successful in our plans, we expect rapid and significant growth in all areas of our operations as we develop our drug candidates. If our lead drug candidate, AVN944, and our other drug candidates enter and advance through the clinical trial process, we will need to rapidly expand our research, development, regulatory, manufacturing and marketing capabilities or contract with others to provide these functions for us. As our operations expand, we will need to hire additional personnel and add corporate functions we currently do not have. In addition, we will need to manage relationships with various manufacturers, collaborators, suppliers, contract research and other organizations. Our ability to manage our operations and growth will require us to improve our operational, financial and management controls, as well as our internal reporting systems and controls. We may not be able to implement such improvements to our management information and internal control systems in an efficient and timely manner and may discover deficiencies in existing systems and controls. Our failure to accomplish any of these tasks could materially harm our business.

Our operating results may vary significantly from period to period, which may result in a decrease in the price of our common stock.

Our future revenues and operating results may vary significantly from period to period due to a number of factors, many of which are outside of our control. These factors include:

- the introduction of new anticancer drugs by us or our competitors;
- costs and expenses associated with delays in or changes to preclinical testing and clinical trials;
- the timing of regulatory approvals;
- sales and marketing expenses; and
- the amount and timing of operating costs and capital expenditures relating to the expansion of our business operations and facilities.

It is possible that in some future periods our operating results may be below the expectations of analysts and investors. If this happens, the price of our common stock may decrease.

Our agreements with the Maryland Industrial Development Financing Authority, or MIDFA, and Manufacturers and Traders Trust Company, or M&T Bank, for the financing of our corporate office and research facility contain restrictions on our operations that could inhibit our ability to grow our business and generate revenues, and any default under these agreements could materially harm our business.

In order to finance improvements to our corporate office and research facility, we have entered into a loan agreement with MIDFA and a letter of credit agreement with M&T Bank that contain, among other terms, extensive restrictions on our operations, requires us to comply with certain affirmative covenants and requires us to maintain or satisfy specified financial ratios and tests, including among other things, as of December 31, 2005, a $7.7 million minimum level of tangible net worth, a $5.8 million minimum restricted cash balance, and a minimum ratio of current assets to current liabilities of 1.5:1. Any breach or failure to comply with these restrictions, covenants, financial tests or financial ratios could result in an event of default under these agreements. These agreements are secured by improvements to our corporate office and research facility, certain financed equipment and a collateral account which, as of December 31, 2005, had an adjusted market value of $6.3 million. Upon an event of default, MIDFA and M&T Bank have the right to declare all amounts outstanding under these credit agreements to be immediately due and payable and may enforce their rights by foreclosing on collateral pledged under these agreements. In addition, upon an event of default MIDFA and M&T Bank could restrict our ability to make additional borrowings under these agreements. Any decision by MIDFA or M&T Bank to enforce any one or more of the foregoing remedies upon an event of default could materially harm our business. In August 2005, in order to cure non-compliance with our minimum tangible net worth covenant and an event of default, we were required to obtain a waiver from M&T Bank under the letter of credit agreement. The waiver expires on March 30, 2006 and there is no assurance that we will be able to obtain waivers of future failures to comply with one or more covenants in the loan facilities.

The loan agreement and letter of credit agreement also restrict our ability, without MIDFA's and/or M&T Bank's consent, to, among other things:

- declare dividends or make other distributions on existing stock or create new classes of stock;
- change the nature of our business;
- incur additional debt;
- incur mortgages and pledges upon property owned or acquired;
- sell our assets;
- engage in mergers or consolidations, or acquire ownership interests of, or all or substantially all of the assets of, another entity;
- make loans; and
- guarantee indebtedness of any person or entity.

These restrictions may interfere with our ability to obtain financing or to engage in other business activities, which may inhibit our ability to grow our business and generate revenues.

Risks Related to Our Intellectual Property

If we are unable to obtain and enforce patent protection for our drug candidates, our business could be materially harmed.

We have a number of pending patent applications covering our gene expression technology and select novel compounds. We intend to file United States and foreign patent applications for our new inventions, as well as on improvements we make to our existing proprietary technologies that are important to the development of our business. However, we may not file patent applications in all countries in which we could seek patent protection. We

cannot assure you that any patents that may be issued or that may be licensed to us will be enforceable or valid or will not expire prior to the commercialization of our drug candidates, allowing others to more effectively compete with us. Therefore, any patents that we may own in the future or license may not adequately protect our drug candidates or any drugs we market in the future. If we are not able to protect our patent positions, our business could be materially harmed.

Issued patents may be challenged, invalidated or circumvented. In addition, court decisions may introduce uncertainty in the enforceability or scope of patents owned by biotechnology companies. The legal systems of certain countries do not favor the aggressive enforcement of patents, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Therefore, the enforceability or scope of our future patents in the United States or in foreign countries cannot be predicted with certainty, and, as a result, any patents that we may potentially own or license may not provide sufficient protection against competitors. We may not be able to obtain or maintain patent protection for our pending patent applications, those we may file in the future, or those we may license from third parties.

Except for patent rights to the composition of matter for AVN944 that we licensed from Vertex, our pending patent applications and granted patent do not cover compounds that we are actively pursuing in our drug development programs. The U.S. patent and foreign patents under which we have licensed rights from Vertex to AVN944 expire beginning on March 20, 2020.

Third parties may challenge the validity of our potential patents or other intellectual property rights and could deprive us of valuable rights. If we infringe patents or other proprietary rights of third parties, we could incur substantial liability.

If a third party legally challenges our future patents or other intellectual property rights that we own or license, we could lose certain of these rights. For example, third parties may challenge the validity of our patent applications and any future issued U.S. or foreign patents through reexaminations, oppositions or other legal proceedings. If successful, a challenge to our intellectual property rights could deprive us of competitive advantages and permit our competitors to use our technology to develop similar drug candidates. Failure to protect our future patents and other proprietary rights may materially harm our business, financial condition and results of operations.

Other entities may have or obtain patents or proprietary rights that could limit our ability to manufacture, use, sell, offer for sale or import products or impair our competitive position. We use chip-based microarray technology under a license from a manufacturer. We may not be able to continue to obtain supplies and materials from that manufacturer or obtain suitable substitutes, at commercially reasonable terms, or at all. To the extent that a third party develops new technology that covers our products or processes, we may be required to obtain licenses to that technology, which licenses may not be available on commercially reasonable terms, or at all.

Third parties may have or obtain valid and enforceable patents or proprietary rights that could block us from developing drug candidates using our technology. Moreover, our failure to obtain a license to any technology that we require may materially harm our business, financial condition and results of operations.

In addition, legal or administrative proceedings may be necessary to defend against claims of infringement or to enforce our intellectual property rights. If we become involved in any such proceeding, irrespective of the outcome, we may incur substantial costs, and the efforts of our technical and management personnel may be diverted, which could materially harm our business.

Our drug discovery technology is not patented, and the value of our technology and drug candidates could be adversely affected if we are unable to protect the confidentiality of our proprietary information and know-how.

Our AvalonRx® drug discovery technology is not patented. Instead, we rely primarily on trade secrets to protect it. Trade secrets are difficult to maintain. While we use reasonable efforts to protect our trade secrets, our, or our collaboration partners', employees, consultants, contractors or scientific and other advisors may unintentionally or willfully disclose our proprietary information to competitors. Enforcement of claims that a third party has illegally obtained and is using trade secrets is expensive, time consuming and uncertain. In addition, foreign courts

are sometimes less willing than U.S. courts to protect trade secrets. If our competitors independently develop equivalent knowledge, methods and know-how related to AvalonRx®, we would not be able to assert or prevent them from doing so and our business could be harmed.

To maintain the confidentiality of trade secrets and proprietary information, we enter into confidentiality agreements with our employees, consultants and collaborators upon the commencement of their relationships with us. These agreements require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. Our agreements with employees also provide that any inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. However, we may not obtain these agreements in all circumstances, and individuals with whom we have these agreements may not comply with their terms. In the event of unauthorized use or disclosure of our trade secrets or proprietary information, these agreements, even if obtained, may not provide meaningful protection, particularly for our trade secrets or other confidential information. To the extent that our employees, consultants or contractors use technology or know-how owned by third parties in their work for us, disputes may arise between us and those third parties as to the rights in related inventions.

Adequate remedies may not exist in the event of unauthorized use or disclosure of our confidential information. The disclosure of our trade secrets would impair our competitive position and may materially harm our business, financial condition and results of operations.

We license patent rights from a third party, Vertex Pharmaceuticals Incorporated. If Vertex does not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects will be harmed.

Our license with Vertex gives us rights to third party intellectual property that is necessary or useful for our business. We may also enter into additional licenses to third party intellectual property in the future. At the time we entered into our license with Vertex we did not obtain a formal legal opinion from patent counsel as to the validity of, or freedom to operate under, the patents covered by the license, but relied on our own due diligence, which we believe to be a standard practice in licenses of this kind. Our success will depend in part on the ability and willingness of our licensors to obtain, maintain and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications for the intellectual property we have licensed. Even if patents issue in respect of these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects.

Risks Related to Regulatory Matters

Because we must obtain regulatory approval to market our drug candidates in the United States and foreign jurisdictions, we cannot predict whether or when we will be permitted to commercialize our drug candidates.

The pharmaceutical industry is subject to stringent regulation by a wide range of authorities. We cannot predict whether regulatory clearance will be obtained for any drug candidate we develop. A pharmaceutical product cannot be marketed in the United States until it has completed rigorous preclinical testing and clinical trials and an extensive regulatory clearance process implemented by the FDA. Satisfaction of regulatory requirements typically takes many years, is dependent upon the type, complexity and novelty of the product, the safety and efficacy data generated from clinical trials, and requires the expenditure of substantial resources. Of particular significance are the requirements covering research and development, testing, manufacturing, quality control, labeling and promotion of drugs for human use.

Before commencing clinical trials in humans in the United States, we submitted an IND to the FDA. The IND for AVN944 was accepted by the FDA and we were allowed to test the drug in humans in the United States. The

clinical trials for AVN944 and others we may conduct in the future are subject to oversight by IRBs and the FDA and:

- must be conducted in conformance with the FDA's good clinical practices and other applicable regulations;
- must meet requirements for IRB oversight;
- must meet requirements for informed consent;
- are subject to continuing FDA oversight;
- may require large numbers of test subjects; and
- may be suspended by us or the FDA at any time, particularly if it is believed that the subjects participating in these trials are being exposed to unacceptable health risks or if the FDA finds deficiencies in the IND or the conduct of these trials.

Before receiving FDA clearance to market a drug, we must demonstrate the safety, tolerability, efficacy, and dosage of the drug in the patient population intended to be treated, as well as the ability to produce the drug in accordance with the FDA's current Good Manufacturing Practices, or cGMP, requirements. Delays, refusal by the FDA to accept an application or rejections of regulatory approval may be encountered for a number of reasons: additional government regulation from future legislation, administrative action or changes in FDA policy during the period of drug development, incomplete or inconclusive clinical trials, differing interpretations of the clinical data, or an FDA review process that results in a request for additional data or limitations on product labeling. Failure to comply with applicable FDA or other applicable regulatory requirements may result in criminal prosecution, civil penalties, recall or seizure of products, total or partial suspension of production or injunction, as well as other regulatory action against our potential products or us.

Outside the United States, our ability to market a drug candidate is contingent upon receiving a marketing authorization from the appropriate regulatory authorities. This foreign regulatory approval process includes all of the risks associated with FDA clearance described above.

Even if our drug candidates obtain regulatory approval, we will be subject to ongoing government regulation.

Even if our drug candidates obtain regulatory approval, our products will be subject to continuing regulation by the FDA, including record keeping requirements, submitting periodic reports to the FDA, reporting of any adverse experiences with the product, and complying with drug sampling and distribution requirements. In addition, updated safety and efficacy information must be maintained and provided to the FDA. We or our collaborative partners must comply with requirements concerning advertising and promotional labeling, including the prohibition against promoting any non-FDA approved or "off-label" indications of products. Failure to comply with these requirements could result in significant enforcement action by the FDA, including warning letters, orders to pull the promotional materials, and substantial fines.

Also, quality control and manufacturing procedures must continue to conform to cGMP after approval. Drug and biologics manufacturers and their subcontractors are required to register their facilities and products manufactured annually with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA to assess compliance with cGMP regulations. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance. Future FDA inspections may identify compliance issues at our contract manufacturers that may disrupt production or distribution or require substantial resources to correct.

In addition, following FDA approval of a product, discovery of problems with a product or the failure to comply with requirements may result in restrictions on a product, manufacturer, or holder of an approved marketing application, including withdrawal or recall of the product from the market or other voluntary or FDA-initiated action that could delay or prevent further marketing. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and

contraindications. Also, the FDA may require post-market testing and surveillance to monitor the product's safety or efficacy, including additional clinical studies, known as Phase IV trials, to evaluate long-term effects.

Compliance with post-marketing regulation may be time-consuming and costly and could delay or prevent us from generating revenue from the commercialization of our drug candidates.

We have only limited experience in regulatory affairs which may affect our ability or the time we require to obtain necessary regulatory approvals.

We have only limited experience in preparing and submitting the applications necessary to gain regulatory approvals. This lack of experience may impede our ability to obtain timely regulatory approval, if we receive such approval at all. We will not be able to commercialize AVN944, or any of our drug candidates, until we obtain FDA approval in the United States or approval by comparable authorities in other countries.

Third parties engaged to produce our drug candidates for clinical use may fail to comply with regulatory requirements, which could delay clinical trials.

We intend to rely on third parties to produce drug candidates for clinical use. All facilities and manufacturing processes used by third parties to produce our drug candidates for clinical use in the United States must conform with cGMPs. These facilities and practices are subject to periodic regulatory inspections to ensure compliance with cGMP requirements. Their failure to comply with applicable regulations could extend, delay, or cause the termination of clinical trials conducted for our drug candidates.

Healthcare reform and cost control initiatives by third-party payors could reduce the prices that can be charged for drugs, which could limit the commercial success of our drug candidates.

The commercial success of our drug candidates will depend significantly on the availability of reimbursement to the patient from third party payors, such as the government and private insurance plans. In the United States, the Medicare Prescription Drug, Improvement and Modernization Act of 2003, signed into law in 2003, adds prescription drug coverage to Medicare beginning in 2006 and added a voluntary drug discount card for Medicare beneficiaries. Other governmental and private payer initiatives, however, may limit reimbursement for drugs. Capitated payment systems and other cost containment systems are now widely used by public and private payers and have caused hospitals and health maintenance organizations to be more cost-conscious in their treatment decisions, including decisions regarding the medicines to be made available to their patients. Future legislation may limit the prices that can be charged for drugs we develop and may limit our commercial opportunity and reduce any associated revenue and profits. For example, Congressional action regarding drug reimportation into the United States may affect the pricing of drugs. The Medicare Prescription Drug Plan legislation, which became law in December 2003, requires the Secretary of Health and Human Services to promulgate regulations for drug reimportation from Canada into the United States under some circumstances, including when the drugs are sold at a lower price than in the United States. The Secretary retains the discretion not to implement a drug reimportation plan if he finds that the benefits do not outweigh the costs. Proponents of drug reimportation may attempt to pass legislation that would directly allow reimportation under certain circumstances. If legislation or regulations were passed allowing the reimportation of drugs, they could decrease the price we receive for any products that we may develop, negatively affecting our anticipated revenues and prospects for profitability.

In some countries other than the United States, pricing and profitability of prescription pharmaceuticals and biopharmaceuticals are subject to government control. Also, we expect managed care will continue to put pressure on the pricing of pharmaceutical and biopharmaceutical products. Cost control initiatives could decrease the price that we or any potential collaborators receive for any of our future products, which could adversely affect our profitability. These initiatives may also have the effect of reducing the resources that pharmaceutical and biotechnology companies can devote to in-licensing drug candidates and the research and development of new drugs, which could reduce our resulting revenue.

We or our future collaborators may not obtain favorable reimbursement rates for our drug candidates.

Third party payors, such as government and private insurance plans, frequently require companies to provide predetermined discounts from list prices and are increasingly challenging the prices charged for pharmaceuticals and other medical products. For example, federal laws require drug manufacturers to pay specified rebates for medicines reimbursed by Medicaid, to provide discounts for outpatient medicines purchased by certain public health service entities and "disproportionate share" hospitals, and to provide minimum discounts off of a defined "non-federal average manufacturer price" for purchases by certain components of the federal government such as the Department of Veterans Affairs and the Department of Defense. Our drug candidates may not be considered cost-effective, and reimbursement to the patient may not be available or be sufficient to allow the sale of our drug candidates on a competitive basis. We or our future collaborators may not be able to negotiate favorable reimbursement rates for our drug candidates. If we or our future collaborators fail to obtain an adequate level of reimbursement for our drug candidates by third-party payors, sales of our products would be adversely affected or there may be no commercially viable market for the products.

Our operations involve hazardous materials and medical waste and are subject to environmental, health and safety controls and regulations. Any claim relating to our improper handing, storage or disposal of biological and hazardous materials could be time-consuming and costly, and may exceed our resources.

We are subject to environmental, health and safety laws and regulations, including those governing the use of biological and hazardous materials as well as medical waste. The cost of compliance with environmental, health and safety regulations is substantial. Our business activities involve the controlled use of hazardous materials, and we cannot eliminate the risk of accidental contamination or injury from these materials. While we believe that we are currently in compliance with all material rules and regulations governing the use of hazardous materials and, to date, we have not had any adverse experiences, in the event of an accident or environmental discharge, we may be held liable for any resulting damages, which may exceed our financial resources and may materially harm our business, financial condition and results of operations.

Our business involves animal testing and changes in laws, regulations or accepted clinical procedures or social pressures could restrict our use of animals in testing and adversely affect our research and development efforts.

Many of the research and development efforts we sponsor involve the use of laboratory animals. Changes in laws, regulations or accepted clinical procedures may adversely affect these research and development efforts. Social pressures that would restrict the use of animals in testing or actions against us or our partners by groups or individuals opposed to testing using animals could also adversely affect these research and development efforts.

In addition, preclinical animal studies conducted by us or third parties on our behalf may be subject to the United States Department of Agriculture regulations for certain animal species. Failure to comply with applicable regulations could extend or delay clinical trials conducted for our drug candidates.

Risks Related to Our Common Stock and Organizational Structure

Our stock price is volatile.

Since our common stock commenced trading on September 29, 2005, our stock has experienced substantial price volatility. Our stock price may continue to fluctuate for many reasons, including as a result of public announcements regarding the progress of our development efforts, regulatory developments, clinical trial results, the addition or departure of our key personnel, the commencement or termination of collaborations with third parties, and variations in our quarterly operating results.

In addition, the market price of our common stock may fluctuate significantly in response to factors that are beyond our control, including public announcements by other biopharmaceutical companies regarding their business, financial condition or results of operations. The stock market in general has recently experienced extreme price and volume fluctuations. The market prices of securities of pharmaceutical and biotechnology companies have been extremely volatile, and have experienced fluctuations that often have been unrelated or

disproportionate to the operating performance of these companies. These broad market fluctuations could result in extreme fluctuations in the price of our common stock, which could cause a decline in the value of your investment.

Insiders have substantial control over us and could delay or prevent a change in corporate control.

Our directors, executive officers and principal stockholders, together with their affiliates, as of March 15, 2006, beneficially owned, in the aggregate, 5,371,245 shares or approximately 53% of our outstanding common stock. As a result, these stockholders, if acting together, have the ability to determine the outcome of matters submitted to our stockholders for approval, including the election of directors and any merger, consolidation or sale of all or substantially all of our assets. In addition, these persons, acting together, have the ability to control the management and affairs of our company. Accordingly, this concentration of ownership may harm the market price of our common stock by:

- delaying, deferring or preventing a change in control of our company;
- impeding a merger, consolidation, takeover or other business combination involving our company; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company.

Provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our certificate of incorporation and our bylaws may delay or prevent an acquisition of us or a change in our management. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. These provisions include:

- the requirement that actions by our stockholders by written consent be unanimous;
- the ability of our board of directors to issue preferred stock without stockholder approval, which could be used to institute a "poison pill" that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- advance notice requirements for nominations to our board of directors and for proposing matters that can be acted upon at stockholder meetings.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. These provisions would apply even if the proposed merger or acquisition could be considered beneficial by some stockholders.

ITEM 1B. *UNRESOLVED STAFF COMMENTS*

None.

ITEM 2. *PROPERTIES*

We currently lease 55,897 square feet for our corporate offices and research and development laboratories located at 20358 Seneca Meadows Parkway, Germantown, Maryland. The lease expires on February 1, 2012. We have options to extend the term of this lease for two additional consecutive terms of 5 years each. We believe that these facilities are sufficient for our current needs. We have additional space in our current facilities to accommodate our anticipated growth over the next several years.

ITEM 3. *LEGAL PROCEEDINGS*

We currently are not a party to any material legal proceedings.

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

We did not submit any matters for approval of our stockholders during the quarter ended December 31, 2005.

PART II

ITEM 5. *MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES*

Market Information

Since September 29, 2005, our common stock has traded on the NASDAQ National Market and on the Pacific Exchange (for trading on the Archipelago Exchange, or ArcaEx) under the symbol "AVRX." Prior to trading on the NASDAQ National Market and ArcaEx, our common stock was not listed or quoted on any national exchange or market system.

The following table sets forth, for the periods indicated, the high and low sale price for our common stock as reported on the NASDAQ National Market.

	High	Low
2005:		
Third Quarter (September 29 — September 30)	$10.75	$8.26
Fourth Quarter (October 1 — December 31)	$ 9.25	$4.26

On March 15, 2006, the last sale price reported on the NASDAQ National Market for our common stock was $4.63.

Stockholders

As of March 15, 2006, there were 106 holders of record of our common stock.

Dividends

We have not paid any cash dividends since our inception and we do not anticipate paying any cash dividends in the foreseeable future.

Securities Authorized for Issuance under Equity Compensation Plans

Information regarding our equity compensation plans, including both stockholder approved plans and non-stockholder approved plans, is included in Item 12 of this Annual Report on Form 10-K.

Unregistered Sales of Securities

Not applicable.

Use of Proceeds

On September 28, 2005, our Registration Statement on Form S-1 (333-124565) covering our initial public offering was declared effective by the SEC, and the offering commenced the same day. The securities registered were 2,750,000 shares of common stock, plus 412,500 additional shares to cover the underwriters' over-allotment option. All shares were registered for our account. WR Hambrecht + Co, LLC acted as lead managing underwriter for the offering and Legg Mason Wood Walker, Incorporated and Susquehanna Financial Group, LLLP acted as co-managing underwriters for the offering. On October 4, 2005, we completed our initial public offering and the offering has terminated.

We sold 2,750,000 shares of our common stock for an aggregate offering price of $28.9 million in the offering.

Costs incurred in connection with the issuance and distribution of the securities registered were as follows:

- Underwriting discounts and commissions — $2,021,250
- Other expenses — $1,753,899
- Total expenses — $3,775,149

None of such payments were direct or indirect payments to directors or officers of Avalon or their associates or to persons owning 10% or more of any class of equity securities of Avalon or any of our affiliates. The net offering proceeds to us after deducting the total expenses described above totaled approximately $25.1 million.

We expect to use the net proceeds from the offering to fund:

- clinical development of AVN944;
- development of additional lead programs, including our *B*-catenin and Aurora kinase programs;
- discovery of new drug candidates;
- acquisition, licensing and protection of intellectual property rights; and
- working capital, capital expenditures and other general corporate purposes.

Pending the uses describe above, we have placed the net proceeds from the offering principally in money market funds as well as other interest-bearing, investment-grade securities.

From the effective date of our Registration Statement on Form S-1, September 28, 2005, through December 31, 2005, we have utilized approximately $5.8 million of the net proceeds of our initial public offering to fund our operations and approximately $461,000 to make interest and principal payments under our loan agreement with MIDFA and equipment financing arrangement with GE Capital.

Issuer Purchases of Equity Securities

None.

ITEM 6. *SELECTED FINANCIAL DATA*

The following table sets forth our selected financial data for each of the years in the five-year period ended December 31, 2005. The information below should be read in conjunction with our financial statements and notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Annual Report on Form 10-K. The historical results are not necessarily indicative of results to be expected for future periods.

	December 31,				
	2005	2004	2003	2002	2001
	(In thousands, except per share data)				
SUMMARY STATEMENTS OF OPERATIONS:					
Revenue	$ 1,544	$ 1,900	$ 100	$ —	$ 320
Operating expenses:					
Research and development	15,789	10,680	12,510	12,832	8,578
General and administrative	5,066	4,325	4,567	4,434	3,100
Total operating expenses	20,855	15,005	17,077	17,266	11,678
Loss from operations	(19,311)	(13,105)	(16,977)	(17,266)	(11,358)
Other income (expense):					
Interest income	503	327	678	1,157	369
Interest expense	(1,147)	(890)	(701)	(52)	(264)
Other	663	8	(75)	5	(1)
Other income (expense), net	19	(555)	(98)	1,110	104
Net loss	$ (19,292)	$ (13,660)	$ (17,075)	$ (16,156)	$ (11,254)
Dividends on and accretion of convertible preferred stock	(1,111)	(1,449)	(1,449)	(1,401)	(219)
Net loss attributed to common shareholders	(20,403)	(15,109)	(18,524)	(17,557)	(11,473)
Net loss per share — basic and diluted	$ (9.58)	$ (117.65)	$ (146.29)	$ (139.61)	$ (91.69)
Weighted average number of shares of common stock outstanding	2,129,388	128,417	126,630	125,757	125,125

	As of December 31,				
	2005	2004	2003	2002	2001
			(In thousands)		
SUMMARY BALANCE SHEET DATA:					
Cash, cash equivalents and marketable securities(1)	$ 27,748	$ 14,309	$ 27,720	$ 39,692	$ 58,372
Working capital	17,070	5,545	15,300	34,969	49,304
Total assets	41,282	29,292	46,055	53,112	62,625
Total debt	10,944	13,631	16,234	4,097	1,477
Accumulated deficit	(85,602)	(65,949)	(51,454)	(33,553)	(16,605)
Total stockholders' equity	25,883	(65,971)	(51,435)	(33,388)	(16,571)

(1) Includes restricted cash of $6.3 million, $6.1 million and $6.7 million at December 31, 2005, 2004 and 2003, respectively.

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

Overview

We are a biopharmaceutical company focused on the discovery and development of small molecule therapeutics. Our pipeline of drug candidates includes our lead candidate, AVN944. AVN944 is an oral delivery, small molecule drug candidate that was discovered by Vertex Pharmaceuticals Incorporated and that we licensed from Vertex in February 2005. AVN944 is currently in early stage clinical development for the treatment of hematological cancers. We seek to discover and develop novel therapeutics through the use of a comprehensive, innovative and proprietary suite of technologies based upon large-scale gene expression analysis, which we call AvalonRx®.

Since we commenced operations in January 2000, our operations have consisted primarily of developing AvalonRx®, utilizing our technology to seek to discover and develop novel cancer therapeutics, and the in-license of AVN944. In that period, we have generated limited revenue from collaborative partners, and have had no revenue from product sales. Our operations have been funded principally through the offering of equity securities and debt financings.

We have never been profitable and, as of December 31, 2005, we had an accumulated deficit of $85.6 million. We had net losses of $19.3 million for the year ended December 31, 2005, $13.7 million for the year ended December 31, 2004, and $17.1 million for the year ended December 31, 2003. We expect to incur significant and increasing operating losses for the foreseeable future as we advance our drug candidates from discovery through preclinical testing and clinical trials and seek regulatory approval and eventual commercialization. In addition to these increasing research and development expenses, we expect general and administrative costs to increase as we add personnel and begin to operate as a public company. We will need to generate significant revenues to achieve profitability, and we may never do so.

Financial Operations Overview

Revenue

We have not generated any revenue from sales of commercial products and do not expect to generate any product revenue for the foreseeable future. To date, our revenue has consisted of collaboration revenue.

Collaboration Revenue. Since inception, we have generated revenue solely in connection with our collaborations, most of which has resulted from our collaborations with Sanofi-Aventis and MedImmune. Our collaboration with Sanofi-Aventis included research fees and milestone payments, all of which were received during 2004. The collaboration with Aventis expired by its terms on December 21, 2005. Our collaboration with MedImmune includes an upfront payment, research funding, and payments for the achievement of certain discovery and development related milestones. During the third quarter of 2005, we began to recognize revenue under our collaboration with MedImmune which was signed in June 2005.

Research and Development Expense

Research and development expense consists of expenses incurred in connection with developing and advancing our drug discovery technology and identifying and developing our drug candidates. These expenses consist primarily of salaries and related expenses, the purchase of laboratory supplies, access to data sources, facility costs, costs for preclinical development and expenses related to our in-license of AVN944. We charge all research and development expenses to operations as incurred.

Our total research and development expenses for the years ended December 31, 2005, 2004 and 2003 were $15.8 million, $10.7 million and $12.5 million, respectively, and $2.6 million for the three months ended December 31, 2005. During 2005, we incurred expenses of $5 million for the in-license of AVN944 and incurred a further $1.1 million expense related to its development. Other than for our clinical candidate AVN944, we do not currently track our internal research and development costs or our personnel and related costs on an individual drug candidate basis. We use our research and development resources, including employees and our drug discovery technology, across multiple drug development programs. As a result, we cannot state precisely the costs incurred for

each of our research and development programs or our clinical and preclinical drug candidates. During 2005, we estimate that 13% and 14% of research and development expenses were attributable to research related to our *B*-catenin and Aurora kinase programs, respectively. We estimate that 7% of research and development expenses were attributable to collaborations with MedImmune, Novartis and the University of Louisville. The remaining expenses included all personnel and related expenses and other research and development expenses not attributable to any specified discovery and development program. Prior to 2004, we completed research related to developing and improving our ability to use AvalonRx®. There were not substantial research costs related to specified programs prior to 2004. We begin to track development costs for a program after an individual molecule has been selected for formal pre-clinical development. Research and development expenses as a percentage of total operating expenses for the years ended December 31, 2005, 2004 and 2003 were 76%, 71%, and 73%, respectively.

We expect our research and development costs to be substantial and to increase as we advance AVN944 through clinical trials and move other drug candidates into preclinical testing and clinical trials. Based on the results of our preclinical studies, we expect to selectively advance some drug candidates into clinical trials. We anticipate that we will select drug candidates and research projects for further development on an ongoing basis in response to their preclinical and clinical success and commercial potential. With regard to AVN944, we initiated U.S. Phase I clinical trials of AVN944 in cancer patients in January 2006 and plan to complete these trials during 2006. Additionally, during 2006, we plan to select a candidate for preclinical development from both our *B*-catenin and Aurora kinase programs. However, we are not able to accurately estimate the timetable, expense or likelihood of success for our programs for several reasons, including:

- the methods we employ through AvalonRx® are new and unproven;
- preclinical and clinical testing are time consuming, expensive and uncertain processes; and
- we intend to rely on third parties to conduct clinical trials for our drug candidates and those third parties may not perform satisfactorily.

Due to the fact that our drug candidates are in the early stage of development, we cannot estimate anticipated completion dates and when we might receive material net cash inflows from our research and development project.

General and Administrative

General and administrative expense consists primarily of salaries and related expenses for personnel in administrative, finance, business development and human resource functions. Other costs include legal costs of pursuing patent protection of our intellectual property, unallocated facility costs and professional fees for legal services. We anticipate increases in general and administrative expense relating to operating as a public company. These increases will likely include legal fees, accounting fees and directors' and officers' insurance premiums as well as fees for investor relations services.

Quarterly Results May Fluctuate

We anticipate that our quarterly results of operations will fluctuate for several reasons, including:

- the timing and extent of our development activities and clinical trials for AVN944 and any other biopharmaceutical drug candidates that we may develop in the future;
- the timing and outcome of our applications for regulatory approval for our drug candidates;
- the timing and extent of our adding new employees and infrastructure; and
- the timing of any milestone payments, license fees, or royalty payments that we may be required to make.

Critical Accounting Policies and Significant Judgments and Estimates

This discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP. The preparation of these financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses and the disclosure of contingent assets and liabilities at the date

of the financial statements, as well as revenue and expenses during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could therefore differ materially from those estimates under different assumptions or conditions.

Our significant accounting policies are more fully described in Note 3 to our audited financial statements included under Item 8 of this Annual Report on Form 10-K. We believe that the following critical accounting policies reflect our more significant estimates and assumptions used in the preparation of our financial statements.

Revenue Recognition

Revenue is recognized when there is persuasive evidence that an agreement exists, delivery has occurred, the price is fixed and determinable, and collection is reasonably assured. Payments received in advance of work performed are recorded as deferred revenue and recognized ratably over the performance period. Milestone payments are recognized as revenue when milestones, as defined in the contract, are achieved.

Accrued Expenses

As part of the process of preparing financial statements, we are required to estimate accrued expenses. This process involves identifying services which have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for such service as of each balance sheet date in our financial statements. Examples of estimated expenses for which we accrue estimated liabilities include contract service fees paid to contract research organizations in connection with our preclinical testing and legal and other professional services. In connection with such service fees, our estimates are most affected by our understanding of the status and timing of services provided relative to the actual levels of services incurred by such service providers. The majority of our service providers invoice us monthly in arrears for services performed. In the event that we do not identify certain costs, which have begun to be incurred, or we under- or over-estimate the level of services performed or the costs of such services, our reported expenses for such period would be too low or too high. The date on which services commence, the level of services performed on or before a given date and the cost of such services are often determined based on subjective judgments. We make these judgments based upon the facts and circumstances known to us in accordance with GAAP.

Stock-Based Compensation

We have stock option plans under which options to purchase shares of our common stock may be granted to employees, consultants and directors at a price no less than the fair market value on the date of grant. We account for grants to employees in accordance with the provisions of APB No. 25, *Accounting for Stock Issued to Employees* ("APB No. 25"). Under APB No. 25, compensation expense is based on the difference, if any, on the date of the grant between the fair value of our stock and the exercise price of the option and is recognized ratably over the vesting period of the option. Because our options must be granted with an exercise price equal to the market value of our common stock at the date of grant, we recognize no stock compensation expense at the time of the grant in accordance with APB No. 25. If we were to adopt the fair value based method set forth in Statement of Financial Accounting Standards ("SFAS") No. 123, *Accounting for Stock-Based Compensation* ("SFAS No. 123"), we would recognize compensation expense based upon the fair value at the grant date for awards under the plans. We have provided pro forma disclosures in the notes to our consolidated financial statements of our net loss and net loss per share as if we used the fair value method. The amount of compensation expense recognized using the fair value method requires us to exercise judgment and make assumptions relating to the factors that determine the fair value of our stock option grants. We account for equity instruments issued to non-employees in accordance with Emerging Issues Task Force Issue No. 96-18, *Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling Goods or Services.*

Prior to the completion of our initial public offering, and availability of a public trading market for our stock, our board of directors determined the exercise price of options granted based on its own good faith judgment of fair value of our common stock on the grant date. Our board did not use any third party valuation firm to determine fair

value. Rather, our board employed a retrospective methodology to determine the fair value of our common stock. In the absence of a public trading market, and as a development-stage company with no significant revenues, we believed that it was appropriate to consider a range of factors to determine the fair market value of our common stock at each option grant date. These factors included: recent sales of our equity securities to third parties; consideration of the liquidation preference of our preferred stock, and the relative economic and control rights associated with the preferred stock; review of major company milestones; and review of the liquidity of our common stock.

Our board's determination of fair value at prior grant dates reflected good faith determinations given the inherent uncertainties of completion of an initial public offering. However, beginning in the second quarter of 2005, because the likelihood of completion of an initial public offering was higher and because a price range for an initial public offering was established, we began to recognize a compensation charge for options granted between June 1, 2004 and October 4, 2005, the closing date of our initial public offering.

Results of Operations

Year Ended December 31, 2005 Compared to Years Ended December 31, 2004 and 2003

Revenue. For the year ended December 31, 2005, we recorded $1.5 million of revenue. Substantially all 2005 revenues are related to our collaboration agreement with MedImmune, Inc. A small portion of revenue was attributable to collaborations with Novartis and the University of Louisville. For the year ended December 31, 2004, we recorded $1.9 million of revenue from our collaboration with Sanofi-Aventis for work performed and milestones achieved during 2004. For the year ended December 31, 2003, we recorded $100,000 of revenue for a feasibility study that was completed in 2003.

Research and Development. Research and development expenses increased $5,109,000, or 48%, to $15,789,000 for 2005 from $10,680,000 in 2004. Research and development expense decreased $1,830,000, or 15%, to $10,680,000 for 2004 from $12,510,000 in 2003.

The increase from 2004 to 2005 was driven primarily by a $5.0 million expense related to our licensing agreement with Vertex Pharmaceuticals and accrual of annual performance bonuses for research and development personnel. Given our financial position, no annual performance bonuses were accrued or paid during 2004.

The decrease from 2003 to 2004 principally resulted from a decrease in personnel costs and an associated decrease in laboratory supplies expenses related to the full-year impact of a reduction in headcount which occurred in October 2003. These reductions were offset in part by an increase in costs related to preclinical activities during 2004 related to the development of a compound for which we subsequently terminated preclinical development.

The largest components of our research and development expense, excluding the in-license fee for AVN944, are personnel costs for our scientific staff, laboratory supplies, facility costs for our laboratories and the use of third-party services.

General and Administrative. General and administrative expenses increased by $741,000, or 17%, to $5,066,000 for 2005 from $4,325,000 in 2004. General and administrative expenses decreased by $242,000, or 5%, to $4,325,000 for 2004 from $4,567,000 in 2003.

The increase from 2004 to 2005 was primarily attributable to the accrual of annual performance bonuses for general and administrative personnel and increases in outside accounting and professional fees. These increases were offset, in part by a decrease in travel and entertainment expenses. The decrease from 2003 to 2004 principally resulted from a decrease in personnel costs.

The largest components of our general and administrative costs are personnel costs for our administrative staff, legal costs primarily attributed to our intellectual property protection activities, and travel.

Interest Income. Interest income increased by $176,000, or 54%, to $503,000 for 2005 from $327,000 in 2004. Interest income decreased by $351,000, or 52%, to $327,000 for 2004 from $678,000 in 2003. The increase from 2004 to 2005 is a result of interest earned on proceeds from our initial public offering of common stock. The

decrease from 2003 to 2004 was primarily caused by decreases in the average fund balances available for investment.

Interest Expense. Interest expense increased by $257,000, or 29% to $1,147,000 for 2005 from $890,000 in 2004. Interest expense increased by $189,000, or 27% to $890,000 for 2004 from $701,000 in 2003. The increase from 2004 to 2005 was primarily related to accrued interest on outstanding convertible notes and a higher average interest rate on our long term debt. The increase in interest expense from 2003 to 2004 was primarily caused by a higher effective interest rate on our development bond financing.

Liquidity and Capital Resources

Overview

Our primary cash requirements are to:

- fund our research and development programs;
- obtain regulatory approvals;
- prosecute, defend and enforce any patent claims and other intellectual property rights;
- fund general corporate overhead; and
- support our debt service requirements and contractual obligations.

Our cash requirements could change materially as a result of the progress of our research and development and clinical programs, licensing activities, acquisitions, divestitures or other corporate developments.

We have incurred operating losses since our inception and historically have financed our operations principally through public stock offerings, private placement of equity securities, strategic collaborative agreements that include research and development funding and development milestones and investment income.

In evaluating alternative sources of financing we consider, among other things, the dilutive impact, if any, on our stockholders, the ability to leverage stockholder returns through debt financing, the particular terms and conditions of each alternative financing arrangement and our ability to service our obligations under such financing arrangements.

As of December 31, 2005, we had cash, cash equivalents and marketable securities of approximately $27.7 million, which is an increase of $13.4 million from $14.3 million at December 31, 2004. Of the $27.7 million balance at the end of 2005, $6.3 million is currently held in a restricted account to serve as collateral for our long-term debt. Our funds are currently invested in investment grade and United States government securities.

Sources and Uses of Cash

Operating Activities. Net cash used in operating activities was $13.4 million in 2005, compared to $9.8 million in 2004. In 2005, our net loss of $19.3 million was reduced by non-cash charges of $3.4 million, primarily associated with depreciation and amortization and reduction in our net operating assets and liabilities. Net operating assets and liabilities declined due to a $1.9 million increase in deferred revenue, of which $1.8 million resulted from our collaboration agreements with MedImmune and Novartis, and a $0.8 million increase in accrued liabilities, primarily relating to accrual of year end performance bonuses.

Investing Activities. Net cash used in investing activities was $6.3 million in 2005, compared to net cash generated of $9.9 million in 2004. In 2005, net cash used in investing was driven by $6.1 million of purchases of marketable securities in excess of proceeds from the sale of securities. During 2004, net cash of $10.0 million was provided by the conversion of marketable securities into cash and cash equivalents to fund operations and invest in capital equipment.

Financing Activities. Net cash provided by financing activities was $27.2 million in 2005, compared to net cash used of $2.9 million in 2004. In 2005, net cash provided by financing activities included $25.1 million of net

proceeds from our initial public offering and $5.0 million raised from issuance of convertible notes. This amount was offset by $2.7 million of repayments on debt.

Credit Arrangements

In April 2003, we entered into a series of agreements with the Maryland Industrial Development Financing Authority, or MIDFA, and Manufacturers and Traders Trust Company, or M&T Bank, in order to finance improvements to our corporate office and research facility located in Germantown, Maryland. MIDFA sold development bonds in the amount of $12.0 million. The proceeds of the bond sale were put in trust to reimburse us for the costs we incurred for improvements to our facility. We are required to repay the trust $1.2 million annually for these borrowings. The borrowing bears interest at a variable rate and matures on April 8, 2013. The weighted-average interest rate during 2005 and 2004 was 3.48 and 1.63%, respectively.

In connection with the development bond financing, we entered into an agreement with M&T Bank to issue the trustee an irrevocable letter of credit to provide payment of the principal and interest of the bonds. The amount of the letter of credit changes annually, as principal payments are made. At December 31, 2005 and 2004, that amount is $9.8 million (consisting of $9.6 million of principal and $158,000 in interest) and $11.0 million (consisting of $10.8 million of principal and $178,000 in interest), computed at 50 days at an assumed maximum rate of interest of 12% per annum. The letter of credit expires the earlier of April 8, 2008, or the date the bonds have been paid in full. In consideration of the letter of credit, we have granted M&T Bank a security interest in certain facility improvements, equipment and cash collateral held as restricted cash. In August 2005 we entered into a modification agreement with M&T Bank and MIDFA pursuant to which M&T agreed to waive our compliance with the financial covenants contained in the letter of credit until April 2006 in exchange for increasing the amount of cash collateral held as restricted cash to $6.3 million.

In June 2002, we entered into an equipment line of credit with General Electric Capital Corporation that provided for borrowings of up to $5.0 million. In 2003, the line of credit was increased to allow for an additional $2.0 million in borrowings. During 2002 and 2003 a total of $5.6 million was borrowed by us under the equipment line of credit. No draws were made during 2004 and the availability of the line of credit has elapsed. Each draw has been treated as a separate promissory note bearing interest between 7.09% to 8.68% over 36- to 48-month terms. The line of credit is secured by the applicable equipment, fixtures, and personal property financed by the line of credit. In connection with draws under the line of credit, the lender received warrants to purchase a total of 39,306 shares of our Series B preferred stock at an exercise price of $10.00, which subsequently automatically converted into warrants to purchase 8,666 shares of common stock at an exercise price of $28.24 per share in connection with the closing of our initial public offering. At December 31, 2005, $1.4 million in borrowings remained outstanding under this line of credit.

Operating Capital and Capital Expenditure Requirements

We expect to continue to incur substantial operating losses in the future. We will not receive any product revenue until a drug candidate has been approved by the FDA or similar regulatory agencies in other countries and successfully commercialized. We expect to expend between $13 million and $16 million over the next twelve months to fund our current operations. We currently anticipate that our cash, cash equivalents and marketable securities, together with the proceeds from this offering and cash flow generated from our collaborations, will be sufficient to fund our operations at least through the next two years. However, we will need to raise substantial additional funds to continue our operations and bring future products to market. We cannot be certain that any of our programs will be successful or that we will be able to raise sufficient funds to complete the development and commercialize of any of our drug candidates currently in development, should they succeed. Additionally, we plan to continue to evaluate in-licensing and acquisition opportunities to gain access to new drugs or drug targets that would fit with our strategy. Any such transaction would likely increase our funding needs in the future.

Our future funding requirements will depend on many factors, including but not limited to:

- the size and complexity of our research and development programs;
- the scope and results of our preclinical testing and clinical trials;

- continued scientific progress in our research and development programs;
- the time and expense involved in seeking regulatory approvals;
- competing technological and market developments;
- acquisition, licensing and protection of intellectual property rights; and
- the cost of establishing manufacturing capabilities and conducting commercialization activities.

Until we can generate a sufficient amount of product revenue to finance our cash requirements, which we may never do, we expect to finance future cash needs primarily through public or private equity offerings, debt financings or strategic collaborations. If we are successful in raising additional funds through the issuance of equity securities, investors likely will experience dilution, or the equity securities may have rights, preferences or privileges senior to those of the holders of our common stock. If we raise funds through the issuance of debt securities, those securities would have rights, preferences and privileges senior to those of our common stock. We do not know whether additional funding will be available on acceptable terms, or at all. If we are not able to secure additional funding when needed, we may have to delay, reduce the scope of, or eliminate one or more of our clinical trials or research and development programs. In addition, we may have to partner one or more of our drug candidate programs at an earlier stage of development, which would lower the economic value of those programs to our company.

Contractual Obligations

The following table discloses aggregate information about our contractual obligations and the periods in which payments are due as of December 31, 2005 (in thousands):

		Payment Due by Period			
Contractual Obligations	**Total**	**Less Than 1 Year**	**1-3 Years**	**3-5 Years**	**More Than 5 Years**
Long-term debt(1)	$14,074	$2,950	$5,623	$2,935	$2,566
Operating lease obligations(2)	5,439	701	2,231	1,601	906
Cooperative research and development agreements(3)	57	57	—	—	—
Total(4)	$19,570	$3,708	$7,854	$4,536	$3,472

(1) Includes principal, interest and letter of credit fee payments on our development bond financing and principal and interest payments on our equipment financing. Our development bond financing carries a variable interest rate. Amounts presented in table assume a fixed rate of 4.49% that was in effect on December 31, 2005. The table does not include potential discounts for debt prepayment.

(2) Our operating lease obligations relate to the lease for our headquarters in Germantown, Maryland.

(3) Cooperative research and development agreements include commitments into which we have entered as of December 31, 2005 to engage third parties to perform various aspects of our research and development efforts subsequent to that date.

(4) The table above reflects only payment obligations that are fixed and determinable. Accordingly, the table does not include any milestone payments under agreements we have entered into in relation to our in-licensed technology, including our license with Vertex Pharmaceuticals Incorporated for the development and commercialization of AVN944, as the timing and likelihood of such payments are not known. We also have service agreements with clinical sites for the conduct of our U.S. Phase I clinical trial of AVN944 in cancer patients. We make payments to these sites based upon the actual number of patients enrolled and the period of follow-up in the trials. We do not have minimum payment obligations under these agreements and the amount to be paid to each center and the timing of those payments will vary based on the negotiated amount paid for each patient to be treated and for each patient screened who fails to or declines to participate in the clinical trial. Due to the variability associated with these agreements and the timing of patient enrollment, we are unable to estimate with certainty the future patient enrollment costs we will incur.

Recent Accounting Pronouncements

On December 16, 2004, the Financial Accounting Standards Board, or FASB, issued FASB Statement No. 123 (revised 2004), *Share-Based Payment*, which is a revision of FASB Statement No. 123, *Accounting for Stock-Based Compensation.* Statement 123(R) supersedes APB Opinion No. 25, *Accounting for Stock Issued to Employees*, and amends FASB Statement No. 95, *Statement of Cash Flows.* Generally, the approach in Statement 123(R) is similar to the approach described in Statement 123. However, Statement 123(R) requires all share-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative. We adopted Statement 123(R) on January 1, 2006. See Note 3 to our audited financial statements included under Item 8 of this Annual Report on Form 10-K for additional information.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, including structured finance, special purpose or variable interest entities.

Subsequent Events

On February 27, 2006, we sold 1,666,666 shares of our common stock to nine accredited institutional investors for a total purchase price of $7.3 million. We intend to use the proceeds from this offering to expand and support our internal oncology drug discovery programs.

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

We are exposed to market risk from changes in interest rates. At December 31, 2005, we had $9.6 million of obligations which were subject to variable rates of interest under our development bond financing with MIDFA. If market interest rates increased 1% from the rate at December 31, 2005, our annual interest expense would increase approximately $96,000, assuming that obligations subject to variable interest rates remained constant.

In addition, the value of our portfolio of cash equivalents and investments is subject to market risk from changes in interest rates. The primary objective of our investment activities is to preserve our capital until it is required to fund operations while at the same time maximizing the income we receive from our investments without significantly increasing risk. To achieve these objectives, our investment policy allows us to maintain a portfolio of cash equivalents and investments in a variety of securities, including commercial paper, money market funds and corporate debt securities. As of December 31, 2005, we had cash and cash equivalents, short-term and long-term investments and restricted cash of $27.7 million as follows:

Cash and cash equivalents	$ 9.7 million
Short-term investments	$10.9 million
Long-term investments	$ 0.8 million
Restricted cash	$ 6.3 million

We maintain an investment portfolio of investment grade government agency notes and corporate bonds. The securities in our investment portfolio are not leveraged, are classified as available-for-sale and are, due to their predominantly short-term nature, subject to minimal interest rate risk. We currently do not hedge interest rate exposure on our investment portfolio. As of December 31, 2005, securities totaling $17.3 million mature in 2006 and $0.8 million mature in 2007. While we do not believe that an increase in market rates of interest would have any significant negative impact on the realizable value of our investment portfolio, changes in interest rates affect the investment income we earn on our investments and, therefore, impact our cash flow and results of operations.

We have operated in the United States and all revenues to date have been received in U.S. dollars. Accordingly, we have not had any material exposure to foreign currency rate fluctuations.

ITEM 8. *FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA*

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors
Avalon Pharmaceuticals, Inc.

We have audited the accompanying balance sheets of Avalon Pharmaceuticals, Inc. as of December 31, 2005 and 2004, and the related statements of operations, redeemable convertible preferred stock and stockholders' deficit, and cash flows for each of the three years in the period ended December 31, 2005. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also 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.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Avalon Pharmaceuticals, Inc. at December 31, 2005 and 2004, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2005, in conformity with U.S. generally accepted accounting principles.

/s/ ERNST & YOUNG LLP

McLean, Virginia
March 23, 2006

Avalon Pharmaceuticals, Inc.

Balance Sheets

	December 31, 2005	December 31, 2004
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 9,732	$ 2,251
Short-term marketable securities	10,922	5,808
Accounts receivable	794	258
Interest receivable	201	161
Prepaid expenses	833	253
Deposits	102	102
Total current assets	22,584	8,833
Restricted cash and marketable securities	6,313	6,100
Property and equipment, net	10,997	13,398
Long-term marketable securities	781	150
Deposits	205	306
Deferred financing costs	401	505
Total assets	$ 41,282	$ 29,292
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 1,098	$ 379
Accrued expenses and other current liabilities	913	198
Deferred revenue	1,273	—
Current portion on long-term debt	2,230	2,711
Total current liabilities	5,514	3,288
Deferred rent	468	446
Long-term deferred revenue, net of current portion	650	—
Long-term debt, net of current portion	8,714	10,920
Other long-term liabilities	53	—
Series B Purchase Stock Warrants	—	1,111
Series A redeemable convertible preferred stock, $0.01 par value; 6,000,000 shares authorized; 0 and 5,577,500 shares issued and outstanding at December 31, 2005 and 2004, respectively	—	11,155
Series B redeemable convertible preferred stock, $0.01 par value; 23,000,000 shares authorized; 0 and 20,126,997 shares issued and outstanding at December 31, 2005 and 2004, respectively	—	68,343
Stockholders' equity (deficit):		
Common stock, $0.01 par value; 60,000,000 shares authorized; 8,407,376 and 128,690 shares issued and outstanding at December 31, 2005 and 2004, respectively	84	1
Paid-in capital	111,677	9
Deferred stock compensation	(250)	—
Other comprehensive loss	(26)	(32)
Accumulated deficit	(85,602)	(65,949)
Total stockholders' equity (deficit)	25,883	(65,971)
Total liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)	$ 41,282	$ 29,292

The accompanying Notes to Financial Statements are an integral part of these statements.

Avalon Pharmaceuticals, Inc.

Statements of Operations

	Year Ended December 31,		
	2005	2004	2003
	(In thousands, except per share data)		
Revenues	$ 1,544	$ 1,900	$ 100
Costs and expenses:			
Research and development	15,789	10,680	12,510
General and administrative	5,066	4,325	4,567
Total costs and expenses	20,855	15,004	17,078
Loss from operations	(19,311)	(13,104)	(16,978)
Other income (expense):			
Interest income	503	327	678
Interest expense	(1,147)	(890)	(701)
Other	663	8	(75)
Total other income (expense):	19	(554)	(98)
Net Loss	$ (19,292)	$ (13,659)	$ (17,076)
Accretion of convertible preferred stock	(1,111)	(1,449)	(1,449)
Net loss attributed to common stockholders	$ (20,403)	$ (15,108)	$ (18,525)
Net loss attributed to common stockholders per common share — basic and diluted	$ (9.58)	$ (117.65)	$ (146.29)
Weighted average number of common shares — basic and diluted	2,129,388	128,417	126,630

The accompanying Notes to Financial Statements are an integral part of these statements.

Avalon Pharmaceuticals, Inc.

Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit

	Redeemable Convertible Preferred Stock											
	Series A		Series B		Convertible Notes	Common Stock		Additional Paid-In Capital	Deferred Stock Compensation	Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount		Shares	Amount					
	(In thousands, except share data)											
Balance at December 31, 2002	5,577,500	$11,155	20,126,997	$ 65,444	—	125,954	1	$ 9	$ (38)	$ 192	$(33,553)	$(33,387)
Amortization of Series B offering costs	—	—	—	874	—	—	—	(48)	—	—	(825)	(874)
Amortization of Series B purchase stock warrant	—	—	—	575	—	—	—	44	—	—	—	44
Issuance of common stock to employee upon exercise of stock options	—	—	—	—	—	1,230	—	3	—	—	—	3
Deferred stock compensation	—	—	—	—	—	—	—	1	(1)	—	—	—
Amortization of deferred stock compensation	—	—	—	—	—	—	—	—	39	—	—	39
Net loss	—	—	—	—	—	—	—	—	—	—	(17,076)	(17,076)
Net unrealized gain on available for sale securities	—	—	—	—	—	—	—	—	—	(183)	—	(183)
Net comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	(17,260)
Balance at December 31, 2003	5,577,500	11,155	20,126,997	66,893	—	127,184	1	9	—	9	(51,454)	(51,435)
Issuance of common stock to employee upon exercise of stock options	—	—	—	—	—	1,506	—	3	—	—	—	3
Deferred stock compensation	—	—	—	—	—	—	—	3	—	—	—	3
Amortization of Series B offering costs	—	—	—	874	—	—	—	(38)	—	—	(836)	(874)
Amortization of Series B purchase stock warrant	—	—	—	575	—	—	—	32	—	—	—	32
Net loss	—	—	—	—	—	—	—	—	—	—	(13,659)	(13,659)
Net unrealized gain on available for sale securities	—	—	—	—	—	—	—	—	—	(41)	—	(41)
Net comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	(13,700)
Balance at December 31, 2004	5,577,500	11,155	20,126,997	68,342	—	128,690	1	9	—	(32)	(65,949)	(65,971)
Issuance of common stock to employee upon exercise of stock options	—	—	—	—	—	3,521	—	9	—	—	—	9
Deferred stock compensation	—	—	—	—	—	—	—	379	(379)	—	—	—
Amortization of deferred stock comp		—		—		—		—	129	—		129
Proceeds from convertible notes financing and related accrued interest of $267,140	—	—	—	—	5,293	—	—	—	—	—	—	5,293
Amortization of Series B offering costs	—	—	—	656	—	—	—	(295)	—	—	(361)	(656)
Amortization of Series B purchase stock warrant	—	—	—	456	—	—	—	—	—	—	—	—
Conversion of Series B stock warrants to common stock warrants	—	—	—	—	—	—	—	656	—	—	—	656
Conversion of preferred stock to common upon close of credit facility	(1,000,000)	(2,000)	(1,190,611)	(4,108)	—	273,826	2	6,106	—	—	—	6,108
Conversion of preferred stock, convertible notes and related accrued interest upon IPO	(4,577,500)	(9,155)	(18,936,386)	(65,346)	(5,293)	5,251,339	53	79,741	—	—	—	74,501
Issuance of common stock upon IPO, net of offering costs	—	—	—	—	—	2,750,000	28	25,072	—	—	—	25,100
Net loss	—	—	—	—	—	—	—	—	—	—	(19,292)	(19,292)
Net unrealized gain on available for sale securities	—	—	—	—	—	—	—	—	—	6	—	6
Net comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	(19,286)
Balance at December 31, 2005	—	$ —	—	$ —	$ —	8,407,376	$84	$111,677	$(250)	$ (26)	$(85,602)	$(25,883)

The accompanying Notes to Financial Statements are an integral part of these statements.

Avalon Pharmaceuticals, Inc.

Statements of Cash Flows

	Year Ended December 31,		
	2005	2004	2003
		(In thousands)	
Operating activities			
Net loss	$(19,292)	$(13,659)	$(17,076)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation	2,644	2,768	2,437
Non cash interest expense	623	385	287
Warrant amortization	—	32	44
Stock compensation	129	3	39
Loss on disposal of assets	—	5	80
Amortization of premium on investments	148	527	798
Changes in operating assets and liabilities:			
Accounts receivable	(475)	266	817
Prepaid expenses	(580)	91	567
Other assets	—	213	(404)
Accounts payable	719	63	(2,408)
Accrued liabilities	766	(69)	(178)
Deferred revenue	1,923	(500)	
Deferred rent	22	41	113
Net cash used in operating activities	(13,373)	(9,832)	(14,884)
Investing activities			
Purchases of marketable securities	(24,771)	(19,972)	(28,223)
Proceeds from sale of marketable securities	18,671	30,002	35,981
Purchases of property and equipment	(243)	(110)	(7,488)
Net cash provided by (used in) investing activities	(6,343)	9,920	270
Financing activities			
Principal payments on line of credit	(1,487)	(1,428)	(1,865)
Proceeds from borrowings on line of credit	—	—	2,015
Proceeds from issuance of common stock, net	25,109	3	3
Proceeds from borrowings on bond payable	—	—	12,000
Principal payments on bond payable	(1,200)	(1,200)	—
Deferred financing costs	(251)	(259)	(826)
Proceeds from issuance convertible notes	5,026	—	—
Net cash provided by (used in) financing activities	27,197	(2,884)	11,327
Net increase (decrease) in cash and cash equivalents	7,481	(2,796)	(3,287)
Cash and cash equivalents at beginning of year	2,251	5,047	8,334
Cash and cash equivalents at end of year	$ 9,732	$ 2,251	$ 5,047
Supplemental information			
Cash paid for interest	$ 1,147	$ 473	$ 467

The accompanying Notes to Financial Statements are an integral part of these statements.

AVALON PHARMACEUTICALS, INC.

NOTES TO FINANCIAL STATEMENTS
December 31, 2005

1. Organization

Avalon Pharmaceuticals, Inc. (the Company), was incorporated on November 10, 1999, under the laws of the state of Delaware. Avalon Pharmaceuticals, Inc. is a biopharmaceutical company focused on the discovery and development of small molecule therapeutics for the treatment of cancer.

Inherent in the Company's business are various risks and uncertainties, including its limited operating history, the fact that the Company's technologies are new and may not allow the Company or its customers to develop commercial products, regulatory requirements associated with drug development efforts, and the intense competition in the pharmaceutical industry. The Company's success depends, in part, upon its prospective drug discovery and development efforts, the acceptance of the Company's technology by the marketplace, including potential collaborators, and raising additional capital.

2. Initial Public Offering

The Company's Registration Statement on Form S-1 (Registration No. 333-124565) was declared effective by the Securities and Exchange Commission on September 28, 2005, registering the common stock for the initial public offering of the Company. On October 4, 2005 the Company closed the initial public offering of its common stock by selling 2,750,000 shares of its common stock at $10.50 per share. Gross proceeds from the offering were $28.9 million. Net proceeds from the offering were approximately $25.1 million after deducting underwriting discounts and other offering expenses. Upon the closing of the initial public offering, all of the outstanding shares of the Company's redeemable convertible preferred stock converted into 4,747,187 shares of the Company's common stock; the Company's convertible notes converted into 504,152 shares of the Company's common stock; and warrants exercisable into convertible preferred stock were converted into warrants exercisable into 386,569 shares of the Company's common stock.

3. Summary of Significant Accounting Policies

Development-Stage Company

The Company was a development-stage company as defined in Statement of Financial Accounting Standards (SFAS) No. 7, *Accounting and Reporting by Development Stage Enterprises.* During 2005, the Company commenced its planned principle operations, which includes the development of anti-cancer therapeutic candidates, discovery of new therapeutic candidates, application of the Company proprietary technology to in-licensing candidates and leveraging the Company's technology with partners.

Use of Estimates

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

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents. Cash equivalents consist primarily of money market funds and commercial paper. The Company maintains cash balances with financial institutions in excess of insured limits. The Company does not anticipate any losses with such cash balances.

Marketable Securities

Marketable securities consist primarily of corporate debt securities with various maturities. Management classifies the Company's marketable securities as available-for-sale. Such securities are stated at market value, with the unrealized gains and losses included as accumulated other comprehensive income (loss). Realized gains and losses and declines in value judged to be other-than-temporary on securities available for sale, if any, are included in operations. A decline in the market value of any available-for-sale security below cost that is deemed to be other-than-temporary results in a reduction in fair value. The impairment is charged to earnings, and a new cost basis for the security is established. Dividend and interest income are recognized when earned. The cost of securities sold is calculated using the specific identification method.

Property and Equipment

Property and equipment is stated at cost. Property and equipment is depreciated using the straight-line method over the estimated useful lives of assets, generally three to five years for equipment and seven years for furniture and fixtures. Leasehold improvements are amortized over the shorter of the life of the lease or the related asset. Maintenance and repairs are charged to expense as incurred.

Property and equipment consisted of the following (in thousands):

	December 31,	
	2005	2004
Scientific equipment	$ 6,503	$ 6,268
Computer equipment	1,234	1,229
Leasehold improvements	12,093	12,093
Furniture and fixtures	443	440
	20,273	20,030
Less accumulated depreciation	9,276	6,632
Property and equipment, net	$10,997	$13,398

Depreciation expense related to property and equipment was $2,643,614, $2,767,781 and $2,436,714 for the years ended December 31, 2005, 2004, and 2003, respectively.

Deferred Financing Costs

Deferred financing costs consist primarily of costs incurred related to the procurement of funding to finance leasehold improvements and equipment. These costs are deferred and amortized over the term of the related financing agreement using the effective interest method.

Revenue Recognition

During 2005, the Company recognized revenue from its collaboration partners for work performed and milestones achieved. Corporate revenues include receipt of non-refundable license fees, milestone payments and research & development payments. Revenue is recognized when there is persuasive evidence that an arrangement exists, delivery has occurred, the price is fixed and determinable, and collection is reasonably assured. Payments received in advance of work performed are recorded as deferred revenue and recognized ratably over the performance period. Milestone payments are recognized as revenue in an amount commensurate with the level of effort expended when the milestones are achieved, contract partner acknowledges completion of the milestone, no further performance obligations exist as defined in the agreements, collection is reasonably assured and substantive effort was necessary to achieve the milestone.

Research and Development Costs

The Company expenses its research and development costs as incurred.

Income Taxes

Income taxes are accounted for using the liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and net operating loss carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the year in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are established when necessary to reduce net deferred tax assets to the amount expected to be realized. Income tax expense is the tax payable for the period and the change during the period in deferred tax assets and liabilities.

Restricted Cash and Investments

In accordance with the terms of a financing arrangement discussed in Note 5, the Company established an investment account, which is pledged as collateral for a letter of credit. The issuer of the letter of credit, a bank, maintains the investment account. The bank's security interest in the account cannot exceed the minimum required cash collateral amount, which as of December 31, 2005 and 2004, was defined as an adjusted market value of $6.3 million and $6.1 million, respectively. This collateral agreement defines adjusted market value as the product of the fair market value of each permitted investment by a defined percentage ranging from 60% to 100%, depending on the nature of the permitted investment. The minimum cash collateral amount automatically decreases each April 1 as specified in the collateral agreement.

Stock-Based Compensation

The Company recognizes expense for stock-based compensation arrangements in accordance with the provisions of Accounting Principles Board (APB) Opinion No. 25, *Accounting for Stock Issued to Employees*, and related Interpretations. Accordingly, compensation cost is recognized for the excess of the estimated fair value of the stock at the grant date over the exercise price, if any. The Company accounts for equity instruments issued to non-employees in accordance with EITF 96-18, *Accounting for Equity Instruments that are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services.* Accordingly, the estimated fair value of the equity instrument is recorded on the earlier of the performance commitment date or the date the services required are completed. Disclosures prescribed by SFAS No. 123, *Accounting for Stock-Based Compensation* (SFAS 123), are presented in Note 7.

The following table illustrates the effect on net loss if the Company had applied the fair value recognition provisions of SFAS No. 123 to stock-based compensation (in thousands, except share data).

	Year Ended December 31,		
	2005	2004	2003
Actual net loss attributable to common stockholders:			
As reported	$ (20,403)	$ (15,108)	$ (18,525)
Add: Stock compensation included in reported net loss attributable to common stockholders	129	3	39
Deduct: Total stock-based employee compensation expense determined under fair value-based method for all awards	(681)	(126)	(208)
Pro forma net loss attributable to common stockholders	$ (20,955)	$ (15,231)	$ (18,695)
Net loss attributable to common stockholders per common share:			
Basic and diluted — as reported	$ (9.58)	$ (117.65)	$ (146.29)
Basic and diluted — pro forma	$ (9.84)	$ (118.61)	$ (147.63)
Weighted average number of common shares — basic and diluted	2,129,388	128,417	126,630

The effect of applying SFAS No. 123 on a pro forma net loss as stated above is not necessarily representative of the effects on reported net loss for future years due to, among other things, the vesting period of the stock options and the fair value of additional options to be granted in future years.

Basic and Diluted Net Loss Attributable to Common Stockholders Per Common Share

Basic net loss attributable to common stockholders per common share excludes dilution for potential common stock issuances and is computed by dividing net loss attributable to common stockholders by the weighted-average number of common shares outstanding for the period. Diluted net loss attributable to common stockholders per common share reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised or converted into common stock. Stock options, and warrants were not considered in the computation of diluted net loss attributable to common stockholders per common share for the periods presented, as their effect is antidilutive. Mandatorily redeemable convertible preferred stock was deemed antidilutive in 2003 and 2004 and, thus, excluded from diluted net loss per share calculation in those years. The preferred stock was converted to common stock during 2005 and these common shares are included in the basic loss per share calculation.

Comprehensive Loss

SFAS No. 130, *Reporting Comprehensive Income*, requires the presentation of comprehensive income or loss and its components as part of the financial statements. For the years ended December 31, 2005, 2004, and 2003, the Company's net loss plus its unrealized gains (losses) on available-for-sale securities reflects comprehensive loss.

Fair Value of Financial Instruments and Concentration of Credit Risk

The fair value of the Company's cash equivalents, accounts receivable, accounts payable, and accrued liabilities have approximated their carrying amounts due to the relatively short maturity of these items. The fair value of debt approximated its carrying amount as of December 31, 2005 and 2004, based on rates currently available to the Company for debt with similar terms and remaining maturities. Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of cash and cash equivalents and

marketable securities. Management believes the risks associated with its financial instruments are minimal, due to its policy of investing in highly rated securities.

Segment Information

The Company currently operates in one business segment, which is the development and commercialization of pharmaceutical products through its unique and proprietary drug discovery process. The Company is managed and operated as one business. A single management team that reports to the chief executive officer comprehensively manages the entire business. The Company does not operate separate lines of business with respect to its products or product candidates. Accordingly, the Company does not have separately reportable segments as defined by SFAS No. 131, *Disclosure about Segments of an Enterprise and Related Information.*

Recent Accounting Pronouncements

In December 2004, the Financial Accounting Standards Board (FASB) issued SFAS No. 123 (revised 2004), *Share-Based Payment* (SFAS 123R), which requires all companies to measure compensation cost for all share-based payments at fair value, including employee stock options, effective for the interim or annual periods beginning after June 15, 2005 for public entities and January 1, 2006 for private companies. SFAS 123R provides two adoption methods. The first method is a modified prospective transition method whereby a company would recognize share-based employee costs from the beginning of the fiscal period in which the recognition provisions are first applied as if the fair-value-based accounting method had been used to account for all employee awards granted, modified, or settled after the effective date and for any awards that were not fully vested as of the effective date.

Measurement and attribution of compensation cost for awards that are unvested as of the effective date of SFAS 123R would be based on the same estimate of the grant-date fair value and the same attribution method used under SFAS 123. The second method is a modified retrospective transition method whereby a company would recognize employee compensation cost for periods presented prior to the adoption of SFAS 123R in accordance with the original provisions of SFAS 123. A company would not be permitted to make any changes to those amounts upon adoption of SFAS 123R unless those changes represent a correction of an error. For periods after the date of adoption of SFAS 123R, the modified prospective transition method described above would be applied.

The full impact of adoption of SFAS 123R cannot be predicted at this time because it will depend on levels of share-based payments granted in the future. However, had the Company adopted SFAS 123R in prior periods, the impact of that standard would have approximated the impact of SFAS 123 as described in the disclosure of pro forma net loss attributable to common stockholders and basic and diluted loss per share. SFAS 123R also requires the benefits of tax deductions in excess of recognized compensation cost to be reported as a financing cash flow, rather than as an operating cash flow as required under current literature. This requirement will reduce net operating cash flows and increase net financing cash flows in periods after adoption. The Company is unable to estimate what those amounts will be in the future because they depend on, among other things, when employees exercise stock options.

4. Marketable Investments

Marketable investments held by the Company were as follows as of December 31 (in thousands):

	2005			2004		
Available for Sale	Amortized Cost	Unrealized Gains (Losses)	Fair Value	Amortized Cost	Unrealized Gains (Losses)	Fair Value
Investments						
U.S. Treasury and agencies	$ 782	$ (1)	$ 781	$ 1,072	$ —	$ 1,072
Corporate debt securities	10,949	(27)	10,922	4,905	(20)	4,885
	11,731	(28)	11,703	5,977	(20)	5,957
Restricted investments						
Cash and cash equivalents	6,313	—	6,313	198	—	198
U.S. Treasury and agencies	0	—	0	4,613	(4)	4,609
Corporate debt securities	—	—	—	1,301	(8)	1,293
	6,313	—	6,313	6,112	(12)	6,100
	$18,044	$(28)	$18,016	$12,089	$(32)	$12,057

The following table summarizes maturities of the Company's investments at December 31 (in thousands):

	2005		2004	
Maturity	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Less than one year	$17,262	$17,235	$11,686	$11,658
Due in one to two years	782	781	404	399
Total	$18,044	$18,016	$12,090	$12,057

5. Debt

Notes and bond payable consisted of the following (in thousands):

	December 31,	
	2005	2004
Maryland Industrial Development Financing Authority Taxable Variable Rate Demand Revenue Bond	$ 9,600	$10,800
Equipment financing	1,359	2,869
	10,959	13,669
Less current portion	(2,230)	(2,710)
Less discount related to warrants	(15)	(39)
Long-term debt	$ 8,714	$10,920

Maryland Industrial Development Financing Authority (MIDFA) Taxable Variable Rate Demand Revenue Bond

In April 2003, the Company entered into a series of agreements with MIDFA and a bank in order to finance the build out of its corporate headquarters and research facility located in Germantown, Maryland. MIDFA sold bonds in the amount of $12.0 million. The proceeds of the bond sale were put in trust to reimburse the Company for the costs it incurred for the build out of the facility. The Company is required to repay the trust $1.2 million annually for

these borrowings. The borrowing bears interest at a variable rate and matures on April 8, 2013. The weighted-average interest rate during 2005 and 2004 was 3.48% and 1.63%, respectively.

The Company entered into an agreement with the bank to issue the trustee an irrevocable letter of credit to provide payment of the principal and interest of the bonds. The amount of the letter of credit changes annually, as principal payments are made. At December 31, 2005 and 2004, the letter of credit amount was 9,757,808 (consisting of $9.6 million of principal and $157,808 in interest) and $10,977,534 (consisting of $10.8 million of principal and $177,534 in interest), respectively. For purposes of the letter of credit, interest is computed at 50 days at an assumed maximum rate of interest of 12% per annum. The letter of credit expires the earlier of April 8, 2008, or the date the bonds have been paid in full. The Company granted the bank a security interest in certain facility improvements, the equipment financed, and the collateral described in Note 3. The Company will pay the bank an annual fee of 1.90% of the outstanding stated amount of the letter of credit. The annual fee approximated $189,000, $211,000 and $235,000 for the years ended December 31, 2005, 2004 and 2003, respectively. The Company is also required to pay the bank $1,200 for each year until the letter of credit expires. The principal portion of the letter of credit shall be reduced $1.2 million on each anniversary of the closing date through April 1, 2007. Pursuant to the terms of the agreements, the Company is required to meet certain financial and nonfinancial covenants, including maintaining minimum cash balances and net worth ratios.

In August 2005, the Company entered into a modification agreement with MIDFA and the bank under its letter of credit agreement pursuant to which the bank agreed to waive the Company's compliance with the minimum tangible net worth, minimum restricted cash balance and minimum ration of current assets to current liabilities financial covenants the letter of credit through March 30, 2006. In exchange for this waiver, the Company increased by $500,000 the cash collateral amount held as restricted cash under the letter of credit to approximately $6.3 million.

Equipment Financing

The Company had a line of credit agreement that provided for borrowings up to $2.0 million. Each draw was treated as a separate promissory note, bearing interest between 9.51% and 12.44% over a 36-month term. The applicable equipment, fixtures, and personal property financed provide collateral for the borrowings. The Company repaid all borrowings under this arrangement in 2004.

In 2001, the Company issued the lender warrants to purchase 20,000 shares of the Company's Series B Redeemable Convertible Preferred Stock (the Series B Preferred Stock). The warrants were initially exercisable for $3.53 per share and expire on May 14, 2011. The fair value of the warrants issued was estimated at the date of grant using the Black-Scholes option-pricing model. The fair value of the warrants of $48,000 was recorded as deferred financing costs and was amortized into interest expense over the term of the line of credit. On October 4, 2005, upon the close of the Company's initial public offering, these warrants converted into warrants to purchase 4,410 shares of the Company's common stock for $28.24 per share.

The Company entered into a second line of credit agreement that provided for borrowings up to $7.0 million. No draws were made. The availability of the credit line elapsed in 2004. Each draw was to be treated as a separate promissory note. These notes were to bear interest between 7.09% and 8.68% over terms of 36 to 48 months. The applicable equipment, fixtures, and personal property financed provide collateral for the borrowings.

In conjunction with the second line of credit, the Company issued the lender warrants to purchase 39,306 shares of the Company's Series B Preferred Stock with an initial per share exercise price of $3.53. The fair value of the warrants was estimated at the date of grant using the Black-Scholes option-pricing model. The fair value of the warrants was recorded as a debt discount to the applicable draw and is amortized into interest expense over the term of the applicable draw. On October 4, 2005, upon the close of the Company's initial public offering of common stock, these warrants converted into warrants to purchase 8,666 shares of the Company's common stock for $28.24 per share.

For the years ended December 31, 2005, 2004, and 2003, the Company incurred interest expense of $1,146,862, $889,654 and $701,261, net of interest capitalized of $0, $0 and $88,228, respectively.

Future minimum principal payments on all debt are as follows at December 31 (in thousands):

2006	2,230
2007	1,518
2008	1,211
2009	1,200
2010	1,200
Thereafter	3,600
	$10,959

6. Redeemable Convertible Preferred Stock

Series A Redeemable Convertible Preferred Stock

From December 1999 through July 2000, the Company issued 5,577,500 shares of Series A Redeemable Convertible Preferred Stock (the Series A Preferred Stock) for net proceeds of $11,155,000. In conjunction with the sale of the Series B Preferred Stock, the holders of Series A Preferred Stock retroactively revoked their right to receive cumulative dividends.

In August and September 2005, the Company received commitments from certain existing investors under a line of credit facility to provide up to $6.5 million in subordinated debt financing to support operations. As an incentive for investors to participate in the facility, the Company amended its certificate of incorporation to convert shares of Series A and B Preferred Stock into common stock if the investor declined to participate in the facility. As a result, 1,000,000 shares of Series A Preferred Stock, held by 3 investors who did not participate in the facility, converted into a total of 125,000 shares of common stock on September 22, 2005.

In October 2005, upon the close of the Company's initial public offering of common stock, all remaining outstanding shares of Series A Preferred Stock were converted into 572,188 shares of common stock.

Series B Redeemable Convertible Preferred Stock

From October 2001 to February 2002, the Company issued 19,843,519 shares of Series B Preferred Stock at $3.53 for $65.8 million, net of issuance costs, consisting of cash of approximately $59.7 million and conversion of the principal and related accrued interest on approximately $6.1 million of notes payable.

In September and August 2005, the Company received commitments from certain existing investors under a line of credit facility to provide up to $6.5 million in subordinated debt financing to support operations. As an incentive for investors to participate in the facility, the Company amended its certificate of incorporation to convert shares of Series A and B Preferred Stock into common stock if the investor declined to participate in the facility. As a result, 1,190,611 shares of Series B Preferred Stock, held by 4 investors who did not participate in the facility, converted into a total of 148,826 shares of common stock on September 22, 2005.

In October 2005, upon the close of the Company's initial public offering of common stock, all remaining outstanding shares of Series B Preferred Stock were converted into 4,175,000 shares of common stock.

During 2002, the Company issued warrants for the purchase of 1,543,795 shares of Series B Preferred Stock to the placement agent in the Company's Series B Preferred Stock offering. The warrants had a per-share exercise price of $3.53 and expire on February 6, 2007, if unexercised. The fair value of the warrants of $2,732,517 was estimated at the date of grant using the Black-Scholes option-pricing model. The fair value of the warrants was netted against the proceeds from the offering of the Series B Preferred Stock. In October 2005, upon the close of the

Company's initial public offering of common stock, these warrants were converted into warrants to purchase 340,368 shares of the Company's common stock at a price of $28.24 per share.

7. Stockholders' Equity (Deficit)

Reverse Stock Split

All share and per share amounts have been retroactively adjusted to give effect to a 1-for-5 reverse stock split effected on August 15, 2005 and a subsequent 1-for-1.6 reverse stock split effected on August 30, 2005.

Common Stock

Holders of common stock are entitled to one vote per share in all matters voted upon by the stockholders and have no right to accumulate votes in the election of directors. Holders of common stock are entitled to receive ratably such dividends, when and if declared by the Board of Directors out of funds legally available therefore. Holders of common stock have no preemptive, subscription, redemption, or conversion rights, nor are there sinking fund provisions applicable to the common stock.

In February 2005, the Company completed a financing with its current investors pursuant to which the Company issued $4.8 million of unsecured convertible notes. Under the original terms of notes, the notes converted into equity upon the earliest to occur of the closing of certain qualified financing events (including an initial public offering) or at maturity in February 2006. In addition, the original terms of the notes provided that in the event of an initial public offering, the outstanding convertible notes automatically converted into such number of shares of common stock as was determined by dividing the outstanding principal amount of the convertible note, plus interest accrued through the date of closing of the initial public offering, by the per share public offering price of the initial public offering. In all other circumstances, the outstanding principal amount of the convertible notes, plus interest accrued, converted into either shares of a newly created class of preferred stock or shares of the class of security being issued in a subsequent qualified financing based on the fair market value of securities then being issued as determined in good faith by the Company's Board of Directors. Pursuant to the February 2005 financing, investors also were entitled to receive warrants equal to 50% of the number of shares of new preferred stock or other securities issuable upon conversion of the convertible notes. No estimate of the fair value of the Company's equity was made in connection with this transaction since the financing provided that any valuation determination was to be deferred until the time of conversion. All participants were current preferred stock investors in the Company.

In April 2005, the Company revised the terms of its convertible notes issued in February 2005 and issued an additional $0.2 million of convertible notes. Under the revised terms of the notes, all of the notes converted into equity upon the earliest to occur of an initial public offering, the sale of the Company, or January 1, 2006. Upon the closing of an initial public offering prior to January 1, 2006, any outstanding convertible notes automatically converted into such number of shares of common stock as was determined by dividing the outstanding principal amount of the convertible note, plus interest accrued through the date of closing of the initial public offering, by the per share public offering price of the initial public offering. In all other circumstances, the outstanding principal amount of the convertible note, plus interest accrued, converted into shares of a new preferred security based on the fair market value of the new preferred as determined in good faith by the Company's Board of Directors. Under the revised terms of the notes, the warrants were terminated. No estimate of the fair value of the Company's equity was made in connection with this transaction since the financing provided that any valuation determination was to be deferred until the time of conversion. All additional participants were current preferred stock investors in the Company. During 2005, the Company incurred interest expense of $267,140 related to these notes.

Upon the closing of the Company's initial public offering in October 2005, all of the Company's outstanding convertible notes, representing principal and interest of $5,293,600, automatically converted into 504,152 shares of common stock.

Stock Options

The Company adopted the Avalon Pharmaceuticals, Inc. 1999 Stock Incentive Plan (the 1999 Plan) to provide for the granting of stock awards, such as stock options, restricted common stock, and stock appreciation rights to employees, directors, and other individuals as determined by the Board of Directors. The Company has reserved 624,143 shares of common stock to accommodate the exercise of options granted under the 1999 Plan.

Stock options granted under the 1999 Plan may be either incentive stock options (ISOs) as defined by the Internal Revenue Code, or nonqualified stock options. The Board of Directors determines who will receive options under the 1999 Plan, the vesting period, and the exercise price. Options may have a maximum term of no more than 10 years. The exercise price of ISOs granted under the 1999 Plan must be at least equal to the fair market value of the common stock on the date of grant. In January 2004, the Company extended the exercise period for the vested options for employees terminated in the October 2003 staff reduction from 3 months to 18 months. The Company terminated the 1999 Plan as to future awards effective upon the closing of the Company's initial public offering in October 2005.

Effective upon the closing of the Company's initial public offering in October 2005, the Company adopted the Avalon Pharmaceuticals, Inc. 2005 Omnibus Long-Term Incentive Plan, or 2005 Plan. The Company has reserved 989,738 shares of common stock to accommodate the exercise of options granted under the 2005 Plan.

Additional information with respect to stock option activity is summarized as follows:

	Shares	Weighted-Average Exercise Price
Outstanding at December 31, 2002	532,959	$2.85
Granted	35,479	3.16
Exercised	(1,234)	2.71
Cancelled or expired	(32,182)	3.16
Outstanding at December 31, 2003	535,022	2.85
Granted	46,985	3.20
Exercised	(1,508)	1.73
Cancelled or expired	(24,705)	3.08
Outstanding at December 31, 2004	555,794	2.87
Granted	746,440	5.86
Exercised	(3,520)	2.49
Cancelled or expired	(24,876)	3.06
Outstanding at December 31, 2005	1,273,838	4.62

Options exercisable were as follows, as of December 31:

	Number Exercisable	Weighted-Average Exercise Price
2003	305,851	$2.68
2004	388,477	2.76
2005	472,779	2.94

The following table summarizes information about stock options outstanding at December 31, 2005:

Exercise Prices	Number Outstanding	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Number Exercisable	Weighted-Average Exercise Price
$1.60	110,511	$1.60	4.5	107,388	$1.60
$3.20	416,887	3.20	6.5	349,771	3.20
$5.12 - $5.76	240,857	5.50	9.9	0	0
$5.76 - $6.40	505,583	6.03	9.8	15,620	6.24
	1,273,838			472,779	

The weighted-average fair value of options granted during 2005, 2004, and 2003 was $3.34, $1.03 and $1.02, respectively. The fair value of each option is estimated on the date of grant using the Black-Scholes option-pricing model with the following assumptions used for grants issued during the years ended December 31:

	2005	2004	2003
Volatility	66.2%	56.1%	56.1%
Dividend yield	0%	0%	0%
Average risk-free interest rate	4.00%	3.41%	3.25%
Expected term	4.7 years	5.0 years	5.0 years

Stock Warrants

In August 2000, the Company issued warrants to its landlord to purchase 1,875 shares of common stock at $16 per share. The warrants expire in August 2010. In March 2001, the Company issued warrants to a vendor to purchase 31,250 shares of its common stock at $27.92 per share. The warrants expire on the earlier of the closing of the sale of all of the Company's outstanding equity capital or the third anniversary of the initial public offering. The exercise prices of both warrants are subject to adjustment for certain dilutive events, as defined in the terms of the warrants. The fair value of the warrants at the grant date was nominal.

8. Income Taxes

For the years ended December 31, 2005, 2004, and 2003, there is no current provision for income taxes and the deferred tax benefit has been entirely offset by valuation allowances. The difference between the amounts of income tax benefit that would result from applying domestic federal statutory income tax rates to the net loss and the net deferred tax assets is related to certain nondeductible expenses, state income taxes, and the change in the valuation allowance.

	December 31,	
	2005	2004
	(in thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 19,492	$ 3,066
Capitalized research and development expenses	8,596	14,023
Start-up costs	3,218	7,078
Deferred revenue		—
Deferred rent expense	181	172
Accrued payroll	60	50
Depreciation	276	141
Other	75	45
Deferred tax liabilities:		
Depreciation		—
Valuation allowance	(31,898)	(24,575)
Net deferred tax assets	$ —	$ —

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of the deferred tax assets is dependent upon the generation of future taxable income during the periods in which the net operating loss carryforwards are available. Management considers projected future taxable income, the scheduled reversal of deferred tax liabilities, and available tax planning strategies that can be implemented by the Company in making this assessment. Based upon the level of historical taxable income and projections for future taxable income over the periods in which the net operating loss carryforwards are available to reduce income taxes payable, management has established a full valuation allowance.

The net operating loss carryforwards of approximately $50.5 million will begin to expire in various years beginning in 2020. The use of the Company's net operating loss carryforwards may be restricted due to changes in Company ownership. Additionally, despite the net operating loss carryforwards, the Company may have a future tax liability due to an alternative minimum tax or state tax requirements. The Company paid no income taxes in 2005, 2004, or 2003.

The provision for income taxes differs from the amount of taxes determined by applying the U.S. federal statutory rate to loss before provision for income taxes as a result of the following for the year ended December 31 (in thousands):

	2005	2004	2003
Federal tax at statutory rates	$(6,559)	$(4,644)	$(5,806)
State taxes, net of federal benefit	(876)	(630)	(786)
Change in valuation allowance	7,322	5,267	6,573
Permanent differences	113	7	19
Provision for income taxes	$ —	$ —	$ —

9. Related Party Transactions

For the year ended December 31, 2005, the Company paid two members of the board of directors consulting fees totaling $132,300, and for the years ended December 31, 2004, and 2003, the Company paid three members of the board of directors consulting fees totaling $128,556 and $125,517, respectively.

10. Commitments and Contingencies

The Company leased laboratory and office space under noncancelable operating lease agreements that expired in March 2003.

In July 2002, the Company entered into a 10-year noncancelable operating lease agreement for office and laboratory space. The lease expires on February 1, 2012. This agreement contains an option to renew for two periods of 5 consecutive years. The lease contains a 3% annual escalation.

Total rent expense, inclusive of the monthly maintenance charges, for the years ended December 31, 2005, 2004 and 2003 was $1,504,000, $1,300,000 and 986,000, respectively. Total sublease income recorded for the years ended December 31, 2005, 2004 and 2003 was $184,946, $0 and $0, respectively. As of December 31, 2005,

minimum future rental payments under non-cancelable leases and rental income from subleases are as follows (in thousands):

	Operating	Sublease income
2006	701	242
2007	722	40
2008	743	—
2009	766	—
2010	789	—
Thereafter	1,719	—
Total	$5,440	$282.00

11. Collaborations and Licenses

In December 2003, the Company entered into a collaboration and license agreement with Aventis Pharmaceuticals, Inc. (now Sanofi-Aventis) to collaborate on the identification and validation of druggable cancer screening targets. Pursuant to the agreement the Company agreed to use commercially reasonable efforts to identify and provide Aventis with druggable cancer screening targets, after which Aventis agreed, subject to validation of such targets, to use commercially reasonable efforts to develop and commercialize potential drug products affecting the activity, inactivity or function of such targets. The Company received a total of $1.9 million from Aventis in research fees and milestone payments prior to the expiration of the agreement by its terms on December 21, 2005.

In October 2003, the Company entered into a collaboration with Medarex, Inc. to jointly research, develop and commercialize human antibodies against cancer targets designated by the Company. Under the agreement, each party is obligated to use commercially reasonable efforts to conduct their respective research activities in accordance with jointly developed project plans and budgets for the research, development, manufacture and commercialization of human antibodies identified by Medarex against cancer targets designated by the Company. The agreement generally provides that all costs associated with the research, development, manufacturing and commercialization of any such antibodies are to be shared equally between the two parties and that any operating profits or losses with respect to commercial products derived from the collaboration are to be similarly shared equally between the two parties. In addition, the agreement provides that each of parties shall own an equal, undivided interest in any intellectual property and technology derived from the collaboration. The agreement further provides that either party may voluntarily opt-out of its research, development and commercialization obligations. Upon the exercise of such opt-out right, the non-terminating party has the option to unilaterally continue research, development, manufacture and commercialization activities with respect to these antibodies, subject to the payment to the terminating party of specified royalties based on the phase of development during which such opt-out right is exercised and of up to between $6.5 million to $8.5 million per unilateral product in additional payments based on the achievement of various development and commercialization milestones, with the terminating party continuing to be responsible for all of its budgeted costs and expenses associated with completing the particular research and development phase applicable to such antibody. To date, no such royalty or milestone payments have been made by or paid to either party.

The term of the agreement continues until the later of (i) the first anniversary of the completion of all research activities contemplated by the agreement and (ii) such time as neither of the parties is engaged in any research, development, manufacture or commercialization activities with respect to the human antibodies which are the subject of the parties' collaboration. The agreement may be terminated sooner by either party upon, among other events, a material breach by the other party of the terms of the agreement (subject to prior notice and an opportunity to cure).

In February 2005, the Company entered into a licensing agreement with Vertex Pharmaceuticals, Inc. for the development of the investigational agent AVN944 in oncology indications. Under the terms of the agreement, Avalon

holds exclusive rights to develop and commercialize AVN944 worldwide for the treatment of various cancers. The Company is obligated to pay up to $73 million in license fees and milestone payment to Vertex over the term of the agreement, based on the successful development and commercialization of AVN944 in oncology. In 2005, the Company made licensing payments to Vertex in the amount of $5 million. Upon commercialization, Vertex will receive royalties on product sales. Vertex retains certain rights to co-promote AVN944 in U.S. and European markets.

In June 2005, the Company entered into a collaboration and license agreement with MedImmune, Inc for the discovery of small molecule therapeutic compounds in the area of inflammatory disease. The Company received an upfront technology access fee payment of $1,500,000 and MedImmune is funding all research and development activities at the Company and MedImmune. The access fee was deferred and is being recognized as revenue over the research term of the contract of 2.5 years. The Company may receive milestone payments of up to $16 million from MedImmune and will receive royalty payments upon the sale of products from the collaboration upon commercialization. MedImmune also reimburses the Company for project costs it incurs related to this agreement. For the year ended December 31, 2005, the Company has billed $180,000 in agreement expenses.

In September 2005, the Company entered into a collaboration with Novartis Institutes for Biomedical Research, Inc. for the discovery of small molecule therapeutic compounds targeted against a pathway selected by Novartis. The Company is using its AvalonRx® drug discover engine in a pilot study with Novartis to identify hits from compounds in Novartis' chemical library. Novartis is responsible for lead optimization, preclinical and clinical testing of any resulting product candidates, as well as all future development and sales and marketing activities. The Company received an upfront technology access fee payment of $500,000. Novartis is funding all research activities at the Company for the purpose of the collaboration. The up-front fee was deferred and will be will be recognized as revenue over the contract term of 1.5 years, as the work is completed. The Company will receive milestone payments from Novartis based on the achievement of the following milestones: (1) identification of a validated hit compound and (2) identification of a lead compound. Assuming the Company achieves these milestones, it will receive $1 million in milestone payments.

12. Employee Benefit Plan

The Company has a defined contribution plan (the Plan) under Internal Revenue Code Section 401(k). All employees who have completed three months of service and are over age 21 are eligible for participation in the Plan. Participants may elect to contribute up to 25% of their annual pretax earnings, up to federally allowed maximum limits. The Company may make matching contributions at its discretion. Participant contributions vest immediately. Company contributions vest over four years or increasing by 25% annually. The Company has not made a contribution to the Plan.

13. Quarterly Financial Information (Unaudited) (in thousands, except per share data)

	Quarter Ended			
	March 31	June 30	September 30	December 31
2005 Summary statement of operations:				
Total revenues	$ —	$ —	$ 748	$ 796
Loss from operations	(8,702)	(3,979)	(3,642)	(2,970)
Net loss attributable to common stockholders	(9,072)	(4,349)	(4,013)	(2,970)
Net loss attributable to common stockholders per common share — basic and diluted	(70.49)	(33.56)	(29.50)	(0.37)
2004 Summary statement of operations:				
Total revenues	$ 375	$ 375	$ 375	$ 775
Loss from operations	(3,313)	(3,428)	(3,487)	(2,876)
Net loss attributable to common stockholders	(3,449)	(3,564)	(4,025)	(3,345)
Net loss attributable to common stockholders per common share — basic and diluted	(26.9)	(27.75)	(31.33)	(26.02)

14. Subsequent Event (Unaudited)

In February 2006, the Company raised $7.3 million through a private placement of 1,666,666 shares of it common stock to nine institutional investors. The proceeds from this financing will be used to expand the Company's internal oncology drug discovery programs.

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

None.

ITEM 9A. *CONTROLS AND PROCEDURES*

Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness as of December 31, 2005 of our disclosure controls and procedures, as such term is defined under Rule 13(a)-15(e) under the Exchange Act. Based on this evaluation, our principal executive officer and our principal financial officer concluded that the design and operation of our disclosure controls and procedures were effective as of the end of the period covered by this Annual Report on Form 10-K.

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) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. *OTHER INFORMATION*

None.

PART III

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

Directors and Executive Officers

The following table sets forth information with respect to our directors and executive officers:

Name	Age	Position
Kenneth C. Carter, Ph.D.	46	President, Chief Executive Officer and Director
Gary Lessing	40	Executive Vice President and Chief Financial Officer
Thomas G. David	59	Senior Vice President of Operations and General Counsel
James H. Meade, Ph.D.	57	Vice President of Business Development
David K. Bol, Ph.D.	40	Vice President of Pharmaceutical Development
Alan G. Walton, Ph.D., D.Sc. *, **	69	Chairman
Michael R. Kurman, M.D. +	54	Director
Bradley G. Lorimier	60	Director
Ivor Royston, M.D. *, +	60	Director
William A. Scott, Ph.D. **	65	Director
Patrick Van Beneden **	43	Director
William H. Washecka	58	Director
Raymond J. Whitaker, Ph.D. *, +	58	Director

* Member of Audit Committee

** Member of Compensation Committee

\+ Member of Nominating and Corporate Governance Committee

Kenneth C. Carter, Ph.D. is a co-founder of Avalon and has served as President, Chief Executive Officer and as a member of our board of directors since Avalon's inception in November 1999. Prior to joining Avalon, he was a Senior Scientist at Human Genome Sciences, Inc., where he directed the company's gene mapping initiative from 1993 to 1999. Dr. Carter was a member of a team of scientists that identified genes involved in colon cancer that was named "Discovery of the Year" by Science Magazine in 1994. Dr. Carter holds a Ph.D. in Human Genetics from the University of Texas Medical Branch and a B.S. from Abilene Christian University.

Gary Lessing currently serves as Executive Vice President and Chief Financial Officer. He joined Avalon in September 2001. Prior to joining Avalon, from 1987 to 1990 and 1992 to 2001, he held several positions at Deutsche Banc Alex. Brown (DBAB), most recently as a Managing Director in the Healthcare Investment Banking Group, including serving as head of DBAB's European Healthcare Investment Banking Group based in London with primary responsibility for serving life sciences and medical technology companies in Europe and Israel. Mr. Lessing currently is a director of Topigen Pharmaceuticals Inc. Mr. Lessing holds an M.B.A. from the Wharton School of Finance at the University of Pennsylvania and M.S.E. and B.A. degrees in Mathematical Sciences from The Johns Hopkins University.

Thomas G. David is a co-founder of Avalon and has served as Senior Vice President of Operations and General Counsel since January 2002. Mr. David has been employed by us since our inception in November 1999. For ten years prior to joining Avalon, he served as senior attorney for the Federal Communications Commission. Mr. David holds a J.D. from the University of Utah Law School, an M.B.A. from the Wharton School of Finance at the University of Pennsylvania and a B.S. from the University of Utah.

James H. Meade, Ph.D. has served as Vice President of Business Development since January 2004. Prior to joining Avalon, Dr. Meade was Senior Director of Global Licensing at Pharmacia Corporation from January 2001 to July 2003. Before joining Pharmacia Corporation, Dr. Meade held senior level positions in business development at Bayer Corporation, Chiron Corporation and Cetus Corporation. Dr. Meade holds a Ph.D. and M.S. in Molecular Biology from the University of Texas at Dallas and a B.A. from St. Anselm's College.

David K. Bol, Ph.D. has served as Vice President of Pharmaceutical Development since April 2005. Dr. Bol joined Avalon in September 2002 as a Senior Scientific Director. Prior to joining Avalon, Dr. Bol worked at Bristol-Myers Squibb since 1996 and was Group Leader and Principal Scientist at Bristol-Myers Squibb since 2001. Prior to Bristol-Myers Squibb, Dr. Bol was a Faculty Research Associate in the Department of Carcinogenesis at the M.D. Anderson Cancer Center in Houston, Texas. Dr. Bol holds a Ph.D. in Molecular and Cell Biology from University of Maryland and a B.S. from The University of Rochester, New York.

Alan G. Walton, Ph.D., D.Sc. is a co-founder of Avalon and has served as a member and Chairman of our board of directors since Avalon's inception in November 1999. Since 1987, Dr. Walton has been a general partner of Oxford Bioscience Partners, a venture capital firm investing in life sciences enterprises. Prior to joining Oxford Bioscience Partners, Dr. Walton was President and Chief Executive Officer of University Genetics Co. Dr. Walton serves on the board of directors of Alexandria Real Estate Equities, Inc., Acadia Pharmaceuticals, Inc. and Advanced Cell Technologies, Inc. He previously has served as the Chairman of the Board of Directors or as a Director for numerous private and public biotechnology companies, including Human Genome Sciences and Gene Logic Inc. He was a professor at Case Western Reserve University and Harvard Medical College from 1961 to 1981 and a member of President Carter's Technology Transfer Committee from 1976 to 1977. Dr. Walton holds a Ph.D. in Physical Chemistry, a D.Sc. in Biological Chemistry and a B.S. in Chemistry, each from the University of Nottingham and in 2005 received a honorary LLD degree in recognition of his lifetime achievement in life sciences, also from the University of Nottingham.

Michael R. Kurman, M.D. has served as a member of our board of directors since December 2002. Since March 2000, Dr. Kurman has been an independent consultant to the pharmaceutical, biotechnology and healthcare industries specializing in oncology and oncology drug development. Dr. Kurman has held management roles in several global oncology drug development programs, including: Director of Clinical Research, Oncology and Allergy for Janssen Research Foundation; Vice President, Clinical Research for U.S. Biosciences Inc.; and Vice President, Clinical and Scientific Operations with Quintiles Transnational Corp.'s Oncology Therapeutics Division. Dr. Kurman holds an M.D. from Cornell University Medical College and a B.S. from Syracuse University.

Bradley G. Lorimier is a co-founder of Avalon and has served as a member of our board of directors since December 1999. Since 1999, Mr. Lorimier has been an independent consultant to the pharmaceutical and biotechnology industries. Mr. Lorimier has served in leadership positions in both the pharmaceutical and biotechnology industries, including as Vice President of Licensing and Vice President of Corporate Development at Johnson & Johnson and as Senior Vice President and Director of Human Genome Sciences. He is currently on the board of directors for Invitrogen Corporation and was a director of Matrix Pharmaceutical, Inc. from December 1997 to March 2002. Mr. Lorimier received a B.S. from the University of Illinois.

Ivor Royston, M.D. has served as a member of our board of directors since August 2000. Since 1990, Dr. Royston has served as a founding partner at Forward Ventures and is currently Managing Member of that firm. From 1990-2000, he served as the founding President and Chief Executive Officer of the non-profit Sidney Kimmel Cancer Center, where he remains a member of the Board of Trustees. From 1978 to 1990, he was on the faculty of the medical school and cancer center at the University of California, San Diego. In 1978, Dr. Royston was a co-founder of Hybritech, Inc., and in 1986, he co-founded IDEC Corporation. Dr. Royston has served as the Chairman of the Board of Directors or as a Director for numerous private and public biotechnology companies, including CancerVax Corporation, TargeGen, Inc., Corautus Genetics Inc., and Favrille, Inc. Dr. Royston has authored over 100 scientific publications and is a nationally-recognized physician-scientist in the area of cancer immunology. Dr. Royston served as a member of the National Cancer Institute's National Cancer Advisory Board from 1996 to 2002. Dr. Royston received a B.A. and M.D. degree from The Johns Hopkins University and completed post-doctoral training in internal medicine and medical oncology at Stanford University.

William A. Scott, Ph.D. has served as a member of our board of directors since December 1999. Since June 2000, Dr. Scott has been an independent consultant to several biotechnology companies. From March 1997 to August 1999, Dr. Scott was the Chief Executive Officer of Physiome Sciences, Inc., a privately-held bioinformatics company. Prior to that he held senior level positions at Bristol-Myers Squibb Company, including Senior Vice President of Drug Discovery Research at Bristol-Myers Squibb Pharmaceutical Research Institute from March 1990 through 1996. He previously served as a director of Variagenics, Inc. and currently serves as a director of Atherogenics, Inc. and Deltagen, Inc. Dr. Scott holds a Ph.D. in Biochemistry from the California Institute of Technology and a B.S. from the University of Illinois.

Patrick Van Beneden has served as a member of our board of directors since October 2001. Since 2001, Mr. Van Beneden has been Executive Vice President Life Sciences of GIMV N.V., a Belgian investment company, and he has held various positions with GIMV since 1985. Mr. Van Beneden has served on the boards of directors of several companies including Crucell, N.V., Pharming Group N.V., and Innogenetics. Mr. Van Beneden holds a Masters Degree in Applied Economics from VLEKHO-Brussels.

William H. Washecka joined the board of directors in March 2006. Since 2004, Mr. Washecka has served as the Chief Financial Officer of Prestwick Pharmaceuticals, Inc., a manufacturer of drugs for disorders of the central nervous system. In 2001-2002, he served as Senior Vice President and Chief Financial Officer of USinternetworking, Inc. USinternetworking, Inc. filed a voluntary bankruptcy petition under Chapter 11 of the Federal bankruptcy laws in January 2002. From 1972 — 2001 he served in various capacities at Ernst & Young, LLP including as Partner from 1986 — 2001. At Ernst & Young he established and managed the high technology and emerging business practice in the Mid-Atlantic area from 1986 — 1999. Additionally, Mr. Washecka was a co-founder of the Mid-Atlantic Venture Capital Conference. He currently is Director and financial expert for Online Resources Corporation and Audible, Inc. Mr. Washecka holds a BS in accounting from Bernard Baruch College of New York and participated in Kellogg Advanced Management Program. He is a CPA in Maryland, Virginia, the District of Columbia and New York.

Raymond J. Whitaker, Ph.D. has served as a member of our board of directors since October 2001. Dr. Whitaker has been a general partner with EuclidSR Partners, a venture capital firm, since January 2000. From January 1997 to July 2003, Dr. Whitaker was also Vice President of S.R. One, Limited, the venture investment affiliate of GlaxoSmithKline. From June 1992 to December 1996, he was Director, Worldwide Business Development at SmithKline Beecham Pharmaceuticals. His previous appointments include Director, Corporate Development and member of the Executive Committee at Recordati SpA, Milan (Italy) from 1987 to 1992, and Director, Business Development with SESIF — Laboratoires Delagrange, Paris (France) from 1983 to 1987. He has served on the

boards of directors of several biotechnology companies including Kosan Biosciences Incorporated and Xenogen Corporation. Dr. Whitaker holds Ph.D., B.Sc. and M.B.A. degrees from the National University of Ireland, University College Dublin.

Audit Committee Financial Expert

Our board of directors has determined that no member of the audit committee is an "audit committee financial expert" as defined by the SEC. Our board of directors currently is considering whether to name Mr. Washecka to the audit committee as an audit committee financial expert and expects to make this determination during Avalon's second fiscal quarter of 2006.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires that our executive officers and directors and other persons who beneficially own more than 10% of a registered class of our equity securities file with the SEC initial reports of ownership and reports of changes in ownership of shares and other equity securities of Avalon. Such executive officers, directors and greater than 10% beneficial owners are required by SEC regulations to furnish us with copies of all Section 16(a) forms filed by such reporting persons.

Based solely on our review of such forms furnished to us, we believe that all filing requirements applicable to our executive officers, directors and greater than 10% beneficial owners were complied with in fiscal 2005, subject to the following exceptions:

- Mr. Glen Farmer, who during 2005 served as our principal accounting officer, filed a late initial report of ownership on Form 3; and
- Euclid SR Partners, L.P. and EuclidSR Biotechnology Partners, L.P. filed a late initial report of ownership on Form 3 and a late Form 4 relating to (i) the automatic conversion of Avalon's preferred stock and convertible notes into Avalon common stock upon the closing of Avalon's initial public offering and (ii) the purchase of shares of Avalon's common stock in Avalon's initial public offering.

Code of Ethics

We have adopted our Code of Ethics for Senior Financial Officers, a code of ethics that applies to our Chief Executive Officer, Chief Financial Officer and Corporate Controller. This code of ethics may be accessed and reviewed through our website: http://www.avalonrx.com. We intend to satisfy any disclosure requirement under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, a provision of the Code of Ethics for our Chief Executive Officer, Chief Financial Officer and Corporate Controller, by posting such information on our web site at the address above.

ITEM 11. *EXECUTIVE COMPENSATION*

Executive Compensation Tables

Summary Compensation Table. The table below sets forth for the fiscal years ended December 31, 2005 and 2004, the compensation awarded to, earned by, or paid to our Chief Executive Officer and the four other most highly compensated executive officers whose total cash compensation exceeded $100,000, otherwise referred to as our named executive officers, during the year ended December 31, 2005.

SUMMARY COMPENSATION TABLE

Name and Principal Position	Fiscal Year	Annual Compensation		Long Term Compensation	All Other Compensation(1)
		Salary	Bonus	Securities Underlying Options	
Kenneth C. Carter, Ph.D.	2005	$324,000	$180,000	255,091	$12,000
President, Chief Executive Officer and Director	2004	$304,500	—	—	$ 6,832
Gary Lessing	2005	$231,000	$117,000	126,799	$18,000
Executive Vice President and Chief Financial Officer	2004	$215,250	—	—	$10,707
Thomas G. David	2005	$231,000	$ 96,000	45,587	$ 9,000
Senior Vice President and General Counsel	2004	$236,250	—	—	$11,564
James H. Meade, Ph.D.	2005	$200,000	$ 69,000	37,058	$15,000
Vice President of Business Development	2004	$200,000	—	25,000	$ 9,097
David K. Bol, Ph.D.	2005	$188,000	$ 87,000	55,764	$17,000
Vice President of Pharmaceutical Development	2004	$157,879	—	18,140	$ 9,826

(1) Amounts shown are for premiums paid by the company for health, dental, supplemental disability and term life insurance.

Option Grants in 2005. The following table sets forth information concerning options to purchase shares of our common stock granted during the year ended December 31, 2005, to our named executive officers. In addition, in accordance with the rules of the SEC, the table shows the hypothetical gains for such options based on assumed rates of annual compound stock price appreciation of 5% and 10% from the date the options were granted over the full option term.

Name	Number of Securities Underlying Options Granted	Percentage of Options Granted to Employees in 2005	Exercise or Base Price ($/Share)(1)	Expiration Date	Potential Realizable Value at Assumed Annual Rates of Stock Price Appreciation for Option Term	
					5%	10%
Kenneth C. Carter, Ph.D.	146,670	22%	$6.00	10/26/2016	$625,113	$1,630,780
	108,421	16%	$5.50	11/30/2016	$423,586	$1,105,042
Gary Lessing	43,543	7%	$6.00	10/26/2016	$185,582	$ 484,142
	83,256	13%	$5.50	11/30/2016	$325,270	$ 484,557
Thomas G. David	34,834	5%	$6.00	10/26/2016	$148,464	$ 203,850
	10,753	2%	$5.50	11/30/2016	$ 73,152	$ 190,838
James H. Meade, Ph.D.	18,334	3%	$6.00	10/26/2016	$ 78,140	$ 203,850
	18,724	3%	$5.50	11/30/2016	$ 73,152	$ 190,838
David K. Bol, Ph.D.	18,141	3%	$6.40	06/20/2015	$ 73,016	$ 185,037
	17,920	3%	$6.00	10/26/2016	$ 76,376	$ 199,247
	19,703	3%	$5.50	11/30/2016	$ 76,977	$ 200,806

(1) Prior to the completion of our initial public offering, in the absence of a public trading market for our stock, the exercise price per share of each option was equal to the fair market value of our common stock on the date of grant as determined by our board of directors.

Aggregate Option Exercises in 2005 and 2005 Year-End Options. The following table presents the number and value of unexercised options to purchase our common stock held by our named executive officers, distinguishing between options that are exercisable and those that are not exercisable.

Name	Shares Acquired on Exercise (#)	Value Realized ($)	Number of Unexercised Options at Year End		Value of Unexercised In-the-Money Options at Year End ($)(1)	
			Exercisable	Unexercisable	Exercisable	Unexercisable
Kenneth C. Carter, Ph.D. . . .	—	—	180,081	275,010	$299,105	$25,895
Gary Lessing	—	—	57,812	128,362	$ 75,156	$ 2,032
Thomas G. David.	—	—	43,281	49,806	$ 76,265	$ 5,485
James H. Meade, Ph.D.	—	—	8,750	53,308	$ 11,375	$21,125
David K. Bol, Ph.D.	—	—	6,375	55,684	$ 5,340	$ 2,843

(1) Calculated by multiplying the number of unexercised in-the-money options outstanding at December 31, 2005 by the difference between the fair market value of the underlying option shares at December 30, 2005, $4.50, and the option exercise price.

Compensation of Directors

Each non-employee director receives an annual fee of $20,000 ($45,000 for the Chairman of our board of directors) for each full year of service on our board of directors. Non-employee directors also receive $2,500 annually for each committee membership, with the Chairman of the audit committee receiving an additional $7,500 annually and the Chairman of the compensation committee and the Chairman of the nominating and corporate governance committee each receiving an additional $2,500 annually. Non-employee directors may elect annually to receive all of their annual cash retainer fees in awards of unrestricted shares of our common stock under our 2005 Omnibus Long-Term Incentive Plan. Annual fees are paid quarterly in arrears in four equal installments on the first business day of each fiscal quarter.

Non-employee directors who join our board of directors in the future also are entitled to receive an initial grant of options to purchase 10,000 shares of our common stock, and a non-employee director that becomes Chairman of our board of directors in the future is entitled to receive an additional grant of options to purchase 6,000 shares of our common stock. In addition, each non-employee director receives an annual grant of options to purchase 2,500 shares of our common stock and a non-employee Chairman of our board of directors receives an additional annual grant of options to purchase 4,200 shares of our common stock. Furthermore, following the closing of our initial public offering in October 2005, non-employee directors received a one time grant of options to purchase 10,000 shares of our common stock and the Chairman of our board of directors received an additional grant of options to purchase 6,000 shares of our common stock. Option grants to non-employee directors are to be made pursuant to our 2005 Omnibus Long-Term Incentive Plan. Initial option grants to non-employee directors vest monthly over a two-year period. Options granted to non-employee directors on an annual basis vest monthly over a one-year period.

No director who is an employee receives separate compensation for services rendered as a director. Members of our board of directors also are reimbursed for their out-of-pocket expenses in attending meetings.

Two of our directors receive compensation under consulting agreements with us. Under our consulting agreement with Mr. Lorimier, Mr. Lorimier receives compensation in the amount of $10,000 per month for services rendered to us in support of our business development efforts. In addition, Dr. Kurman is a party to an agreement with us pursuant to which he is paid for services rendered in support of our scientific research. Mr. Lorimier and Dr. Kurman received $120,000 and $12,300, respectively, in 2005, under each of their consulting agreements. See "Certain Relationships and Related Transactions" for a detailed description of each of these consulting agreements.

Compensation Committee Interlocks and Insider Participation

Dr. Scott, Mr. Van Beneden and Dr. Walton serve on our compensation committee, and served during 2005. None of these individuals is currently, or was during 2005, one of our officers or employees. In addition, none of these individuals serves as a member of the board of directors or on the compensation committee of any company that has an executive officer serving on our board of directors or our compensation committee.

Employment Agreements

We have employment agreements with each of the executive officers named in the Summary Compensation Table. The following is a description of these agreements.

Kenneth C. Carter, Ph.D. Dr. Carter's employment agreement provides for his at-will employment as our President and Chief Executive Officer. Under the terms of his agreement, Dr. Carter is entitled to a minimum starting salary of $165,000 per year and qualifies for annual bonuses based on company and individual performance, subject to the discretion of our board of directors. Dr. Carter's annual salary is subject to adjustment by our board of directors but may not be less than that provided in his employment agreement. In addition, Dr. Carter is entitled to a minimum initial grant of options to acquire 15,625 shares of our common stock, which was awarded in April 2000. The agreement also provides that in the event Dr. Carter is terminated without "cause" or terminates his employment for "good reason" he is entitled to full accelerated vesting on all of his unvested options, 18 months of salary and benefits continuation and any bonus awarded at the discretion of our compensation committee pro-rated through the date of his termination.

"Good reason" is defined under Dr. Carter's agreement as (1) termination by the employee within 18 months of a "change in control;" or (2) termination by the employee within 3 months of a material diminution in responsibilities as Chief Executive Officer, no longer reporting to our board of directors or the employee's principal workplace changing to more than 50 miles from his current residence at the time of entering into the employment agreement.

Thomas G. David. Mr. David's employment agreement provides for his at-will employment as our General Counsel and Director of Operations. Under the terms of his agreement, Mr. David is entitled to a minimum starting salary of $135,000 per year and qualifies for annual bonuses based on the attainment of goals set by our Chief Executive Officer and our board of directors. Mr. David's annual salary is subject to adjustment by our board of directors but may not be less than that provided in his employment agreement. In addition, Mr. David is entitled to a minimum initial grant of options to acquire 8,750 shares of our common stock, which was awarded in April 2000. The agreement also provides that in the event Mr. David is terminated without "cause" or terminates his employment for "good reason" he is entitled to accelerated vesting on one-half of his unvested options, 12 months of salary and benefits continuation and any bonus awarded at the discretion of our compensation committee pro-rated through the date of his termination.

"Good reason" is defined under Mr. David's agreement as (1) termination by the employee within 18 months of a "change in control;" (2) termination by the employee within 3 months of a material diminution in responsibilities as General Counsel and Director of Operations, no longer reporting to Dr. Carter or his principal workplace changing to more than 50 miles from his current residence at the time of entering into the employment agreement; or (3) the employee dying while our employee.

Gary Lessing. Mr. Lessing's employment agreement provides for his at-will employment as our Chief Financial Officer. Under the terms of his agreement, Mr. Lessing is entitled to a minimum starting salary of $205,000 per year and qualifies for annual bonuses based on the attainment of goals set by our Chief Executive Officer and our board of directors. Mr. Lessing's annual salary is subject to adjustment by our board of directors but may not be less than that provided in his employment agreement. In addition, Mr. Lessing is entitled to a minimum grant of options to acquire 46,875 shares of our common stock, which was awarded in October 2001. The agreement also provides that in the event Mr. Lessing is terminated without "cause" or terminates his employment for "good reason" he is entitled to 12 months of salary continuation. Additionally, in the event of a "change of control," Mr. Lessing is entitled to accelerated vesting on all of his unvested stock options.

"Good reason" is defined under Mr. Lessing's agreement as (1) termination by the employee within 18 months of a "change in control;" (2) termination by the employee within 3 months of a material diminution in responsibilities as Chief Financial Officer or his principal workplace changing to more than 75 miles from his current residence at the time of entering into the employment agreement; (3) a diminution in salary; or (4) the failure of our compensation committee to have approved the option grant described above.

James H. Meade, Ph.D. Dr. Meade's employment agreement provides for his at-will employment as Vice President of Business Development. Under the terms of his agreement, Dr. Meade is entitled to a minimum starting salary of $200,000 per year and qualifies for annual bonuses based on the attainment of corporate and individual performance goals determined by our compensation committee and approved by our board of directors. Dr. Meade's annual salary is subject to adjustment by our board of directors but may not be less than that provided in his employment agreement. In addition, Dr. Meade is entitled to a minimum grant of options to acquire 25,000 shares of our common stock, which was awarded in February 2004. The agreement also provides that in the event Dr. Meade is terminated without "cause" or terminates his employment for "good reason" he is entitled to 6 months of salary continuation.

"Good reason" is defined under Dr. Meade's agreement as (1) termination by the employee within 18 months of a "change in control;" (2) termination by the employee within 3 months of a material diminution in responsibilities as Vice President of Business Development or his principal workplace changing to more than 50 miles from his current residence at the time of entering into the employment agreement; or (3) the employee dying while our employee.

David R. Bol, Ph.D. Dr. Bol's employment agreement provides for his at-will employment as Vice President of Pharmaceutical Development. Under the terms of his agreement, Dr. Bol is entitled to a minimum starting salary of $195,000 per year and qualifies for annual bonuses based on the attainment of goals set by our compensation committee and approved by our board of directors. Dr. Bol's annual salary is subject to adjustment by our board of directors but may not be less than that provided in his employment agreement. In addition, Dr. Bol is entitled to a minimum grant of options to acquire 18,140 shares of our common stock, which was awarded in April 2005. The agreement also provides that in the event Dr. Bol is terminated without "cause" or terminates his employment for "good reason" he is entitled to 6 months of salary and benefits continuation.

"Good reason" is defined under his agreement as (1) termination by the employee within 18 months of a "change in control;" (2) termination by the employee within 3 months of a material diminution in responsibilities as Vice President of Pharmaceutical Development or his principal workplace changing to more than 50 miles from his current residence at the time of entering into the employment agreement; or (3) the employee dying while our employee.

Definition of "Cause" and "Change of Control." Under each of the foregoing employment agreements "cause" is defined as (1) the conviction of a felony which adversely affects the employee's ability to perform his obligations to us or materially adversely affects our business activities, reputation, goodwill or image; (2) willful disloyalty, deliberate dishonesty or breach of fiduciary duty; (3) breach of the terms of the employee's employment agreement or failure or refusal to carry out any material tasks assigned to the employee (subject to prior notice and an opportunity to cure); (4) the commission of any fraud, embezzlement or deliberate disregard of our rules and policies; or (5) the material breach by the employee of the provisions of our confidentiality and non-competition agreement to which the employee is subject.

Each agreement defines "change of control" as: (1) any "person" or "group" of persons (as such terms are used in Sections 13(d) and 14(d) of the Exchange Act), becoming the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of our securities representing 50% or more of the combined voting power of our then outstanding securities; (2) during any two year period, individuals who constitute our board of directors at the beginning of such period, together with any new directors elected or appointed during the period whose election or appointment resulted from a vacancy on the board caused by retirement, death, or disability of a director and whose election or appointment was approved by a vote of at least a majority of the directors then still in office who were directors at the beginning of the period, cease for any reason to constitute a majority of our board; (3) we sell, assign, convey, transfer, lease or otherwise dispose of all or substantially all of our assets to any person; (4) we consolidate with, or merge with or into another entity, or any entity consolidates with, or merges with or into, us, in

which the owners of our outstanding voting stock immediately prior to such merger or consolidation do not represent at least a majority of the voting power in the surviving entity after the merger or consolidation; or (5) our stockholders approve a plan of liquidation or dissolution.

Confidentiality, Assignment of Inventions and Non-Competition. Each executive officer has signed a confidentiality, assignment of inventions and non-competition agreement providing for the protection of our confidential information and the ownership of intellectual property developed by such executive officer. In addition, these agreements prohibit our executive officers during the term of their employment and for a period of two years thereafter from soliciting our employees and consultants to terminate their employment or consultancy with us and further prohibit our executive officers from competing with our business during the term of their employment and for a period of six months thereafter (12 months in the case of Mr. Lessing).

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

Set forth below is information relating to the beneficial ownership of our common stock as of March 15, 2006, by: (i) each person known by us to beneficially own more than 5% of our outstanding shares of common stock; (ii) each of our directors; (iii) our Chief Executive Officer and four highest compensated executive officers other than our Chief Executive Officer; and (iv) all of our directors and executive officers as a group.

Unless otherwise indicated and subject to community property laws where applicable, each of the stockholders has sole voting and investment power with respect to the shares beneficially owned. Unless otherwise noted in the footnotes, the address for each principal stockholder is in care of Avalon Pharmaceuticals, Inc. at 20358 Seneca Meadows Parkway, Germantown, Maryland 20876.

Name of Beneficial Owner	Number of Shares Beneficially Owned as of March 15, 2006	Percentage of Shares Beneficially Owned(1)(2)
Kenneth C. Carter, Ph.D.(3)	366,988	3.1%
Gary Lessing (4)	107,339	*
Thomas G. David (5)	81,896	*
James H. Meade, Ph.D.(6)	30,754	*
David K. Bol, Ph.D.(7)	26,972	*
Alan G. Walton, Ph.D., D.Sc.(8)	854,737	7.3%
Patrick Van Beneden(9)	900,609	7.7%
Michael R. Kurman, M.D.(10)	8,297	*
Bradley G. Lorimier(11)	27,297	*
Ivor Royston, M.D.(12)	603,537	5.1%
William A. Scott, Ph.D.(13)	13,809	*
Raymond J. Whitaker, Ph.D.(14)	767,619	6.5%
William H. Washecka(15)	833	*
Entities affiliated with Biotechnology Value Fund, L.P.(16)	866,666	7.4%
Entities affiliated with AIG Global Investment Corp.(17)	647,582	5.5%
Entities affiliated with EuclidSR Partners, L.P.(18)	767,619	6.5%
Entities affiliated with Forward Ventures IV Associates, LLC(19)	603,537	5.1%
Entities affiliated with GIMV N.V.(20)	900,609	7.7%
Entities affiliated with OBP Management III, L.P.(21)	854,737	7.3%
Capital Technologies CDPQ Inc.(22)	734,616	6.3%
All directors and officers as a group (12 persons)	3,790,688	32.3%

* Less than one percent

(1) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes shares of common stock to which the person has sole or shared voting or investment power with respect to shares of common stock including those shares that the person has the right to acquire within 60 days after March 15, 2006, through the exercise of any stock option or other right. Shares of common stock subject to options or rights currently exercisable or exercisable within 60 days of March 15, 2006 are deemed outstanding for purposes of computing the percentage ownership of the person holding such option or right but are not deemed outstanding for purposes of computing the percentage ownership of any other person.

(2) Based on 10,083,828 shares of Avalon common stock outstanding on March 15, 2006.

(3) Includes 343,488 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 and 3,750 shares of common stock held in trust for the benefit of Dr. Carter's minor child for which Dr. Carter disclaims beneficial ownership.

(4) Includes 107,339 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(5) Includes 80,896 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(6) Includes 30,754 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(7) Includes 26,972 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(8) Includes securities held by entities affiliated with OBP Management III, L.P. Dr. Walton disclaims beneficial ownership of the securities held by entities affiliated with OBP Management III, L.P. except to the extent of his pecuniary interest therein. Dr. Walton's business address is c/o Oxford Bioscience Partners, 315 Post Road West, Westport, CT 06880.

(9) Includes securities held by entities affiliated with GIMV N.V. Mr. Van Beneden disclaims beneficial ownership of the shares held by entities affiliated with GIMV N.V. The business address for Mr. Van Beneden is c/o GIMV N.V., Karel Oomsstraat 37, B-2018, Antwerp, Belgium.

(10) Includes 8,297 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(11) Includes (i) 8,880 shares of common stock, and (ii) 18,417 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(12) Includes securities held by entities affiliated with Forward Ventures IV Associates, LLC. Dr. Royston disclaims beneficial ownership of the securities held by entities affiliated with Forward Ventures IV Associates, LLC except to the extent of his pecuniary interest therein. Dr. Royston's business address is c/o Forward Ventures, 9393 Towne Centre Drive, Suite 200, San Diego, CA 92121.

(13) Includes 13,809 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(14) Includes securities held by entities affiliated with EuclidSR Partners, L.P. Dr. Whitaker disclaims beneficial ownership of the securities held by entities affiliated with EuclidSR Partners, L.P. except to the extent of his pecuniary interest therein. Dr. Whitaker's business address is c/o EuclidSR Partners, 45 Rockefeller Plaza, Suite 3240, New York, NY 10111.

(15) Includes 833 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006.

(16) Includes (i) 494,072 shares of common stock held by BVF Investments L.L.C. ("Investments"), (ii) 188,275 shares of common stock held by Biotechnology Value Fund, L.P. ("BVF"), (iii) 129,513 shares of common stock held by Biotechnology Value Fund II, L.P. ("BVF II") and (iv) 54,806 shares of common stock held by Investment 10, L.L.C. ("ILL10"). BVF Partners L.P. ("BVF Partners") and BVF Inc. share voting and dispositive power over shares of the common stock beneficially owned by BVF, BVF II, Investments and those owned by ILL10, on whose behalf BVF Partners acts as an investment manager and, accordingly, BVF Partners and BVF Inc. have beneficial ownership of all of the shares of the common

stock owned by such parties. The address for entities affiliated with Biotechnology Value Fund, L.P. is One Sansome Street, 39th Floor, San Francisco, CA 94104.

(17) Includes (i) 207,358 shares of common stock held by Commerce & Industry Issuance Company, (ii) 125,445 shares of common stock held by AIG Horizon Partners Fund, L.P., (iii) 102,511 shares of common stock held by AIG Horizon Side-by-Side Fund L.P., and (iv) 48,368 shares of common stock held by AIG Private Equity Partners I L.P. Pursuant to individual investment management agreements entered into with each of the affiliated entities, AIG Global Investment Corp. exercises voting and investment power over these shares through the members of its investment committee. In addition, each of these entities retains the right to exercise investment and voting power over their respective shares. The address for the entities affiliated with AIG Global Investment Group is c/o AIG Global Investment Corp., 599 Lexington Avenue, 25th Floor, New York, NY 10022.

(18) Includes (i) 378,569 shares of common stock and 3,250 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by EuclidSR Partners, L.P. and (ii) 378,569 shares of common stock and 3,250 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by EuclidSR Biotechnology Partners, L.P. The address for the entities affiliated with EuclidSR Partners, L.P. is c/o EuclidSR Partners, 45 Rockefeller Plaza, Suite 3240, New York, NY 10111.

(19) Includes (i) 421,461 shares of common stock and 6,500 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by Forward Ventures IV, L.P., and (ii) 35,729 shares of common stock held by Forward Ventures IV, B, L.P. Forward Ventures IV Associates, LLC is the general partner of Forward Ventures IV, L.P. and Forward Ventures IV, B, L.P. Voting and investment power over these shares is shared by the managing members of Forward Venture Associates, including Dr. Ivor Royston. The address for the entities affiliated with Forward Ventures IV Associates, LLC is c/o Forward Ventures, 9393 Towne Centre Drive, Suite 200, San Diego, CA 92121.

(20) Includes (i) 785,991 shares of common stock and 5,526 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by GIMV N.V., and (ii) 105,616 shares of common stock and 976 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by Adviesbeheer GIMV Life Sciences N.V. GIMV N.V. exercises voting and investment power over these shares through the members of its investment committee. The address for GIMV N.V. is Karel Oomsstraat 37, B-2018, Antwerp, Belgium.

(21) Includes (i) 673,261 shares of common stock and 10,500 shares of common stock underlying options currently exercisable or exercisable within 60 days of March 15, 2006 held by Oxford Bioscience Partners III, L.P., (ii) 95,954 shares of common stock held by Oxford Bioscience Partners (Bermuda) III L.P., (iii) 63,965 shares of common stock held by Oxford Bioscience Partners (Adjunct) III L.P., and (iv) 7,960 shares of common stock held by mRNA Fund L.P. OBP Management III L.P. is the general partner of Oxford Bioscience Partners III, L.P. and Oxford Bioscience Partners (Adjunct) III L.P. OBP Management (Bermuda) III Limited Partnership is the general partner of Oxford Bioscience Partners (Bermuda) III L.P., and mRNA Partners L.P. is the general partner of mRNA Fund L.P. Voting and investment power over these shares is shared by the respective general partners of OBP Management III L.P., OBP Management (Bermuda) III Limited Partnership and mRNA Partners L.P., including Dr. Alan G. Walton. The address for the entities affiliated with OBP Management III, L.P. is c/o Oxford Bioscience Partners, 315 Post Road West, Westport, CT 06880.

(22) Includes 734,616 held by Capital Technologies CDPQ Inc. (formerly known as Sofinov Société Financière D'Innovation). Capital Technologies CDPQ Inc. is a subsidiary of Caisse de dépôt et placement du Québec, a legal person without share capital created by a special act of the Legislature of the Province de Québec. The address for Capital Technologies CDPQ Inc. is 1000 Place Jean-Paul-RioPelle, Montreal Quebec HQ2 2B3.

Equity Compensation Plan Information

The following table sets forth information about securities available for issuance under our equity compensation plans as of December 31, 2005:

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted- Average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)
Equity compensation plans approved by security holders(1)	1,656,548	$7.49	277,351
Equity compensation plans not approved by security holders	0	N/A	0
Total	1,656,548	$7.49	277,351

(1) Consists of shares of common stock to be issued upon exercise of outstanding options granted under our Amended and Restated 1999 Stock Plan and our 2005 Omnibus Long-Term Incentive Plan. Of these plans, the only plan under which options may be granted in the future is the 2005 Omnibus Long-Term Incentive Plan.

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

Conversion of Preferred Stock

Simultaneously with the closing of our initial public offering on October 4, 2005, our Series A preferred stock and Series B preferred stock converted into 4,747,188 shares of our common stock. Of these 4,747,188 shares, an aggregate of 2,979,650 shares were issued to the following beneficial owners of more than five percent of our voting securities and one of our directors:

Name	Number of Shares of Common Stock Issued Upon Conversion of Preferred Stock
Entities affiliated with AIG Global Investment Corp.	437,500
Entities affiliated with Euclid SR Partners, L.P.(1)	500,000
Entities affiliated with Forward Ventures IV Associates, LLC(2)	406,250
Entities affiliated with GIMV N.V.(3)	628,172
Entities affiliated with OBP Management, III L.P.(4)	503,318
Capital Technologies CDPQ, Inc.	500,000
Bradley G. Lorimier (director)	4,410
Total	2,979,650

(1) Dr. Raymond J. Whitaker, a member of our board of directors, is a general partner of EuclidSR Partners, L.P.

(2) Dr. Ivor Royston, a member of our board of directors, is a managing member of Forward Ventures IV Associates, LLC.

(3) Patrick Van Beneden, a member of our board of directors, is Executive Vice President Life Sciences of GIMV N.V.

(4) Dr. Alan G. Walton, a member of our board of directors, is a general partner of OBP Management III, L.P.

Unsecured Financing

In April 2005, we completed a financing in which we issued approximately $5.0 million in principal amount of convertible notes. The convertible notes bore interest at the rate of 8% per annum and simultaneously with the closing of our initial public offering on October 4, 2005, converted into 504,152 shares of our common stock.

Convertible notes in the aggregate principal amount of approximately $3.5 million were sold to the following beneficial owners of more than five percent of our voting securities and one of our directors:

Name	Principal Amount of Convertible Notes	Number of Shares of Common Stock Issued upon Conversion of Convertible Notes
Entities affiliated with AIG Global Investment Corp.	$ 463,192	46,182
Entities affiliated with EuclidSR Partners, L.P.(1)	529,362	53,237
Entities affiliated with Forward Ventures IV Associates, LLC(2)	505,918	50,940
Entities affiliated with GIMV N.V.(3)	816,683	82,036
Entities affiliated with OBP Management III, L.P.(4)	684,497	68,921
Capital Technologies CDPQ Inc.	529,362	53,216
Bradley G. Lorimier (director)	4,668	470
Total	$3,533,676	355,002

(1) Dr. Raymond J. Whitaker, a member of our board of directors, is a general partner of EuclidSR Partners, L.P.

(2) Dr. Ivor Royston, a member of our board of directors, is a managing member of Forward Ventures IV Associates, LLC.

(3) Patrick Van Beneden, a member of our board of directors, is Executive Vice President Life Sciences of GIMV N.V.

(4) Dr. Alan G. Walton, a member of our board of directors, is a general partner of OBP Management III, L.P.

Line of Credit Facility

In September and August 2005, we received commitments from certain of our existing investors under a line of credit facility, including the following beneficial owners of more than five percent of our voting securities and one of our directors, to provide up to $6.5 million to us to support our operations. Pursuant to the facility, we were permitted to draw advances from time to time with the unanimous authorization of our board of directors prior to the closing of our initial public offering. No advances were drawn under the line of credit facility and the facility was terminated in connection with our initial public offering on October 4, 2005.

Name	Line of Credit Commitment
Entities affiliated with AIG Global Investment Corp.	$ 516,458
Entities affiliated with EuclidSR Partners, L.P.(1)	590,400
Entities affiliated with Forward Ventures IV Associates, LLC(2)	639,423
Entities affiliated with GIMV N.V.(3)	988,719
Entities affiliated with OBP Management III, L.P.(4)	750,000
Capital Technologies CDPQ Inc.	590,600
Bradley G. Lorimier (director)	6,940
Total	$4,082,540

(1) Dr. Raymond J. Whitaker, a member of our board of directors, is a general partner of EuclidSR Partners, L.P.

(2) Dr. Ivor Royston, a member of our board of directors, is a managing member of Forward Ventures IV Associates, LLC.

(3) Patrick Van Beneden, a member of our board of directors, is Executive Vice President Life Sciences of GIMV N.V.

(4) Dr. Alan G. Walton, a member of our board of directors, is a general partner of OBP Management III, L.P.

Participation in Initial Public Offering

The following beneficial owners of more than five percent of our voting securities purchased a total of 1,048,000 shares of our common stock in our initial public offering at the public offering price of $10.50 per share.

Name	Number of Shares of Common Stock Purchased in Initial Public Offering
Entities affiliated with AIG Global Investment Corp.	163,900
Entities affiliated with EuclidSR Partners, L.P.(1)	203,900
Entities affiliated with Forward Ventures IV Associates, LLC(2)	136,000
Entities affiliated with GIMV N.V.(3)	181,400
Entities affiliated with OBP Management III, L.P.(4)	181,400
Capital Technologies CDPQ Inc.	181,400
Total	1,048,000

(1) Dr. Raymond J. Whitaker, a member of our board of directors, is a general partner of EuclidSR Partners.

(2) Dr. Ivor Royston, a member of our board of directors, is a managing member of Forward Ventures Associates, LLC.

(3) Patrick Van Beneden, a member of our board of directors, is Executive Vice President Life Sciences of GIMV N.V.

(4) Dr. Alan G. Walton, a member of our board of directors, is a general partner of OBP Management III, L.P.

Registration Rights

As of March 15, 2006, the holders of 6,961,269 shares of our common stock have rights to require us to file registration statements under the Securities Act of 1933 or to include their shares in registration statements that we may file in the future for ourselves or other stockholders. Additionally, two holders of warrants to purchase a total of 33,125 shares of our common stock also will be entitled to include shares issued upon the exercise of these warrants in registration statements that we may file in the future. Persons having registration rights include the following beneficial owners of more than five percent of our voting securities and one of our directors:

Name	Number of Shares
Entities affiliated with AIG Global Investment Corp.	647,582
Entities affiliated with EuclidSR Partners, L.P.(1)	757,137
Entities affiliated with Forward Ventures IV Associates, LLC(2)	593,190
Entities affiliated with GIMV N.V.(3)	891,607
Entities affiliated with OBP Management III, L.P.(4)	841,139
Capital Technologies CDPQ Inc.	734,616
Entities affiliated with Biotechnology Value Fund, L.P.	866,666
Bradley G. Lorimier (director)	8,880
Total	5,340,818

(1) Dr. Raymond J. Whitaker, a member of our board of directors, is a general partner of EuclidSR Partners.

(2) Dr. Ivor Royston, a member of our board of directors, is a managing member of Forward Ventures Associates, LLC.

(3) Patrick Van Beneden, a member of our board of directors, is Executive Vice President Life Sciences of GIMV N.V.

(4) Dr. Alan G. Walton, a member of our board of directors, is a general partner of OBP Management III, L.P.

Consulting Agreements

Two of our directors receive compensation under consulting agreements with us. Under our consulting agreement with Mr. Lorimier, Mr. Lorimier receives compensation in the amount of $10,000 per month for services rendered to us in support of our business development efforts and received a grant of options to acquire 6,875 shares of our common stock. Mr. Lorimier's consulting agreement continues until December 31, 2006, subject to earlier termination upon 90 days prior notice by either us or Mr. Lorimier to the other party to the consulting agreement. Mr. Lorimier received $120,000 in each of 2003, 2004 and 2005 under this agreement.

In addition, Dr. Kurman is a party to a consulting agreement with us pursuant to which he is paid for services rendered in support of our scientific research. Dr. Kurman's consulting agreement renews for successive 1 year periods on January 1st of each year, subject to earlier termination upon seven days prior notice by either us or Dr. Kurman to the other party to the consulting agreement. Dr. Kurman received $3,273 and $12,300 in 2004 and 2005, respectively under his consulting agreement. Additionally, Dr. Kurman received a grant of options to acquire 625 shares of our common stock under his consulting agreement.

Other Relationships

Dr. Carter is a director and minority shareholder in NeoDiagnostix, a privately held company focused on providing oncology diagnostic testing on a fee-for-service basis. On December 1, 2005, Avalon entered into a contract to lease certain unused equipment to NeoDiagnostix for a six-month period following disclosure to our board of Dr. Carter's relationship with NeoDiagnostix and approval of the transaction by independent members of our board of directors.

Employment Agreements and Indemnification Agreements

Each of our executive officers is a party to an employment agreement with us. See Item 11. "Executive Compensation — Employment Agreements." In addition, we have entered into separate indemnification agreements with our directors and executive officers in addition to the indemnification provided for in our amended and restated certificate of incorporation and in our amended and restated bylaws.

ITEM 14. *PRINCIPAL ACCOUNTANT FEES AND SERVICES*

Ernst & Young, LLP has been our independent registered public accounting firm since our inception in 1999. Our audit committee has considered whether the provision of non-audit services is compatible with maintaining Ernst & Young, LLP's independence.

The following table shows the fees that were billed to Avalon by Ernst & Young, LLP for professional services rendered for the fiscal years ended December 31, 2005 and December 31, 2004.

Fee Category	2005	2004
Audit Fees	$453,952	$66,900
Audit-Related Fees	—	—
Tax Fees	11,235	6,800
All Other Fees	—	—
Total Fees	$465,187	$73,700

Audit Fees

This category includes fees for the audit of our annual financial statements, review of financial statements included in our quarterly reports on Form 10-Q and services that are normally provided by Ernst & Young, LLP in connection with statutory and regulatory filings or engagements. Also included in audit fees are fees in connection with the audit of our internal control over financial reporting in connection with the Sarbanes-Oxley Act of 2002, review of a registration statement on Forms S-8, review of our initial public offering, issuance of comfort letters and assistance with accounting guidelines on completed transactions.

Audit-Related Fees

We did not pay any other audit-related fees to Ernst & Young, LLP in connection with their services in 2005 and 2004.

Tax Fees

This category includes fees for tax compliance services.

All Other Fees

We did not pay any other fees to Ernst & Young, LLP in connection with their services in 2005 and 2004.

Pre-Approval of Services

Our audit committee has established the following procedures, consistent with its charter, regarding the engagement of Avalon's independent auditor to perform services for Avalon:

For audit services (including statutory audit engagements as required under local country laws), the independent auditor provides the audit committee with an engagement letter during the first fiscal quarter of each year outlining the scope of the audit services proposed to be performed during the fiscal year. If agreed to by the audit committee, this engagement letter is formally accepted by the audit committee at its audit committee meeting. The independent auditor must submit to the audit committee for approval an audit services fee proposal after acceptance of the engagement letter.

For non-audit services, our senior management submits from time to time to the audit committee for approval non-audit services that it recommends the audit committee engage the independent auditor to provide for the fiscal year. Our senior management and the independent auditor each confirm to the audit committee that each non-audit service is permissible under all applicable legal requirements. In addition to the list of planned non-audit services submitted to the audit committee, a budget estimating non-audit service spending for the fiscal year is provided to the audit committee. The audit committee approves both the list of permissible non-audit services and the budget for such services. The audit committee must be informed routinely as to the non-audit services actually provided by the independent auditor pursuant to this pre-approval process.

To ensure prompt handling of unexpected matters, the audit committee has delegated to the Chairman of the audit committee the authority to amend or modify the list of approved permissible non-audit services and fees. The Chairman must report action taken to the audit committee at the next committee meeting.

The independent auditor must ensure that all audit and non-audit services provided to Avalon have been approved by the audit committee. The Chief Financial Officer is responsible for tracking all independent auditor fees against the budget for such services and for reporting on such fees at least annually to the audit committee.

PART IV

ITEM 15. *EXHIBITS AND FINANCIAL STATEMENT SCHEDULES*

(a)(1) Financial Statements — See Item 8.

(a)(2) Financial Statement Schedules — All financial statement schedules are omitted because they are not applicable, not required under the instructions or all the information required is set forth in the financial statements or notes thereto.

(a)(3) and (b) Exhibits — See accompanying Index to Exhibits.

(c) Financial Statement Schedules and Other Financial Statements.

Not applicable.

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.

AVALON PHARMACEUTICALS, INC.

By: /s/ KENNETH C. CARTER, PH.D.
Kenneth C. Carter, Ph.D.
President and Chief Executive Officer

Dated: March 31, 2006

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

Signature	Title	Date
/s/ KENNETH C. CARTER, PH.D. Kenneth C. Carter, Ph.D.	President, Chief Executive Officer and Director *(Principal Executive Officer)*	March 31, 2006
/s/ GARY LESSING Gary Lessing	Chief Financial Officer *(Principal Financial and Accounting Officer)*	March 31, 2006
/s/ MICHAEL R. KURMAN, M.D. Michael R. Kurman, M.D.	Director	March 31, 2006
/s/ BRADLEY G. LORIMIER Bradley G. Lorimier	Director	March 31, 2006
/s/ IVOR ROYSTON, M.D. Ivor Royston, M.D.	Director	March 31, 2006
/s/ WILLIAM A. SCOTT, PH.D. William A. Scott, Ph.D.	Director	March 31, 2006
/s/ PATRICK VAN BENEDEN Patrick Van Beneden	Director	March 31, 2006
/s/ ALAN G. WALTON, PH.D., D.SC Alan G. Walton, Ph.D., D.Sc.	Chairman of the Board of Directors	March 31, 2006
/s/ WILLIAM H. WASHECKA William H. Washecka	Director	March 31, 2006
/s/ RAYMOND J. WHITAKER, MBA, PH.D. Raymond J. Whitaker, MBA, Ph.D.	Director	March 31, 2006

INDEX TO EXHIBITS

Exhibit Number	Exhibit Title
3.1(1)	Amended and Restated Certificate of Incorporation of Avalon Pharmaceuticals, Inc., as amended
3.2(1)	Amended and Restated Bylaws
4.1(1)	Specimen Common Stock Certificate
10.1**(1)	License Development and Commercialization Agreement, dated February 14, 2005, between Avalon Pharmaceuticals, Inc. and Vertex Pharmaceuticals Incorporated
10.2**(1)	Collaboration Agreement, effective as of October 15, 2003, between Avalon Pharmaceuticals, Inc. and Medarex, Inc. on behalf of itself and its wholly-owned subsidiary, GenPharm International, Inc.
10.3**(1)	Collaboration and License Agreement, dated June 17, 2005, between Avalon Pharmaceuticals, Inc. and MedImmune, Inc.
10.4**(1)	Pilot Study Agreement, dated September 9, 2005, between Avalon Pharmaceuticals, Inc. and Novartis Institutes for Biomedical Research, Inc.
10.5(1)†	Amended and Restated Employment Agreement, dated April 21, 2005 by and between Avalon Pharmaceuticals, Inc. and Kenneth C. Carter, Ph.D.
10.6(1)†	Amended and Restated Employment Agreement, dated April 21, 2005 by and between Avalon Pharmaceuticals, Inc. and Thomas G. David
10.7(1)†	Amended and Restated Employment Agreement, dated April 21, 2005 by and between Avalon Pharmaceuticals, Inc. and Gary Lessing
10.8(1)†	Amended and Restated Employment Agreement, dated April 21, 2005 by and between Avalon Pharmaceuticals, Inc. and James H. Meade, Ph.D.
10.9(1)†	Amended and Restated Employment Agreement, dated April 21, 2005 by and between Avalon Pharmaceuticals, Inc. and David Bol, Ph.D.
10.10A(1)†	Consulting Agreement, dated February 1, 2000, by and between Avalon Pharmaceuticals, Inc. and Bradley G. Lorimier
10.10B(1)†	Addendum to Consulting Agreement
10.10C(1)†	Second Addendum to Consulting Agreement, dated March 30, 2003
10.10D(1)†	Third Addendum to Consulting Agreement, dated October 25, 2004
10.10E†	Fourth Addendum to Consulting Agreement, dated January 6, 2006
10.12A(1)†	Consulting Agreement, dated August 4, 2004, by and between Avalon Pharmaceuticals, Inc. and Michael R. Kurman
10.13B(1)†	Amendment to Consulting Agreement, dated January 31, 2006
10.14(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan, as of October 15, 2001, as amended
10.15(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — Form of Non-qualified Stock Option Agreement — $.20 per share
10.16(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — Form of Non-qualified Stock Option Agreement — $.40 per share
10.17(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — Form of Incentive Stock Option Agreement — $.20 per share
10.18(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — Form of Incentive Stock Option Agreement — $.40 per share
10.19A(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — First Amendment to Form of Incentive Stock Option Agreement
10.19B(1)†	Avalon Pharmaceuticals, Inc. Amended and Restated 1999 Stock Plan — Second Amendment to Form of Incentive Stock Option Agreement
10.20(2)†	Avalon Pharmaceuticals, Inc. 2005 Omnibus Long-Term Incentive Plan — Form of Incentive Stock Option Agreement
10.21(2)†	Avalon Pharmaceuticals, Inc. 2005 Omnibus Long-Term Incentive Plan — Form of Nonqualified Stock Option Agreement
10.22(3)†	Stock Election Policy for Non-Employee Director Fees

Exhibit Number	Exhibit Title
10.23(1)†	Avalon Pharmaceuticals, Inc. 2005 Omnibus Long-Term Incentive Plan.
10.24(1)†	Form of Avalon Pharmaceuticals, Inc. Director and Officer Indemnification Agreement.
10.23(1)†	Avalon Pharmaceuticals, Inc. 2005 Omnibus Long-Term Incentive Plan.
10.24(1)†	Form of Avalon Pharmaceuticals, Inc. Director and Officer Indemnification Agreement.
10.25*(4)	Purchase Agreement, dated February 27, 2006.
10.26(4)	Registration Rights Agreement, dated February 27, 2006.
10.27(1)	Registration Rights Agreement, dated October 26, 2001, by and between Avalon Pharmaceuticals, Inc. and the Investors listed on Schedule I thereto
10.28(1)	Common Stock Warrant Agreement, dated August 11, 2000, by and between Avalon Pharmaceuticals, Inc. and Alexandria Real Estate Equities, L.P.
10.29(1)	Common Stock Warrant Agreement, dated March 23, 2001, by and between Avalon Pharmaceuticals, Inc. and Compugen, Ltd.
10.30(1)	Series B Convertible Preferred Stock Warrant, dated February 6, 2002, granted to Array Capital LLC
10.31A(1)	Series B Convertible Preferred Stock Warrant, dated May 14, 2001, granted to GATX Ventures, Inc.
10.31B(1)	Letter Amendment to Series B Convertible Preferred Stock Warrant, dated October 11, 2001, by and between Avalon Pharmaceuticals, Inc. and GATX Ventures, Inc.
10.32(1)	Series B Convertible Preferred Stock Warrant Agreement, dated August 20, 2002, by and between Avalon Pharmaceuticals, Inc. and General Electric Capital Corporation
10.33(1)	Series B Convertible Preferred Stock Warrant Agreement, dated December 23, 2002, by and between Avalon Pharmaceuticals, Inc. and General Electric Capital Corporation
10.34(1)	Series B Convertible Preferred Stock Warrant Agreement, dated June 18, 2003, by and between Avalon Pharmaceuticals, Inc. and General Electric Capital Corporation
10.35(1)	Series B Convertible Preferred Stock Warrant Agreement, dated December 23, 2003, by and between Avalon Pharmaceuticals, Inc. and General Electric Capital Corporation
10.36A(1)	Master Security Agreement, dated as of June 25, 2002, by and between General Electric Capital Corporation and Avalon Pharmaceuticals, Inc.
10.36B(1)	Amendment to Master Security Agreement dated as of June 25, 2002
10.37(1)	Lease Agreement, dated July 15, 2002, by and between Westphalia Center II Limited Partnership and Avalon Pharmaceuticals, Inc.
10.38(1)	Trust Indenture, dated April 1, 2003, by and between the Maryland Industrial Development Financing Authority and Allfirst Trust Company National Association, as trustee (including form of Maryland Industrial Development Financing Authority Taxable Variable Rate Demand Revenue Bond (Avalon Pharmaceuticals, Inc. Facility) Series 2003)
10.39(1)	Loan Agreement, dated April 1, 2003, by and between Maryland Industrial Development Financing Authority and Avalon Pharmaceuticals, Inc.
10.40A(1)	Letter of Credit Agreement, dated April 1, 2003, by and between Avalon Pharmaceuticals, Inc. and Manufacturers and Traders Trust Company
10.40B(1)	Amendment to Irrevocable Letter of Credit, dated April 1, 2004
10.40C(1)	Amended and Restored Modification and Consent Agreement by and between Manufactures and Traders Trust Company, Maryland Industrial Development Financing Authority and Avalon Pharmaceuticals, Inc., dated February 15, 2005
10.40D(1)	Second Modification Agreement by and between Manufacturers and Traders Trust Company, Maryland Industrial Development Financing Authority and Avalon Pharmaceuticals, Inc., dated August 9, 2005.
10.41(1)	Security Agreement, dated April 1, 2003, by and between Avalon Pharmaceuticals, Inc. and Manufacturers and Traders Trust Company
10.42(1)	Collateral Pledge and Security Agreement and Control Agreement, dated April 1, 2003, by and between Avalon Pharmaceuticals, Inc. and Manufacturers, Traders Trust Company and Allfirst Trust Company National Association

Exhibit Number	Exhibit Title
10.43(1)	Insurance Agreement, dated April 1, 2003, by and between Maryland Industrial Development Financing Authority, Manufacturers and Traders Trust Company and Avalon Pharmaceuticals, Inc.
10.44(1)	Placement and Remarketing Agreement, dated April 1, 2003, by and between Maryland Industrial Development Financing Authority, Avalon Pharmaceuticals, Inc. and Manufacturers and Traders Trust Company
10.45(1)	Pledge and Security Agreement, dated April 1, 2003, by and between Avalon Pharmaceuticals, Inc. and Manufacturers and Traders Trust Company
21.1	List of Subsidiaries
23.1	Consent of Ernst & Young LLP
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

* Confidential treatment has been requested for portions of this exhibit. These confidential portions have been omitted and were filed separately with the SEC.

** Confidential treatment has been granted for portions of this exhibit. These confidential portions have been omitted and were filed separately with the SEC.

† Denotes management contract or compensatory plan or arrangement.

(1) Incorporated by reference to our Registration Statement on Form S-1 (File No. 333-124565).

(2) Incorporated by reference to our Current Report on Form 8-K filed on November 1, 2005.

(3) Incorporated by reference to our Current Report on Form 8-K filed on December 5, 2006.

(4) Incorporated by reference to our Current Report on Form 8-K filed on March 3, 2006.

INNOVATION. DISCOVERY. MEDICINE.

Board of Directors

Alan G. Walton, Ph.D., D.Sc.
General Partner Oxford Bioscience Partners
Chairman of the Board of Directors for Avalon

Patrick Van Beneden
Vice-President, GIMV

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Michael Kurman Consulting

Bradley G. Lorimier
Consultant

Ivor Royston, M.D.
Managing Member, Forward Ventures

William A. Scott, Ph.D.
Consultant

Raymond J. Whitaker, MBA, Ph.D.
General Partner, Euclid SR Partners L.P.

William H. Washecka
Chief Financial Officer, Prestwick Pharmaceuticals

Kenneth C. Carter, Ph.D.
President & CEO of Avalon Pharmaceuticals

Management

Kenneth C. Carter, Ph.D.
President & CEO

Thomas G. David, J.D.
General Counsel & Senior Vice-President of Operations

Gary Lessing
Chief Financial Officer

James H. Meade, Ph.D.
Vice-President of Business Development

Paul E. Young, Ph.D.
Vice-President of Technology

David K. Bol, Ph.D.
Vice President, Pharmaceutical Development

Corporate Information

Corporate Headquarters

Avalon Pharmaceuticals
20358 Seneca Meadows Parkway
Germantown, MD 20876
Phone: 301-556-9900

Listing

Nasdaq and ArcaEx®
Symbol "AVRX"

Annual Stockholders' Meeting

Friday, June 9, 2006, 9:30 AM
Avalon Pharmaceuticals
20358 Seneca Meadows Parkway
Germantown, MD 20876

Legal Counsel

Hogan & Hartson

Transfer Agent

American Stock Transfer & Trust Company

Independent Certified Public Accountants

Ernst & Young LLP

20358 Seneca Meadows Parkway
Germantown, MD 20876
Phone: 301-556-9900