NEOSE TECHNOLOGIES INC
Form 10-K
March 11, 2005

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

FORM 10-K

(Mark One)

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934**
for the fiscal year ended December 31, 2004

or

o **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 0-27718

NEOSE TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**13-3549286**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
102 Witmer Road **Horsham, Pennsylvania**	**19044**
(Address of principal executive offices)	**(Zip Code)**

Registrant s telephone number, including area code: (215) 315-9000

Securities registered pursuant to Section 12(b) of the Act:

None	**None**
(Title of each class)	**(Name of each exchange on which registered)**

Securities registered pursuant to Section 12(g) of the Act:

Preferred Share Purchase Rights

(Title of class)

Common Stock, par value $0.01 per share

(Title of class)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes x No o

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

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act).

Yes x No o

As of June 30, 2004, the aggregate market value of the Common Stock held by non-affiliates of the registrant was approximately $116,178,968 based on the last sale price of the Common Stock on such date as reported by The NASDAQ National Market. This calculation excludes 10,754,858 shares held on June 30, 2004 by directors, executive officers, and two holders of more than 10% of the registrant s Common Stock.

As of March 10, 2005, there were 32,782,372 shares of the registrant s Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant s definitive proxy statement to be filed in connection with solicitation of proxies for its Annual Meeting of Stockholders to be held on May 3, 2005, is incorporated by reference into Part III of this Annual Report on Form 10-K.

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NEOSE, GlycoAdvance, GlycoPEGylation and GlycoConjugation are trademarks of Neose Technologies, Inc. This Annual Report on Form 10-K also includes trademarks and trade names of other companies.

PART I

ITEM 1. BUSINESS.

Overview

We are a biopharmaceutical company using our enzymatic technologies to develop proprietary drugs, focusing primarily on therapeutic proteins. We believe that our core enzymatic technologies, GlycoAdvance and GlycoPEGylation, improve the drug properties of therapeutic proteins by building out, and attaching polyethylene glycol (PEG) to, carbohydrate structures on the proteins. We are using our technologies to develop proprietary versions of protein drugs with proven safety and efficacy and to improve the therapeutic profiles of proteins being developed by our partners. We expect these modified proteins to offer significant advantages, including less frequent dosing and possibly improved efficacy, over the original versions of the drugs now on the market, as well as to meet or exceed the pharmacokinetic profile of next-generation versions of the drugs now on the market. We believe this strategy of targeting drugs with proven safety and efficacy allows us to lower the risk profile of our proprietary development portfolio as compared to *de novo* protein drug development.

Our proprietary drug development portfolio currently consists of two therapeutic protein candidates. GlycoPEG-EPO (NE-180) is a long-acting version of erythropoietin (EPO) produced in insect cells. EPO is prescribed to stimulate production of red blood cells, and is approved for sale in major markets around the world for treatment of chemotherapy-induced anemia and anemia associated with chronic renal failure. During the second quarter of 2005, we plan to have a pre-Investigational New Drug application (IND) meeting with the U.S. Food and Drug Administration (FDA) and submit an IND to the FDA for NE-180. Our second proprietary protein, GlycoPEG-GCSF, is a long-acting version of granulocyte colony stimulating factor (G-CSF) that we are co-developing with BioGeneriX AG, a company of the ratiopharm Group. G-CSF is prescribed to stimulate production of neutrophils (a type of white blood cell) and is approved for sale in major markets around the world for treatment of neutropenia associated with myelosuppressive chemotherapy. Prior to the end of 2005, in collaboration with our partner, BioGeneriX, we plan to request scientific advice from regulatory authorities in the European Union (EU) and submit the equivalent of an IND in an EU country for GlycoPEG-GCSF. In 2003, the EPO and G-CSF drug categories had aggregate worldwide sales of approximately $9.7 billion and $3.0 billion, respectively.

Opportunities in the Protein Market

Worldwide sales of protein drugs in 2003 have been reported at approximately $40 billion, and by some estimates are expected to grow to over $70 billion by 2008. We believe that many of the proteins now on the market will lose the protection of certain patent claims over the next 15 years. In addition, many marketed proteins are facing increased competition from next-generation versions or from other drugs approved for the same disease indications. Although not every protein drug is a candidate for the use of our technologies, we believe our technologies can be applied to many of these marketed drugs to create products with improved clinical profiles. We are pursuing opportunities in this field through our own proprietary drug development portfolio, our exploratory research program and our partnering and licensing program.

Our Technology

Our GlycoAdvance and GlycoPEGylation technologies involve the use of enzymes to modify or initiate, and attach PEG to, carbohydrate structures on glycoproteins (proteins with carbohydrate structures attached). We have developed a special expertise and extensive intellectual property position in this area. Our technologies may permit the development of therapeutic proteins with improved clinical profiles. In some cases, these improvements to therapeutic proteins may also allow us to create new intellectual property relating to our core technologies as well as new compositions of matter. We continue to make significant investments in research and development and legal services to protect and expand our intellectual property position. We believe our core technologies have broad application to protein drug development and can be extended to provide an opportunity for sustainable growth. We are using our GlycoAdvance and GlycoPEGylation technologies in our proprietary drug development portfolio, in our exploratory research program and in our partnering and licensing program.

GlycoAdvance. Our GlycoAdvance technology employs enzymes to modify or initiate carbohydrate structures on proteins. Currently, recombinant glycoprotein drugs are often produced in mammalian cell culture expression systems, primarily Chinese hamster ovary (CHO) cells. Generally, carbohydrates are added to proteins during the process of expression. CHO cells, and many other expression systems used for commercial manufacturing of proteins, tend to produce protein molecules with incomplete or inconsistent carbohydrate structures. In the human body, these incompletely glycosylated proteins may be cleared too rapidly and thus compromise the half-life and effectiveness of these proteins. Conventional approaches to improving the glycosylation of recombinant protein drugs, such as changing the cell line used for expression, re-engineering the protein, and modifying cell culture conditions or media, are time consuming and frequently provide only partial solutions. In addition, when a protein is inconsistently glycosylated, additional purification may be required to remove incompletely glycosylated drug molecules from the desired drug product, resulting in lower manufacturing yields and increased expense.

Our GlycoAdvance technology addresses these problems by employing enzymes to modify the carbohydrate structures on proteins that have inadequate carbohydrate structures and to initiate carbohydrate structures on proteins that have none. Proteins may have inadequate carbohydrate structures as a result of the cell expression systems used, or may have no carbohydrate structures in their native state or as a result of the cell expression system used. Our GlycoAdvance technology enables the use of multiple expression systems to produce protein drugs, including not only CHO and E. coli, but also insect cells. By modifying or initiating carbohydrate structures on proteins, GlycoAdvance also enables the application of our GlycoPEGylation technology to these proteins.

GlycoPEGylation. Our GlycoPEGylation technology employs enzymes to attach PEG selectively to the carbohydrate structures on glycoprotein drugs, rather than attaching PEG directly to the protein backbone.

Common protein drug delivery problems include poor solubility and stability, proteolysis (rapid degradation), rapid clearance, and immunogenicity. For some proteins, one approach to these problems has been conventional chemical pegylation -- the attachment of the large, water-soluble polymer, PEG, directly to the amino acid backbone of the protein. Pegylation has been used in marketed drugs, such as PEG-INTRON®, PEGASYS® and Neulasta®. Pegylation increases the effective size of the drug and in some cases improves its solubility, stability, half-life and immunogenicity profile.

For some protein drugs, it has been difficult to achieve the benefits of pegylation by the conventional approach of attaching PEG directly to the protein backbone. A possible explanation is that the sites for the attachment of PEG occur at positions where the bulky PEG molecules block access to the active site on the protein or alter the conformation of the protein. This may diminish or eliminate drug activity.

By employing GlycoAdvance and GlycoPEGylation, we are able to attach PEG efficiently and selectively. By linking PEG to carbohydrate structures that are remote from the protein s active site, GlycoPEGylation may preserve the bioactivity of the drug and extend its half-life. We believe that significant clinical benefits may be achieved through the application of our GlycoPEGylation technology to proteins. By using our GlycoPEGylation technology, we have been able to demonstrate with several drug candidates a prolonged drug effect in animals.

Proprietary Drug Development Portfolio

Our proprietary drug development portfolio currently consists of two next-generation therapeutic protein candidates: a long-acting version of EPO (NE-180) and a long-acting version of G-CSF (GlycoPEG-GCSF).

NE-180. We are developing NE-180, a long-acting version of EPO that is produced in insect cells. We expect to complete various preclinical activities for NE-180, including having a pre-IND meeting with the FDA and submitting an IND to the FDA, during the second quarter of 2005. Our goal is to initiate clinical trials during the third quarter of 2005. We expect that data from these trials will be included in data submitted to the appropriate government agencies for regulatory approval.

EPO is prescribed to stimulate production of red blood cells, and is approved for sale in major markets around the world for the treatment of chemotherapy-induced anemia and anemia associated with chronic renal failure. EPO accounts for more sales worldwide than any other glycoprotein drug. Worldwide sales in the EPO category in 2003 were approximately $9.7 billion. Of these sales, approximately $6.2 billion were in the U.S., approximately $2.7 billion were in Europe, and approximately $0.8 billion were in Japan.

Based on early preclinical studies, we believe it is feasible to develop a long-acting EPO through GlycoPEGylation. These studies suggest that the pharmacokinetic profile of EPO can be adjusted by manipulating the number of carbohydrate attachment sites and the molecular weight of the PEG that we attach to the compound. In these early animal studies, multiple constructs of GlycoPEGylated EPO, including NE-180, had improved pharmacokinetic and pharmacodynamic profiles as compared with unmodified EPO, and pharmacokinetic and pharmacodynamic profiles comparable to Aranesp®, Amgen s long-acting EPO analog. Based on our preliminary market research, we believe that clinicians, particularly oncologists, would respond favorably to a long-acting EPO. This is supported by reported sales data for Aranesp, indicating cumulative sales of approximately $4.5 billion during the period from its launch in 2001 through the fourth quarter of 2004.

We believe that the expiration of key patents covering EPO will provide commercial opportunities in time frames consistent with our development timeline. While we expect to pursue early entry opportunities in the U.S., we plan to pursue regulatory and marketing approval first in Europe, where we believe the key blocking patents expire sooner. We believe that the key patents in Europe and Japan will expire by the end of 2005.

In the U.S., we believe that the key patents surrounding EPO will expire by the end of 2015. However, many of the applicable patent claims in the U.S. apply to EPO expressed in vertebrate or mammalian cells, and we believe that our use of an insect cell expression system may allow us to enter the U.S. market prior to the expiration of these patents. Some of the issues relevant to the analysis of our freedom to operate in the U.S. are the subject of ongoing litigation between other parties. We continue to monitor these matters, as well as evaluate whether the applicable patent claims would block our entry into the U.S. market prior to expiration. In the meantime, we expect to continue development in the U.S. of NE-180 under the protection of a statutory safe harbor.

GlycoPEG-GCSF. We are developing GlycoPEG-GCSF, a long-acting version of G-CSF, in collaboration with our partner BioGeneriX. We and BioGeneriX plan to complete preclinical development activities for GlycoPEG-GCSF prior to the end of 2005, including requesting scientific advice from regulatory authorities in the EU and submitting the equivalent of an IND in an EU country. G-CSF is prescribed to stimulate production of neutrophils (a type of white blood cell), and is approved for sale in major markets around the world for treatment of neutropenia associated with myelosuppressive chemotherapy. Worldwide sales in the G-CSF category in 2003 were approximately $3.0 billion. Of these sales, approximately $2.0 billion were in the U.S., approximately $0.6 billion were in Europe, and approximately $0.4 billion were in Japan.

Based on proof-of-concept data and preclinical development activities, we believe it is feasible to develop a long-acting G-CSF through GlycoPEGylation. These studies suggest that the pharmacokinetic profile of G-CSF can be adjusted by manipulating the number of carbohydrate attachment sites and the molecular weight of the PEG that we attach to the compound. In these early animal studies, multiple constructs of GlycoPEGylated G-CSF, including GlycoPEG-GCSF, had improved pharmacokinetic and pharmacodynamic profiles as compared with unmodified G-CSF (Neupogen®), and pharmacokinetic and pharmacodynamic profiles comparable to Neulasta®, Amgen s long-acting G-CSF analog. We believe that clinicians would respond favorably to a long-acting G-CSF as supported by reported sales data for Neulasta, indicating cumulative sales of approximately $3.5 billion during the period from its launch in 2002 through the fourth quarter of 2004.

We believe that the expiration of key patents covering G-CSF will provide commercial opportunities in a time frame consistent with our development timeline. We expect that regulatory approval for GlycoPEG-GCSF will be sought both in and outside the U.S. We believe that key patents covering G-CSF will expire in Europe in 2006, in the U.S. in late 2013 and in other jurisdictions between these times. We expect to pursue regulatory and marketing approval for GlycoPEG-GCSF first in the EU.

Exploratory Research Program

We conduct exploratory research, both independently and with collaborators, on therapeutic candidates, primarily proteins, using our enzymatic technologies. Successful therapeutic candidates may be advanced for development through our own proprietary drug development program, our partnering and licensing program, or a combination of the two. Although our primary focus is the development of long-acting proteins, we are also conducting research to assess opportunities to use our enzymatic technologies in other areas, such as glycopeptides and glycolipids.

Partnering And Licensing Program

Currently we have the following collaborations:

BioGeneriX -- GlycoPEG-GCSF. In April 2004, we entered into an agreement with BioGeneriX to use our proprietary GlycoAdvance and GlycoPEGylation technologies to develop a long-acting version of G-CSF. Under the agreement, we and BioGeneriX share the expenses of preclinical development and BioGeneriX is responsible for supplying the protein and funding the entire clinical development program. If we and BioGeneriX proceed to commercialization, we will have commercial rights in the U.S., Canada, Mexico and Japan, and BioGeneriX will have commercial rights in Europe and the rest of the world. Each company will receive significant royalties on product sales in the other company s territory. In connection with the agreement, we received an upfront fee from BioGeneriX. BioGeneriX has the right to terminate the agreement without cause following the completion of preclinical development, in which case Neose will have all rights to the product candidate, including supply of protein from BioGeneriX or its contract manufacturer. Each party has the right, in various circumstances, to terminate the agreement by giving the required notice to the other party, subject to the other party s right to continue working on the development and commercialization of a long-acting version of G-CSF, as provided in the agreement.

BioGeneriX -- Additional GlycoPEGylated Protein. In January 2005, we entered into a supply and option agreement with BioGeneriX that provides for BioGeneriX to make a non-refundable payment to Neose and to supply to Neose a marketed therapeutic protein (target protein) for research purposes. During a three-month research period, BioGeneriX has an exclusive option to enter into a pre-negotiated research, license and option agreement (license agreement) for the use of our proprietary GlycoAdvance and GlycoPEGylation technologies to develop a long-acting version of the target protein. If BioGeneriX exercises the option to enter into the license agreement, Neose would receive an additional non-refundable payment as well as research payments, and could receive milestone payments totaling up to $61.5 million, as well as significant royalties on product sales. The license agreement contemplates that Neose would conduct research on behalf of BioGeneriX for approximately 12 months and grant BioGeneriX the right to obtain an exclusive, worldwide license to use our enzymatic technologies to develop and commercialize a long-acting version of the target protein. If BioGeneriX exercises its right to obtain the license, they will be responsible for the further development and commercialization of the target protein. If requested by BioGeneriX, Neose will provide, and be fully reimbursed for, any required technical assistance. BioGeneriX would have the right to terminate the license agreement any time after the research period. Neose would have the right to terminate the license agreement if specific development milestones were not met within certain periods of time.

Novo Nordisk. In 2003, we entered into agreements with Novo Nordisk A/S to use our GlycoAdvance and GlycoPEGylation technologies to develop and commercialize three next-generation versions of currently-marketed proteins, one of which is marketed by Novo Nordisk. Under these agreements, we received a $4.3 million upfront fee, and Novo Nordisk funds our research and development activities for these three proteins. We may also receive up to $51.5 million in development milestones under these agreements, as amended, as well as significant royalties on sales of the licensed products. Under these agreements, Novo Nordisk s license with respect to each protein continues until the expiration of the last Neose patent covering a licensed product, or until the earlier termination of the applicable agreement. Novo Nordisk has the right to terminate each of the agreements without cause. We have the right to terminate the agreement with respect to two of the proteins if there are no commercial sales of licensed products within a specified period, subject to Novo Nordisk s ability to extend by paying minimum royalties.

MacroGenics. In 2004, we entered into a research collaboration agreement with MacroGenics, Inc. to use our GlycoAdvance and GlycoPEGylation technologies on multiple monoclonal antibodies of MacroGenics, with the goal of improving the therapeutic profiles of these proteins. Under this agreement, MacroGenics has the right to take a limited number of modified compounds into development. During the research phase, we and MacroGenics each fund our own expenses. If MacroGenics decides to proceed with any of the modified compounds beyond the initial research phase, MacroGenics will be responsible for all further development of the licensed compounds and we will receive royalties on any product sales.

Business Strategy

Our primary focus is to develop proprietary protein drugs with proven safety and efficacy, and to improve the therapeutic profiles of glycoproteins being developed by our partners. We also plan to develop other therapeutic drugs by applying our enzymatic technologies in other areas, such as glycopeptides and glycolipids. Key elements of our strategy are to:

Continue to develop our two long-acting therapeutic protein candidates. We continue to develop our two long-acting proprietary therapeutic protein candidates: NE-180 and GlycoPEG-GCSF. We expect to complete preclinical activities for NE-180, including having a pre-IND meeting with the FDA and submitting an IND to the FDA, in the second quarter of 2005. We expect to complete preclinical activities for GlycoPEG-GCSF, including requesting scientific advice from the regulatory authorities in a country in the EU and submitting the equivalent of an IND in an EU country, by the end of 2005 in collaboration with our partner, BioGeneriX.

Target drugs with proven safety and efficacy. We are developing improved therapeutics with a current focus on therapeutic proteins using our proprietary enzymatic technologies, GlycoAdvance and GlycoPEGylation. We expect these modified proteins to offer significant advantages, including less frequent dosing and possibly improved efficacy, over the original versions of the drugs now on the market, as well as to meet or exceed the pharmacokinetic and pharmacodynamic profile of next-generation versions of the drugs now on the market. We believe this strategy of targeting the many commercially attractive protein drugs with proven safety and efficacy allows us to lower the risk profile of our proprietary drug development portfolio as compared to *de novo* protein drug development. We intend to continue to focus our research and development resources on several therapeutic proteins that we believe have the highest probability of clinically meaningful therapeutic profile improvements from our technology and are in commercially attractive categories.

Leverage our core competencies. We believe that our core enzymatic technologies improve the drug properties of therapeutic proteins. We will continue to use our technologies to research and develop improved versions of protein drugs with proven safety and efficacy and to improve the therapeutic profiles of glycoproteins being developed by our partners. In addition, we intend to explore the application of our technology and our development capabilities to antibodies. We will also continue to conduct exploratory drug development research in novel therapeutic categories, such as glycolipids, where our proprietary enzymatic technology, intellectual property and internal expertise provide us with opportunities.

Continue to seek attractive partnership opportunities. We will continue our efforts to build a portfolio of commercially attractive partnerships in a blend of co-developments and licenses. Where possible, we will seek partnerships that allow us to significantly participate in the commercial success of each of the compounds. This will be accomplished by not only securing upfront payments, research funding and milestone payments, but by continuing to seek agreements that retain meaningful commercial rights in certain territories and securing significant royalty rates on product sales in other territories.

Intellectual Property

Our success depends on our ability to protect and use our intellectual property rights in the continued development and application of our technologies, to operate without infringing the proprietary rights of others, and to prevent others from infringing on our proprietary rights. As we pursue our strategy of developing proprietary protein drugs, we have increased our focus on investigating the patent protection for currently marketed proteins. We also devote significant resources to obtaining and maintaining patents, and we expect to aggressively enforce our rights if necessary, although we recognize that the scope and validity of patents is never certain.

Our patent strategy has two main components, the pursuit of a patent portfolio protecting our technologies and their anticipated application, and the evaluation of patent protection for proteins we may target for development.

Patents and Proprietary Rights. We have continued to file patent applications covering new developments in our technologies, including compositions and methods for enzymatically adding and modifying sugar chains on a multitude of proteins to form stable linkages between a sugar attached to a polypeptide and a water soluble polymer, therapeutic compound, targeting agent, or other biologically active molecule.

In addition to developing our own intellectual property, we seek to obtain rights to complementary intellectual property from others. We have entered into license agreements with various institutions and individuals for certain patent rights, as well as sponsored research and option agreements for the creation and possible license to us of additional intellectual property rights. We are obligated to pay royalties at varying rates based upon, among other things, levels of revenues from the sale of licensed products under our existing license agreements, and we expect to pay royalties under new license agreements for intellectual property. Generally, these agreements continue for a specified number of years or as long as any licensed patents remain in force, unless the agreements are terminated earlier.

We own 29 issued U.S. patents, and have licensed 63 issued U.S. patents from 12 institutions. In addition, we own or have licensed over 90 patent applications pending in the U.S. There are also 418 foreign patent applications pending or granted related to our owned and licensed patents. In addition, we have assigned four issued U.S. patents and 34 granted or pending foreign counterparts to Magnolia Nutritionals, our joint venture with McNeil Nutritionals (a subsidiary of Johnson & Johnson).

Proprietary Protein Drugs. To pursue our strategy of developing proprietary protein drugs, we must ascertain the nature, scope and expiration of existing patent claims covering proteins we may target for development. The patent coverage on these proteins and methods of making them is complex. These patents must be analyzed on a claim-by-claim basis, and we must make decisions based on our analysis of these varied claims. The patents and their expiration dates often vary from the U.S. to Europe to Japan. It is possible that we are unaware of issued patents or pending patent applications that are relevant to our product candidates, either because our search did not find them or because they are not yet publicly available.

In order to market proprietary versions of currently marketed proteins, we will have to determine the expiration dates of existing patent claims that could cover our product candidate by analyzing numerous, complex patent claims and, in some cases, judicial opinions. The analysis of patents is subject to different interpretations. Our analysis of the patent coverage surrounding both EPO in the U.S. and Europe has encouraged us that there may be opportunities to enter the market sooner than our competitors whose products would have different characteristics or manufacturing processes. If we pursue a strategy of early entry, litigation could result, and would be costly regardless of whether we were successful. Litigation could also result in delays in the launch of a product, even if we ultimately prevailed in the litigation.

Nature of Protection. The nature of patent protection in the pharmaceutical and biotechnology industry is complex, uncertain and unpredictable. The patents we seek may not issue, or may issue with a narrower scope than originally sought, and may not be valid or effectively enforceable. Even if our patents are enforceable, enforcement of our patents could be time consuming and expensive. If the claims in our pending patent applications are narrowed prior to issuance, others will have greater opportunity to circumvent or design around our patent protection.

We also have proprietary trade secrets and know-how that are not patentable or which we have chosen to maintain as secret rather than filing for patent protection. We seek to protect our secret information by entering into confidentiality agreements with employees, consultants, licensees, and potential collaboration partners. These agreements generally provide that all confidential information developed, or made known, by us to the other party during the relationship shall be kept confidential and may not be disclosed to third parties, except in specific circumstances. Our agreements with employees also provide that inventions made by the employee during the period of employment will be solely owned by us if they are the result of tasks assigned by us or the use of property (including intellectual property) owned or used by us. Our agreements with consultants generally provide that inventions conceived by the consultant while rendering consulting services to us will be our exclusive property.

We are aware of numerous pending and issued U.S. and foreign patent rights and other proprietary rights owned by third parties in fields related to our technologies. We will continue to expend resources to protect our own technology and seek to avoid infringing the technology of others. Patent protection obtained by others may interfere with our ability to obtain patents, or our ability to effectively employ our technologies.

Government Regulation

Our research and development activities, the future manufacture of reagents and products incorporating our technologies, and the marketing of these products are subject to regulation for safety and efficacy by numerous governmental authorities in the U.S. and other countries.

Regulation of Pharmaceutical Product Candidates. The research and development, clinical testing, manufacture and marketing of products using our technologies are subject to regulation by the FDA and by comparable regulatory agencies in other countries. These national agencies and other federal, state and local entities regulate, among other things, research and development activities, and the manufacturing and control, safety, effectiveness, labeling, storage, record keeping, approval, advertising and promotion of therapeutic products. Product development and approval within this regulatory framework take a number of years and involve the expenditure of substantial resources. We anticipate that the development of our next-generation proprietary proteins will involve a traditional development program, including clinical trials.

In the U.S., after laboratory analysis and preclinical testing in animals, an IND is required to be filed with the FDA before human testing may begin. Typically, a sequential three-phase human clinical testing program is then undertaken, but the phases may overlap or be combined. Certain phases may not be necessary for a particular product. Each clinical study is conducted according to an approved protocol after written approval is obtained from an independent Institutional Review Board, or IRB. In Phase I, small clinical trials are conducted to determine the safety of the product. In Phase II, clinical trials are conducted to assess safety, establish an acceptable dose, and gain preliminary evidence of the efficacy of the product. In Phase III, clinical trials are conducted to obtain sufficient data to establish statistically significant proof of safety and efficacy. The time and expense required to perform this clinical testing vary and can be substantial. The results of the preclinical and clinical testing of a biological pharmaceutical product are then submitted to the FDA in the form of a Biologics License Applications (or BLA), or for a chemical pharmaceutical product in the form of a New Drug Application (or NDA), for approval to commence commercial sales. If the application contains all pertinent information and data, the FDA will formally accept the file for review. In responding to a BLA or NDA, the FDA may grant marketing approval, request additional information, or deny the application.

No action may be taken to market any new drug or biologic product in the U.S. until an appropriate marketing application has been approved by the FDA. Even after initial FDA approval is obtained, further clinical trials may be required to provide additional data on safety and effectiveness, and will be required to gain clearance for the use of a product as a treatment for indications other than those initially approved. Side effects or adverse events that are reported during clinical trials may delay, impede, or prevent marketing approval. Similarly, adverse events that are reported after obtaining marketing approval may result in additional limitations being placed on the use of a product and, potentially, withdrawal of the product from the market.

The regulatory requirements and approval processes of countries in the EU are similar to those in the U.S. In the EU, depending on the type of drug for which approval is sought, there are currently two potential tracks for marketing approval in member countries: mutual recognition and the centralized procedure. Typically, recombinant products are reviewed through the centralized procedure. The EU review mechanisms may ultimately lead to approval in all EU countries, but each method grants all participating countries some decision-making authority in product approval.

Sales of pharmaceutical and biopharmaceutical products in other areas of the world vary from country to country. Whether or not FDA licensure has been obtained, licensure of a product by comparable regulatory authorities in other countries must be obtained prior to marketing the product in those countries. The time required to obtain such licensure may be longer or shorter than that required for FDA approval, and regulatory authorities in other areas of the world, like the FDA, may approve or deny applications for licensure and marketing.

In addition to regulating and auditing human clinical trials, the FDA regulates and inspects equipment, facilities, and processes used in the manufacture and control of products prior to providing approval to market a product. Among other conditions for marketing approval in the U.S., the prospective manufacturer s quality control and manufacturing procedures must conform on an ongoing basis with current Good Manufacturing Practices (cGMP). Before granting marketing approval, the FDA will perform a prelicensing inspection of the facility to determine its compliance with cGMP and other rules and regulations. In complying with cGMP, manufacturers must

continue to expend time, money and effort in the area of production, training and quality control to ensure full compliance. After approval of a BLA or NDA, manufacturers are subject to periodic inspections by the FDA. If, as a result of FDA inspections relating to our products or reagents, the FDA determines that our equipment, facilities, or processes do not comply with applicable FDA regulations or conditions of product approval, the FDA may seek civil, criminal, or administrative sanctions and remedies against us, such as the suspension of our manufacturing operations, the seizure of products we produce, and the suspension of sales of our products.

Products manufactured in the U.S. for distribution abroad are subject to FDA regulations regarding export, as well as to the requirements of the country to which they are shipped. Products distributed to countries within the EU are also subject to EU regulations. The requirements of the EU and foreign countries generally cover the conduct of clinical trials, the submission, review and approval of marketing applications, and all aspects of product manufacture and marketing. These requirements may vary significantly from country to country.

We expect to manufacture enzymes, sugar nucleotides and other reagents for use by our collaborators, as well as for our own manufacturing use in the development of proprietary protein therapeutics. Our partners may be responsible for clinical and regulatory approval procedures, but we would expect to participate in this process by submitting to the FDA a drug master file developed and maintained by us that contains data concerning the manufacturing and control processes for our reagents.

Other Regulations Affecting our Business. We are subject to various other laws and regulations, such as those relating to safe working conditions, employee relations, employee benefits, the environment (including the use and disposal of hazardous or potentially hazardous substances), antitrust and international trade, public securities and taxation. We endeavor to comply with applicable laws and regulations. However, we recognize that this is a complex and expensive process, and that we cannot predict when changes will occur or whether they would have a material adverse effect on our operations.

We contract with third parties for supplies and services that are critical to our business. These third parties are also subject to government regulation. The failure of any of these third parties to comply with applicable laws and regulations could cause substantial delays to our drug development timelines and have a material adverse effect on our operations.

Third-Party Reimbursement. Our ability and each of our collaborator s ability to successfully commercialize drug products may depend in part on the extent to which coverage and reimbursement for the cost of such products will be available from government health administration authorities, private health insurers, and other organizations. Uncertainty continues within the pharmaceutical and biotechnology industries as to the reimbursement status of new therapeutic products, and we cannot be sure that third-party reimbursement would be available for any therapeutic products that we or our collaborators might develop. Healthcare reform, especially as it relates to prescription drugs, is an area of increasing attention and a priority of many governmental officials.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly evolving technology and significant competition. Our competitors include pharmaceutical and biotechnology companies. In addition, many specialized biotechnology companies have formed collaborations with large, established companies to support research, development and commercialization of products that may be competitive with our current and future product candidates and technologies. Academic institutions, governmental agencies and other public and private research organizations are also conducting research activities and seeking patent protection and may commercialize competitive products or technologies on their own or through collaborations with pharmaceutical and biotechnology companies.

Next-Generation Protein Development. We are aware that other companies are working on the development of next-generation protein therapeutics in anticipation of the expiration of certain patent claims covering marketed proteins. A number of these competitors are working on the development of next-generation protein therapeutics. Some of these competitors include Maxygen, Nektar Therapeutics, Enzon Pharmaceuticals, Human Genome Sciences and Alkermes. Other companies have programs focused on developing next-generation or improved versions of EPO and G-CSF, and some are already marketing improved versions of these products.

These companies include Amgen, Roche, Transkaryotic Therapeutics, Human Genome Sciences, Maxygen, ARIAD Pharmaceuticals and Affymax. Other companies are active in this area, and we expect that competition will increase. We are also aware that there are several companies engaged in glycobiology research. Our product candidates will face competition from products already established in the marketplace and new therapies that may be developed by our competitors or may result from advances in biotechnology or other fields.

Competitive Next-Generation EPO and G-CSF Products. Other companies have programs focused on developing next-generation or improved versions of EPO and G-CSF, and some are already marketing improved versions of these products.

Amgen currently markets Aranesp®, its improved version of EPO, which has a longer circulating half-life than EPO. Amgen launched Aranesp in the last quarter of 2001 and has reported that global sales of Aranesp were approximately $2.47 billion during 2004. Roche is developing an improved EPO known as CERA (Continuous Erythropoiesis Receptor Activator), which is currently in Phase III clinical trials. In addition, non-originator companies are applying their technologies to develop improved EPO compounds, such as: ARIAD, with its gene therapy and small molecule promoter technology; Syntonix, with its EPO-Fc fusion protein; Fibrogen, with its small molecule promoter of endogenous EPO; and Affymax, with its synthetic EPO-like peptides.

Amgen currently markets Neulasta®, which is a modified version of its original G-CSF product, Neupogen®. Neulasta is a chemically pegylated compound, with a longer circulating half-life than Neupogen. Amgen launched Neulasta in the first quarter of 2002 and has reported that global sales of Neulasta were approximately $1.74 billion during 2004. Other companies, such as Maxygen and Affymax, are also applying their technologies to develop next-generation versions of G-CSF.

Follow-on Biologics (Biogenerics). Although a clear development and regulatory path does not currently exist for biologic products that are, or soon will be, off-patent in the U.S., Europe and Japan, we are aware that companies are pursuing the opportunity to develop and commercialize follow-on versions of currently marketed products, including EPO, G-CSF and others. Several companies are developing or planning to develop follow-on biologics, including Sandoz, BioGeneriX, Hexal, Bioceuticals, BioPartners and SICOR (now a wholly owned subsidiary of Teva Pharmaceutical Industries Ltd.).

Research and Development Services. Although we are focused on the development of proprietary protein drugs, we also use our GlycoAdvance and GlycoPEGylation technologies to provide collaborative research services and product improvement opportunities to other pharmaceutical and biotechnology companies. These services may compete with efforts within these companies to improve therapeutic protein profiles and expression, and with services provided by other companies to improve proteins, such as chemical pegylation technology.

There are several companies engaged in glycobiology research. Their work includes efforts to develop better-glycosylating cell lines, optimize cell culture conditions to improve glycosylation, and generate carbohydrate therapeutics. Companies working in this area include Crucell, GLYCART, GlycoFi and Momenta. Crucell has developed human cell lines for glycoprotein production. GLYCART is pursuing the glycosylation of antibodies, and GlycoFi is focused on expressing glycoproteins in yeast systems. Momenta is utilizing sophisticated analysis and design for carbohydrate-based therapeutics.

Manufacturing

We have invested in the construction and validation of a manufacturing pilot plant in Horsham, PA to support our business objectives. Our goals in manufacturing are:

- to operate facilities that provide economies of scale to produce enzymes, sugar nucleotides and other reagents to support the use of our enzymatic technologies by us and our partners,
- to enable production of EPO, and NE-180, from insect cells for preclinical and Phase I and Phase II clinical studies, and
- to permit our collaborators to bring potentially improved therapeutic protein products to market faster.

Additional work may be necessary to optimize manufacturing processes for regulatory approval, including the modification of fermentation conditions, downstream protein purification, and enhancements of operational reliability.

In 2004, we initiated the production of enzymes, sugar nucleotides and other reagents, and NE-180 in our pilot manufacturing facility in Horsham under the principles of the FDA s cGMP regulations. Our pilot manufacturing facility consists of approximately 24,000 square feet of processing area and utility space. Separate areas are dedicated to sugar nucleotide processing, proteins expressed in microbial organisms, and proteins expressed in cell culture. Other areas were remodeled for viral production, protein purification, and GlycoPEGylation. We have scaled the processes to provide sufficient quantities of the EPO active pharmaceutical ingredient to meet our needs for preclinical studies and other work in preparation for our IND filing. We plan to supply our NE-180 for Phase I and Phase II clinical studies and to transfer the manufacturing process to a third-party contract manufacturer or partner for Phase III and commercial supplies. We are producing GlycoPEG-GCSF in development for our collaboration with BioGeneriX.

We continue to discover and develop improved reagents and technologies, which we plan to manufacture, at least initially, in our pilot plant. In addition, we expect to use our facility to support the manufacture of some of these reagents to glycosylate proteins produced from bacterial origin to potentially improve their therapeutic profile. We are also exploring opportunities to obtain some of our reagents from contract manufacturers.

Marketing, Distribution, and Sales of Proprietary Protein Products

We intend to capitalize on the significant experience and resources of our collaborative partners to commercialize proprietary products made using our technologies. These partners generally would be responsible for much of the development, regulatory approval, sales, marketing, and distribution activities for products incorporating our technologies. However, we intend to retain some commercial rights to some proteins in select territories. If we commercialize any products on our own, we will have to establish or contract for regulatory, sales, marketing, and distribution capabilities, and we may have to supplement our development capabilities. The marketing, advertising, and promotion of any product manufactured using our technology would be subject to regulation by the FDA or other governmental agencies.

Employees

As of December 31, 2004, we employed 169 individuals, consisting of 127 employees engaged in research, development and manufacturing activities, 5 employees devoted to business development and licensing activities, and 37 employees devoted to corporate and administrative activities. Our scientific staff includes carbohydrate biochemists as well as scientists with expertise in organic chemistry, analytical chemistry, molecular biology, microbiology, cell biology, scale-up manufacture, and regulatory affairs. During the last year, our most substantial investments in human resources have been made in the protein development and manufacturing groups. A significant number of our employees have prior experience with pharmaceutical or biotechnology companies, and many have specialized training in carbohydrate technology. None of our employees is covered by collective bargaining agreements. We believe we have good relations with our employees.

Internet Address and Securities Exchange Act Filings

Our internet address is www.neose.com. We make available through our website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended. We make these reports and amendments available on our website as soon as practicable after filing them electronically with, or furnishing them to, the Securities and Exchange Commission.

ITEM 2. PROPERTIES.

We own, subject to our mortgages, approximately 50,000 square feet of manufacturing, laboratory, and corporate office space in Horsham, Pennsylvania. In July 2002, we entered into a 20 year lease of a nearby building of approximately 40,000 square feet, of which approximately 25,000 square feet were converted into laboratory and office space during the first half of 2004, leaving approximately 15,000 square feet available for future expansion.

We also lease approximately 5,000 square feet of warehouse space in another nearby building in Horsham. In addition, we lease approximately 10,000 square feet of laboratory and office space in San Diego, California. The initial term of the San Diego lease ends in March 2006, at which time we have an option to extend the lease for an additional five years under certain circumstances.

ITEM 3. LEGAL PROCEEDINGS.

We are not a party to any material legal proceedings.

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

We did not submit any matters to a vote of security holders during the fourth quarter of 2004.

PART II

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

Our common stock is listed on The NASDAQ National Market under the symbol NTEC. We commenced trading on The NASDAQ National Market on February 15, 1996. The following table sets forth the high and low sale prices of our common stock for the periods indicated.

	Common Stock Price	
	High	**Low**
Year Ended December 31, 2003		
First Quarter	$ 9.31	$ 6.03
Second Quarter	12.64	6.88
Third Quarter	11.06	8.50
Fourth Quarter	9.83	7.20
Year Ended December 31, 2004		
First Quarter	13.80	8.73
Second Quarter	10.62	6.50
Third Quarter	8.78	6.45
Fourth Quarter	8.19	6.10
Year Ended December 31, 2005		
First Quarter (through March 10, 2005)	7.25	3.55

As of March 10, 2005, there were approximately 200 record holders and 3,900 beneficial holders of our common stock. We have not paid any cash dividends on our common stock and we do not anticipate paying any in the foreseeable future. Moreover, under the terms of our credit agreement with our bank, we are not permitted to pay any dividends without its written consent.

ITEM 6. SELECTED FINANCIAL DATA.

The following Statements of Operations and Balance Sheet Data for the years ended December 31, 2000, 2001, 2002, 2003, and 2004, and for the period from inception (January 17, 1989)through December 31, 2004, are derived from our audited financial statements. The financial data set forth below should be read in conjunction with the sections of this Annual Report on Form 10-K entitled Management s Discussion and Analysis of Financial Condition and Results of Operations, and the financial statements and notes included elsewhere in this Form 10-K.

	Year Ended December 31,					Period from inception (January 17, 1989) to December 31, 2004
	2000	2001	2002	2003	2004	
	(in thousands, except per share data)					
Statements of Operations Data:						
Revenue from collaborative agreements	$ 4,600	$ 1,266	$ 4,813	$ 1,435	$ 5,070	$ 23,951
Operating expenses:						
Research and development	12,094	14,857	21,481	26,821	34,672	161,171
General and administrative	5,648	9,374	12,510	11,148	11,711	71,931
Total operating expenses	17,742	24,231	33,991	37,969	46,383	233,102
Operating loss	(13,942)	(22,965)	(29,178)	(36,534)	(41,313)	(209,151)
Other income		6,120	1,653			7,773
Impairment of equity securities				(1,250)		(1,250)
Interest income (expense), net	4,642	3,516	1,108	103	(329)	15,247
Net loss	$ (8,500)	$ (13,329)	$ (26,417)	$ (37,681)	$ (41,642)	$ (187,381)
Basic and diluted net loss per share	$ (0.63)	$ (0.95)	$ (1.85)	$ (2.14)	$ (1.82)	
Weighted-average shares outstanding used in computing basic and diluted net loss per share	13,428	14,032	14,259	17,611	22,898	
Balance Sheet Data:						
Cash, cash equivalents and marketable securities	$ 94,762	$ 76,245	$ 41,040	$ 53,060	$ 45,048	
Total assets	114,768	105,786	83,092	94,845	90,731	
Total debt and capital lease obligations	7,300	6,200	7,411	10,601	18,345	
Deficit accumulated during the development stage	(68,312)	(81,641)	(108,058)	(145,739)	(187,381)	
Total stockholders equity	104,868	93,946	70,685	72,213	60,854	

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, but are not limited to, statements about our plans, objectives, representations and contentions and are not historical facts that typically may be identified by use of terms such as anticipate, believe, estimate, plan, may, expect, intend, could, and similar expressions, although some forward-looking statements are expressed differently. These forward-looking statements include, among others, the statements about our:

- estimate of the length of time that our existing cash and cash equivalents (including the net proceeds from our February 2005 public offering of common stock), expected revenue from collaborations and license agreements, and interest income should be sufficient to meet our operating and capital requirements at least through mid-2006;
- expected losses;
- expectations for future capital requirements;
- expectations for increases in operating expenses;
- expectations for increases in research and development, and marketing, general and administrative expenses in order to develop products, manufacture commercial quantities of reagents and products, and commercialize our technology;
- expectations regarding the scope and expiration of patents;
- expectations regarding the timing of preclinical activities, regulatory meetings and submissions, as well as the initiation of clinical trials, for NE-180 and GlycoPEG-GCSF;
- expectations for the development of long-acting versions of EPO and G-CSF, and subsequent proprietary drug candidates;
- expectations for incurring additional capital expenditures for renovations of our facilities;
- expectations regarding net cash utilization;
- expectations for generating revenue; and
- expectations regarding the timing and character of new or expanded collaborations and for the performance of our existing collaboration partners in connection with the development and commercialization of products incorporating our technologies.

You should be aware that the forward-looking statements included in this report represent management s current judgment and expectations, but our actual results, events and performance could differ materially from those in the forward-looking statements. Potential risks and uncertainties that could affect our actual results include the following:

- our ability to obtain the funds necessary for our operations;
- our ability to meet forecasted timelines;
- our ability to develop commercial-scale manufacturing processes for our products and reagents, either independently or in collaboration with others;
- our ability to enter into and maintain collaborative arrangements;

our ability to obtain adequate sources of proteins and reagents;

our ability to develop and commercialize products without infringing the patent or intellectual property rights of others;

our ability to expand and protect our intellectual property and to operate without infringing the rights of others;

our ability and our collaborators ability to develop and commercialize therapeutic proteins and our ability to commercialize our technologies;

our ability to compete successfully in an intensely competitive field;

our ability to renovate our facilities as required for our operations;

our ability to attract and retain key personnel; and

general economic conditions.

These and other risks and uncertainties that could affect our actual results are discussed in this report, particularly in Part II in the section entitled Factors Affecting the Company s Prospects.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, events, levels of activity, performance, or achievements. We do not assume responsibility for the accuracy and completeness of the forward-looking statements other than as required by applicable law. We do not undertake any duty to update any of the forward-looking statements after the date of this report to conform them to actual results, except as required by the federal securities laws.

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

The following discussion should be read in conjunction with our financial statements and related notes included in this Form 10-K.

Overview

We are a biopharmaceutical company using our enzymatic technologies to develop proprietary drugs, focusing primarily on therapeutic proteins. We believe that our core enzymatic technologies, GlycoAdvance and GlycoPEGylation , improve the drug properties of therapeutic proteins by building out, and attaching polyethylene glycol (PEG) to, carbohydrate structures on the proteins. We are using our technologies to develop proprietary versions of protein drugs with proven safety and efficacy and to improve the therapeutic profiles of proteins being developed by our partners. We expect these modified proteins to offer significant advantages, including less frequent dosing and possibly improved efficacy, over the original versions of the drugs now on the market, as well as to meet or exceed the pharmacokinetic profile of next-generation versions of the drugs now on the market. We believe this strategy of targeting drugs with proven safety and efficacy allows us to lower the risk profile of our proprietary development portfolio as compared to *de novo* protein drug development.

We have incurred operating losses each year since our inception. As of December 31, 2004, we had an accumulated deficit of $187,381,000. We expect additional losses in 2005 and over the next several years as we expand product research and development efforts, increase manufacturing scale-up activities and expand our intellectual property portfolio. We have financed our operations through private and public offerings of equity securities, proceeds from debt financings, and revenues from our collaborative agreements.

We believe that our existing cash and cash equivalents (including the net proceeds from our February 2005 public offering of common stock), expected revenue from collaborations and license arrangements, and interest income should be sufficient to meet our operating and capital requirements at least through mid-2006, although changes in our collaborative relationships or our business, whether or not initiated by us, may cause us to deplete our cash and cash equivalents sooner than the above estimate. Under agreements we entered into with a bank during the first quarter of 2004, we have agreed to limit our total outstanding debt to $22,000,000. As of December 31, 2004, our total outstanding debt was $18,345,000. At any time after January 30, 2008, or if we fail to maintain a minimum required cash and short-term investments balance of at least $22,000,000, the bank has the option to require additional collateral from us in the form of a security interest in certain cash and short-term investments, or in the form of a letter of credit, which may have the effect of requiring us to repay the outstanding loan balance to the bank. See Financing Activities Debt Financing Activities Term Loan from Bank and Industrial Development Authority Bonds in the Liquidity and Capital Resources section of this Form 10-K for a description of the material features of this borrowing.

Liquidity and Capital Resources

Overview

We had $53,060,000 in cash, cash equivalents, and marketable securities as of December 31, 2003, compared to approximately $45,048,000 in cash and cash equivalents as of December 31, 2004. The decrease for 2004 was primarily attributable to the use of cash to fund our operating activities, capital expenditures, and debt repayments, which were partly offset by proceeds of equity and debt financings.

In February 2005, we offered and sold 8,050,000 shares of our common stock at a public offering price of $4.00 per share, generating net proceeds of approximately $30,000,000. In March 2005, we implemented measures to reduce the rate of our cash utilization. Previously, we had estimated that our average quarterly net cash utilization for 2005 would be approximately $11 million, based on estimates of revenues from collaborations, and operating expenses. As a result of these actions, we now estimate that our average quarterly net cash utilization will be approximately $9 million, starting in the second quarter of 2005. The actions included modifying the bonus program for officers, reducing officers base salaries for one year, reducing planned operating expenses and capital expenditures, and effectively limiting headcount during 2005.

The development of next-generation proprietary protein therapeutics, which we are pursuing both independently and in collaboration with selected partners, will require substantial expenditures by us and our collaborators. To finance those expenditures, we plan to continue financing our operations through private and public offerings of equity securities, proceeds from debt financings, and revenues from existing and future collaborative agreements. Because our 2005 revenues could be substantially affected by entering into new collaborations and on the financial terms of any new collaborations, we cannot estimate our 2005 revenues. Other than revenues from our collaborations with Novo Nordisk and BioGeneriX, and any future collaborations with others, we do not expect to generate significant revenues until such time as products incorporating our technologies are commercialized, which is not expected during the next several years. We expect an additional several years to elapse before we can expect to generate sufficient cash flow from operations to fund our operating and investing requirements. We believe that our existing cash and cash equivalents (including the net proceeds from our February 2005 public offering of common stock), expected revenue from collaborations and license arrangements, and interest income should be sufficient to meet our operating and capital requirements at least through mid-2006. Accordingly, we will need to raise substantial additional funds to continue our business activities and fund our operations until we are generating sufficient cash flow from operations.

Operating Activities

During 2003, our operating activities consumed $27,398,000, compared to $36,744,000 in 2004. The increase in net cash used in 2004 in operating activities is substantially the result of our increased operating loss, offset by increased depreciation and amortization expense. The increase in depreciation and amortization expense over the prior year resulted primarily from the commencement of amortization of leasehold improvements that were placed in service in April 2004.

We used cash of $1,470,000 during 2004 to fund changes in operating assets and liabilities, primarily due to an increase in accounts receivable and other current assets and decreases in accrued compensation and accounts payable. During the year ended December 31, 2004, accounts receivable and other current assets increased by $1,108,000, primarily due to an increase in our receivables from collaborative partners.

Our uses of cash during 2004 were offset in part by an increase of $213,000 in deferred revenue. This increase was due, in part, to the receipt from BioGeneriX of an upfront fee under our collaborative agreement, partially offset by the amortization of up-front payments. Fluctuations in operating items vary period-to-period due to, among other factors, the timing of research and development activities, such as the preparation and initiation of preclinical trials.

Investing Activities

During 2003 and 2004, we purchased $3,455,000 and $9,844,000, respectively, of property, equipment, and building and leasehold improvements. In addition, during 2003 and 2004, we entered into capital lease obligations for assets with aggregate book values of $787,000 and $184,000, respectively. The facility improvement project described below contributed significantly to our capital expenditures during 2003 and 2004

We entered into a lease agreement in 2002 for a 40,000 square foot building, which we intended to convert into laboratory and office space. Later in 2002, we suspended plans to complete these renovations. In November 2003, we reinitiated renovation activities on approximately 25,000 square feet of the facility, leaving approximately 15,000 square feet available for future expansion. In April 2004, we occupied the facility and began amortizing the cost of the improvements. We expended approximately $10,175,000 for this project, of which $1,109,000 and $5,085,000 were expended in 2003 and 2004, respectively. During the first quarter of 2004, we entered into agreements with a bank for the purpose of funding these improvements. See Financing Activities Debt Financing Activities Term Loan from Bank and Industrial Development Authority Bonds in the Liquidity and Capital Resources section of this Form 10-K for a description of the material features of this borrowing. In addition, pursuant to the lease, we received $250,000 from the landlord in September 2004 as a partial reimbursement for improvements we made to the facility. This landlord incentive, which is included in other liabilities on our balance sheet, is being amortized ratably as a reduction to rental expense over the lease term.

In 2005, we expect our investment in capital expenditures to be approximately $2.5 million. We may finance some or all of these capital expenditures through capital leases or the issuance of new debt or equity. We would prefer to finance capital expenditures through the issuance of new debt, to the extent that we are allowed to do so under our existing bank covenants. The terms of new debt could require us to maintain a minimum cash and investments balance, or to transfer cash into an escrow account to collateralize some portion of the debt, or both.

Financing Activities

Equity Financing Activities

In February 2005, we offered and sold 8,050,000 shares of our common stock at a public offering price of $4.00 per share, generating net proceeds of approximately $30,000,000.

In May 2004, we sold 4,733,476 shares of common stock in a registered direct offering to a number of institutional and individual investors, including 812,408 shares sold to officers and an investment fund affiliated with a director, at a price of $6.77 per share, generating net proceeds of $29,928,000.

During 2004, participating employees purchased 23,564 shares of common stock pursuant to our employee stock purchase plan, resulting in net proceeds of $175,000. In addition, we received proceeds of $74,000 upon the exercise of options to purchase 24,916 shares of common stock.

In September 2003, we sold 2,655,557 shares of common stock in a registered direct offering to a number of institutional and individual investors, generating net proceeds of $22,377,000. In February 2003, we sold 2,866,763 shares of common stock in a private placement to a number of institutional and individual investors, generating net proceeds of $16,320,000. In addition, employees purchased 25,836 shares of common stock during 2003 pursuant to our employee stock purchase plan, resulting in net proceeds of $196,000. During 2003, we received proceeds of $172,000 upon the exercise of options to purchase 62,780 shares of common stock.

Debt Financing Activities

Our total debt increased by $7,744,000 to $18,345,000 at December 31, 2004, compared to $10,601,000 at December 31, 2003. This increase primarily resulted from $14,112,000 in proceeds from the issuance of debt during 2004. Partially offsetting the debt proceeds were $6,552,000 of debt principal repayments during 2004. In addition, we entered into a capital lease obligation during 2004 for equipment with an aggregate book value of $184,000.

Term Loan from Bank and Industrial Development Authority Bonds

During the first quarter of 2004, we and a bank entered into agreements under which the bank acquired and reissued the $1,000,000 outstanding of our tax-exempt Industrial Development Authority bonds. In addition, we borrowed $8,000,000 from the bank, of which $1,800,000 was combined with $1,100,000 of our restricted cash for the purpose of paying in full the $2,900,000 outstanding of our taxable Industrial Development Authority bonds. The remaining $6,200,000 borrowed funded improvements to our leased facility, which we occupied in April 2004, in Horsham, PA.

During 2005, we will be required to make principal payments totaling $889,000 under these agreements. The interest rate on the bond and bank debt will vary quarterly, depending on 90-day LIBOR rates. At December 31, 2004, the 90-day LIBOR was 2.56%. We have the option each quarter to incur interest on the outstanding principal at the LIBOR-based variable interest rate or a fixed rate offered by our bank.

For the $8,000,000 term loan, interest will accrue at an interest rate equal to the 90-day LIBOR plus 3.0%. We will make quarterly, interest-only payments through March 31, 2005. Commencing on March 31, 2005, we will make quarterly principal payments of $222,000 plus interest over the remaining nine years of the ten-year loan period.

For the $1,000,000 Industrial Development Authority bond, we will make quarterly, interest-only payments for ten years at an interest rate equal to the 90-day LIBOR plus 1.5%, followed by a single repayment of principal at the end of the ten-year loan period. If the 90-day LIBOR at the beginning of any calendar quarter is between 4.0% and 6.0%, the bond will bear interest at the 90-day LIBOR plus 1.25%. If the 90-day LIBOR at the beginning of any calendar quarter exceeds 6.0%, the bond will bear interest at the 90-day LIBOR plus 1.0%.

To provide security for these borrowings, we granted a first mortgage to our bank on the land and building where our present headquarters are located, as well as a security interest of first priority on certain improvements, certain equipment, and other tangible personal property. Under our agreements with the bank, if the bank determines a material adverse change has occurred in our business, financial condition, results of operations, or business prospects, the bank in its sole discretion may declare at any time an event of default, of which one potential outcome could be the accelerated repayment of the loan balance, which was $9,000,000 as of December 31, 2004. Under our agreements with the bank, we agreed to limit our total outstanding debt to $22,000,000. As of December 31, 2004, our total outstanding debt was $18,345,000. At any time after January 30, 2008, or if we fail to maintain a minimum required cash and short-term investments balance of at least $22,000,000, our bank has the option to require additional collateral from us in the form of a security interest in certain cash and short-term investments, or in the form of a letter of credit, which may have the effect of requiring us to repay the outstanding loan balance to the bank. The agreements with our bank also contain covenants that, among other things, require us to obtain consent from the bank prior to paying dividends, making certain investments, changing the nature of our business, assuming or guaranteeing the indebtedness of another entity or individual, selling or otherwise disposing of a substantial portion of our assets, and merging or consolidating with another entity.

Term Loan from Landlord

In May 2004, we borrowed $1,500,000 from the landlord of our leased facilities in Horsham, Pennsylvania. The terms of the financing require us to pay monthly principal and interest payments over 48 months at an interest rate of 13%. During 2005, we will be required to make principal and interest payments totaling $483,000 under this agreement.

Equipment Loans

We borrowed $2,261,000, $4,986,000, and $3,612,000 during 2002, 2003, and 2004, respectively, from an equipment lender to finance the purchase of equipment and facility improvements, which collateralize the amounts borrowed. The terms of the financings require us to make monthly principal and interest payments through January 2009 at interest rates ranging from 8.00% to 9.01%. During 2005, we will make principal and interest payments totaling $3,604,000 under these agreements.

Capital Lease Obligations

During 2002, 2003, and 2004, we entered into capital lease obligations for equipment with a value of $50,000, $787,000, and $184,000, respectively. The terms of the leases require us to make monthly payments through February 2009. Under these agreements, we will be required to make principal and interest payments totaling $312,000 during 2005.

Operating Leases

We lease laboratory, office, warehouse facilities, and equipment under operating lease agreements. In April 2001, we entered into a lease agreement for approximately 10,000 square feet of laboratory and office space in California. The initial term of the lease ends in March 2006, at which time we have an option to extend the lease for an additional five years under certain circumstances. We lease approximately 5,000 square feet of office and warehouse space in Pennsylvania under a lease agreement that expires April 2007. In February 2002, we entered into a lease agreement for approximately 40,000 square feet of laboratory and office space in Pennsylvania. The initial term of the lease ends in July 2022, at which time we have an option to extend the lease for an additional five years, followed by another option to extend the lease for an additional four and one-half years. Pursuant to the lease, we received $250,000 from the landlord in September 2004 as a partial reimbursement for improvements we made to the facility. This landlord incentive, which is included in other liabilities on our balance sheet, is being amortized ratably as a reduction to rental expense over the lease term. Our laboratory, office, and warehouse facility leases contain escalation clauses, under which the base rent increases annually by 2-4%. Our rental expense for the years ended December 31, 2002, 2003, and 2004 was $583,000, $923,000, and $981,000, respectively.

Summary of Contractual Obligations

The following table summarizes our obligations to make future payments under current contracts as of December 31, 2004:

	Payments due by period				
	Total	Less than 1 Year	1 - 3 Years	4 - 5 Years	After 5 Years
Long-term debt obligations[1]					
Debt maturities	$ 17,790,000	$ 4,311,000	$ 6,428,000	$ 2,496,000	$ 4,555,000
Contractual interest	5,271,000	1,111,000	1,445,000	920,000	1,795,000
Capital lease obligations[2]					
Debt maturities	555,000	275,000	218,000	62,000	
Contractual interest	65,000	37,000	25,000	3,000	
Operating leases[3]	9,755,000	948,000	1,206,000	917,000	6,684,000
Purchase obligations[4]	1,082,000	839,000	231,000	12,000	
Other liabilities reflected on our balance sheet under GAAP[5]	495,000	388,000	107,000		
Total contractual obligations	$ 35,013,000	$ 7,909,000	$ 9,660,000	$ 4,410,000	$ 13,034,000

1. See Financing Activities Debt Financing Activities in this Liquidity and Capital Resources section and Note 7 of the Notes to Financial Statements included in Item 8 of this Form 10-K for a description of the material features of our long-term debt. Contractual interest is the interest we contracted to pay on the long-term debt obligations. We had $9,000,000 of long-term debt subject to variable interest rates at December 31, 2004. The rate assumed for the variable interest component of the contractual interest obligation was the applicable rate in effect at December 31, 2004.

2. See Financing Activities Capital Lease Obligations in this Liquidity and Capital Resources section and Note 14 of the Notes to Financial Statements included in Item 8 of this Form 10-K for a description of the material features of our capital lease obligations. At December 31, 2004, the present value of our capital lease obligations was $555,000 and the amount of imputed interest, calculated using an assumed incremental borrowing rate at the time we entered into the capital lease obligations, was $65,000.

3. See Note 14 of the Notes to Financial Statements included in Item 8 of this Form 10-K for a description of our significant operating leases.

4. Includes our commitments as of December 31, 2004 to purchase goods and services.

5. Represents the present value as of December 31, 2004 of the remaining payments under agreements with former employees, three of whom were executive officers of the Company. These agreements with former executive officers are described in Notes 6 and 14 of the Notes to Financial Statements included in Item 8 of this Form 10-K.

Off-Balance Sheet Arrangements

We are not involved in any off-balance sheet arrangements that have or are reasonably likely to have a material future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources.

Critical Accounting Policies and Estimates

Our Management s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) focuses on our liquidity, capital resources, and financial statements. The financial statements have been prepared in

accordance with accounting principles generally accepted in the United States. The preparation of financial statements requires management to make estimates and assumptions that affect the carrying amounts of assets and liabilities, and the reported amounts of revenues and expenses during the reporting period. These estimates and assumptions are developed and adjusted periodically by management based on historical experience and on various other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates.

Our summary of significant accounting policies is described in Note 2 to our financial statements included in Item 8 of this Form 10-K. Management considers the following policies and estimates to be the most critical in understanding the more complex judgments that are involved in preparing our financial statements and the uncertainties that could impact our results of operations, financial position, and cash flows. Management has discussed the development and selection of these critical accounting policies and estimates with the audit committee of our board of directors, and the audit committee has reviewed the company s disclosure relating to it in this MD&A.

Revenue Recognition

Our revenue from collaborative agreements consists of upfront fees, research and development funding, and milestone payments. We recognize revenues consistent with Staff Accounting Bulletin No. 104, Revenue Recognition (SAB 104). SAB 104 was issued by the Securities and Exchange Commission in December 2003, and updates the guidance from Staff Accounting Bulletin No. 101, Revenue Recognition in Financial Statements. Non-refundable upfront fees are deferred and amortized to revenue over the related performance period. We estimate our performance period based on the specific terms of each collaborative agreement, but the actual performance period may vary. We adjust the performance periods based on available facts and circumstances. Our estimate of the performance period is a critical accounting estimate because:

- the accounting estimate is highly susceptible to change from period to period (because the estimate depends on preclinical and clinical progress); and
- a change in the expected performance period could have a material impact on the deferred revenue reported on our balance sheet as well as our net loss.

Periodic payments for research and development activities are recognized over the period that we perform those activities under the terms of each agreement. Revenue resulting from the achievement of milestone events stipulated in the agreements is recognized when the milestone is achieved. Milestones are based on the occurrence of a substantive element specified in the contract or as a measure of substantive progress towards completion under the contract.

In November 2003, we entered into two research, development and license agreements with Novo Nordisk A/S to use our GlycoAdvance and GlycoPEGylation technologies to develop three next-generation proteins within Novo Nordisk s therapeutic areas, one of which is currently marketed by them. Under the terms of the new agreements, we received a non-refundable, upfront fee of $4,300,000, which is being amortized to revenue over the expected performance period. In November 2004, we amended our agreements with Novo Nordisk to provide an amended work plan for one of the proteins, a method of applying some of the project-related funds to tasks that are mutually agreed upon by the parties, a change in the timing of one milestone payment, and the addition of a new milestone payment. We also received from Novo Nordisk a payment, which is being amortized to revenue over the expected remaining performance period. As a result of entering into the amendments in November 2004, we changed our estimate of the expected performance period from five years to six years. We will also receive up to $51,450,000 in milestone payments based on the progress of the programs. Novo Nordisk is responsible for funding our research and development activities under the agreements, and we will receive royalties on sales of any products commercialized under the agreements. In addition, we could receive additional milestones and royalties on new indications for the two proteins not currently marketed by Novo Nordisk.

In April 2004, we entered into an agreement with BioGeneriX to use our proprietary GlycoAdvance and GlycoPEGylation technologies to develop a long-acting, next-generation version of granulocyte colony stimulating factor (G-CSF). In connection with the agreement, we received from BioGeneriX a non-refundable, upfront fee,

which is being amortized to revenue over the expected performance period of 18 years. Under the agreement, we and BioGeneriX will pursue development and commercialization of a long-acting version of G-CSF. The parties will share equally preclinical expenses. Because we do not know which party will incur greater preclinical expenses during any given quarter, we cannot estimate whether BioGeneriX will be reimbursing us or whether we will be reimbursing BioGeneriX during each quarter of the preclinical phase. BioGeneriX will fund the entire clinical development program. If we and BioGeneriX proceed to commercialization, we will have commercial rights in the U.S., Canada, Mexico and Japan. BioGeneriX will have commercial rights in Europe and the rest of the world. Each company will receive royalties on product sales in the other company s territory.

Stock-based Employee Compensation

We apply APB Opinion No. 25, Accounting for Stock Issued to Employees (APB 25), and related interpretations in accounting for all stock-based employee compensation. We record deferred compensation for option grants to employees for the amount, if any, by which the market price per share exceeds the exercise price per share. We amortize deferred compensation over the vesting periods of each option.

We have elected to adopt only the disclosure provisions of Statement of Financial Accounting Standards No. 123, Accounting for Stock-Based Compensation (SFAS No. 123), as amended by Statement of Financial Accounting Standards No. 148, Accounting for Stock-Based Compensation Transition and Disclosure. The following table illustrates the effect on our net loss and basic and diluted net loss per share if we had recorded compensation expense for the estimated fair value of our stock-based employee compensation, consistent with SFAS No. 123 (in thousands, except per share data):

Year Ended December 31,	**2002**	**2003**	**2004**
Net loss as reported	$ (26,417)	$ (37,681)	$ (41,642)
Add: Stock-based employee compensation expense included in reported net loss	171	100	101
Deduct: Total stock-based employee compensation expense determined under fair value-based method for all awards	(15,588)	(11,893)	(9,869)
Net loss pro forma	$ (41,834)	$ (49,474)	$ (51,410)
Basic and diluted net loss per share as reported	$ (1.85)	$ (2.14)	$ (1.82)
Basic and diluted net loss per share pro forma	$ (2.94)	$ (2.81)	$ (2.25)

Valuation of Long-Lived Assets

We evaluate our long-lived assets for impairment at least annually and whenever indicators of impairment exist. Our history of negative operating cash flows is an indicator of impairment. Accounting standards require that if the sum of the future cash flows expected to result from a company s long-lived asset, undiscounted and without interest charges, is less than the reported value of the asset, an asset impairment must be recognized in the financial statements. The amount of the recognized impairment would be calculated by subtracting the fair value of the asset from the reported value of the asset.

Our property and equipment, which had a carrying value of $41.1 million as of December 31, 2004, have been recorded at cost and are being amortized on a straight-line basis over the estimated useful lives of those assets. Of this amount, approximately $22.0 million represents the carrying value of facility improvements placed in service during the years ended December 31, 2002, 2003, and 2004.

During the year ended December 31, 2004, we decided to sell idle equipment that had a carrying value of $153,000. We expect to sell the idle equipment during 2005. Because the carrying value exceeded the realizable value, net of selling costs, we recognized an impairment loss during 2004 of $104,000, which is included in research and development expenses on our statements of operations. The remaining carrying value of $49,000 has been reclassified as assets held for sale, and is included in accounts receivable and other current assets on our balance sheets. We believe the adjusted carrying value of the impaired property and equipment does not exceed its fair value as of December 31, 2004.

Results of Operations

Years Ended December 31, 2004 and 2003 and Outlook for 2005

Our net loss for the year ended December 31, 2004 was $41,642,000 compared to $37,681,000 for the corresponding period in 2003. The following section explains the trends within each component of net loss for 2004 compared to 2003 and provides our estimate of trends for 2005 for each component.

Revenue from Collaborative Agreements. Our revenues from collaborative agreements have historically been derived from a few major collaborators. Our collaborative agreements provide for some or all of the following elements: upfront fees, research and development funding, milestone revenues, and royalties on product sales.

Revenues from collaborative agreements increased to $5,070,000 in 2004 from $1,435,000 in 2003, primarily due to research and development funding under our collaborations with Novo Nordisk and BioGeneriX.

During the years ended December 31, 2003 and 2004, one customer accounted for 48% and 66%, respectively, of total revenues. Another customer accounted for 34% of our revenues during 2004. A third customer accounted for 29% of our revenues in 2003. A fourth customer accounted for 93% and 17% of total revenues during the years ended December 31, 2002 and 2003, respectively.

Because our 2005 revenues could be substantially affected by entering into new collaborations and on the financial terms of any new collaborations, we cannot estimate our 2005 revenues. Material cash inflows from proprietary drug development projects are highly uncertain, and we cannot reasonably estimate the period in which we will begin to receive material net cash inflows from our major research and development projects. Cash inflows from development-stage products are dependent on several factors, including entering into collaborative agreements, the achievement of certain milestones, and regulatory approvals. We may not receive milestone payments from any existing or future collaborations if a development-stage product fails to meet technical or performance targets or fails to obtain the required regulatory approvals. Further, our revenues from collaborations will be affected by the levels of effort committed and made by our collaborative partners. Even if we achieve technical success in developing drug candidates, our collaborative partners may discontinue development, may not devote the resources necessary to complete development and commence marketing of these products, or they may not successfully market potential products.

Research and Development Expense. Our proprietary drug development portfolio consists of two therapeutic protein candidates: NE-180 and GlycoPEG-GCSF. EPO is prescribed to stimulate production of red blood cells, and is approved for sale in major markets around the world for the treatment of chemotherapy-induced anemia and anemia associated with chronic renal failure. Based on early preclinical studies, we believe it is feasible to develop a long-acting EPO through GlycoPEGylation. We expect to complete various preclinical activities for NE-180, including having a pre-IND meeting with the FDA and submitting an IND to the FDA during the second quarter of 2005. Our goal is to initiate clinical trials during the third quarter of 2005. We expect that data from these trials will be included in data submitted to the appropriate government agencies for regulatory approval.

G-CSF is prescribed to stimulate production of neutrophils (a type of white blood cell), and is approved for sale in major markets around the world for treatment of neutropenia associated with myelosuppressive chemotherapy. Based on proof-of-concept data and preclinical development activities conducted during 2004, we believe it is feasible to develop a long-acting G-CSF through GlycoPEGylation. We and BioGeneriX plan to complete preclinical development activities for GlycoPEG-GCSF prior to the end of 2005, including requesting scientific advice from regulatory authorities in the EU and submitting the equivalent of an IND in an EU country.

We conduct exploratory research, both independently and with collaborators, on therapeutic candidates, primarily proteins, for development using our enzymatic technologies. Successful candidates may be advanced for development through our own proprietary drug program or through our partnering and licensing program, or a combination of the two. Although our primary focus is the development of long-acting proteins, we are also conducting research to assess opportunities to use our enzymatic technologies in other areas, such as glycopeptides and glycolipids. We expect to continue this research during 2005.

Our current research and development projects are divided between two categories: (i) GlycoAdvance and GlycoPEGylation and (ii) Other Glycotechnology Programs, which includes projects investigating other applications of our intellectual property. We are exploring the most cost-effective means of continuing some of the projects classified as Other Glycotechnology Programs. The following chart sets forth our projects in each of these categories and the stage to which each has been developed:

	Development Stage	Status
GlycoAdvance and GlycoPEGylation		
Improved erythropoietin	Preclinical	Active
Improved granulocyte colony stimulating factor	Preclinical	Active
Other protein projects	Research	Active
Other Glycotechnology Programs		
Non-protein therapeutic applications	Research	Active
Nutritional applications	N/A	Evaluating outlicensing opportunities

The process of bringing drugs from the preclinical research and development stage through Phase I, Phase II, and Phase III clinical trials to FDA approval is time consuming and expensive. Because our announced product candidates are currently in the preclinical stage and there are a variety of potential intermediate clinical and non-clinical outcomes that are inherent in drug development, we cannot reasonably estimate either the timing or costs we will incur to complete these research and development projects. In addition, the timing and costs to complete our research and development projects will be affected by the timing and nature of any collaboration agreements we may enter into with a third party, neither of which we can currently estimate.

For each of our research and development projects, we incur both direct and indirect expenses. Direct expenses include salaries and other costs of personnel, raw materials, and supplies for each project. We may also incur third-party costs related to these projects, such as contract research, consulting and preclinical development costs. Indirect expenses include depreciation expense and the costs of operating and maintaining our facilities, property, and equipment, to the extent used for our research and development projects, as well as the costs of general management of our research and development projects.

Our research and development expenses increased from $26,821,000 in 2003 to $34,672,000 in 2004. We expect our research and development expenses to be greater in 2005 than they were in 2004, as a result of the development, preclinical and clinical activities we plan to conduct during the year. The following table illustrates research and development expenses incurred during 2003 and 2004 in each period for our significant groups of research and development projects (in thousands).

Year Ended December 31,	2003	2004
GlycoAdvance and GlycoPEGylation	$ 10,012	$ 16,650
Other Glycotechnology Programs	486	196
Indirect expenses	16,323	17,826
	$ 26,821	$ 34,672

GlycoAdvance and GlycoPEGylation

Our GlycoAdvance and GlycoPEGylation research and development expenses increased during 2004, compared to 2003, primarily due to increased preclinical development costs associated with NE-180 and GlycoPEG-GCSF, purchases of laboratory services and research supplies, including proteins, and the reallocation of resources from our Other Glycotechnology Programs.

Other Glycotechnology Programs

Research and development expenses related to our Other Glycotechnology Programs decreased during 2004, compared to 2003, consistent with our focus on our GlycoAdvance and GlycoPEGylation programs.

Indirect expenses

Our indirect research and development expenses increased during 2004, compared to 2003, primarily due to increases related to depreciation of the leasehold improvements at a facility that we occupied in April 2004, as well as the costs associated with operating this facility.

General and Administrative Expense. General and administrative expenses for the year ended December 31, 2003 were $11,148,000, compared to $11,711,000 for the corresponding period in 2004. The 2004 period contained higher patent legal expenses than the comparable 2003 period. During 2005, excluding the effect of the adoption of Statement of Financial Accounting Standards No. 123 (Revised 2004), *Share-Based Payment: an amendment of FASB Statements No. 123 and 95* (SFAS No. 123R), we expect our general and administrative expenses to increase by less than 10% over 2004.

Other Income and Expense. During the year ended December 31, 2003, we recorded a non-cash impairment charge of $1,250,000 relating to our investment in Series A convertible preferred stock of Neuronyx, Inc. We recorded the equity investment, which was made in 2000, at cost. In October 2003, Neuronyx informed us they were nearing completion of a Series C equity financing, under which Series C and Series B Neuronyx investors would have an aggregate liquidation preference that is senior to the Series A liquidation preference and exceeds the assumed post-money valuation of Neuronyx. As a result, we reduced the carrying value of our equity investment to zero as of September 30, 2003 by recording the non-cash impairment charge. We did not record any impairment charges during 2004.

Interest income for the year ended December 31, 2003 was $564,000, compared to $652,000 for the corresponding period in 2004. The increase was due to higher average cash and cash equivalents balances, as well as slightly higher interest rates, during 2004. Our interest income during 2005 is difficult to project, and will depend largely on prevailing interest rates and whether we enter into any new collaborative agreements and complete any additional equity or debt financings during the year.

Interest expense for the year ended December 31, 2003 was $461,000, compared to $981,000 for the corresponding period in 2004, primarily due to higher average debt outstanding during 2004. The increase was partly offset by the capitalization of more interest expense during 2004 than 2003. During 2003 and 2004, we capitalized $42,000 and $139,000, respectively, of interest expense associated with leasehold improvements which we placed in service in April 2004. Our interest expense during 2005 is difficult to project and will depend largely on prevailing interest rates and whether we enter into any new debt agreements. See Financing Activities Debt Financing Activities in the Liquidity and Capital Resources section of this Form 10-K for a description of the material features of our debt financings.

Years Ended December 31, 2003 and 2002

Our net loss for the year ended December 31, 2003 was $37,681,000 compared to $26,417,000 for the corresponding period in 2002. The following section explains the trends within each component of net loss for 2003 compared to 2002.

Revenue from Collaborative Agreements. Revenues from collaborative agreements decreased to $1,435,000 in 2003 from $4,813,000 in 2002, primarily due to the termination in September 2002 of our collaboration with Wyeth Pharmaceuticals. The decrease was partly offset by the revenues recorded in 2003 under our agreements with Novo Nordisk.

Research and Development Expense. Our research and development expenses increased to $26,821,000 in 2003 from $21,481,000 in 2002. The following table illustrates research and development expenses incurred during 2002 and 2003 in each period for our significant groups of research and development projects (in thousands).

Year Ended December 31,	**2002**	**2003**
GlycoAdvance and GlycoPEGylation	$ 7,082	$ 10,012
Other Glycotechnology Programs	1,779	486
Indirect expenses	12,620	16,323
	$ 21,481	$ 26,821

GlycoAdvance and GlycoPEGylation

Our GlycoAdvance and GlycoPEGylation research and development expenses increased during 2003, compared to 2002, primarily due to increased preclinical development costs associated with our proprietary NE-180, purchases of laboratory services and research supplies, including proteins, and the reallocation of resources from our Other Glycotechnology Programs.

Other Glycotechnology Programs

Research and development expenses related to our Other Glycotechnology Programs decreased during 2003, compared to 2002, consistent with our decision during 2002 to focus our resources on our GlycoAdvance and GlycoPEGylation programs.

Indirect expenses

Our indirect research and development expenses increased during 2003, compared to 2002, primarily due to increases related to depreciation of pilot manufacturing facility improvements, which were placed in service in January 2003, additional personnel, and the purchase of more supplies and outside services than in 2002. Substantially offsetting these increases was a reduction in severance expense during 2003 of $2,294,000, of which $1,608,000 was a non-cash charge, related to an agreement entered into during the first quarter of 2002 with one of our former executive officers.

General and Administrative Expense. General and administrative expenses for the year ended December 31, 2003 were $11,148,000, compared to $12,510,000 for the corresponding period in 2002. The 2002 period contained higher consulting expenses and costs associated with executive recruitment and relocation than the comparable 2003 period. The decreases in those expenses during 2003 were partly offset by increases in payroll.

Other Income and Expense. During the year ended December 31, 2003, we recorded a non-cash impairment charge of $1,250,000 relating to our investment in Series A convertible preferred stock of Neuronyx, Inc. We recorded the equity investment, which was made in 2000, at cost. In October 2003, Neuronyx informed us they were nearing completion of a Series C equity financing, under which Series C and Series B Neuronyx investors would have an aggregate liquidation preference that is senior to the Series A liquidation preference and exceeds the assumed post-money valuation of Neuronyx. As a result, we reduced the carrying value of our equity investment to zero as of September 30, 2003 by recording the non-cash impairment charge.

During the year ended December 31, 2002, we recognized $1,653,000 of other income upon receipt from Genzyme General of a contract payment, which was due as a result of the restructuring of our agreement with Novazyme Pharmaceuticals, Inc. in March 2001. In September 2001, Genzyme acquired Novazyme, and assumed Novazyme s contractual obligation to us. We did not recognize any other income during 2003.

Interest income for the year ended December 31, 2003 was $564,000, compared to $1,108,000 for the corresponding period in 2002. The decrease was due to lower average cash and cash equivalents and marketable securities balances, as well as lower interest rates, during 2003.

Interest expense for the year ended December 31, 2003 was $461,000, compared to zero for the corresponding period in 2002. In 2002, we capitalized $150,000 of interest expense on two facility improvement projects. In accordance with GAAP, we recognized capitalized interest for these projects only to the extent of our actual interest expense, resulting in no reported interest expense for 2002.

Recent Accounting Pronouncements

In December 2004, the Financial Accounting Standards Board (FASB) issued Statements of Financial Accounting Standards No. 123R, *Share-Based Payment* (SFAS No. 123R), which requires companies to expense the fair value of stock options and other equity-based compensation to employees. It also provides guidance for determining whether an award is a liability-classified award or an equity-classified award, and determining fair value. SFAS No. 123R will be effective for public companies for interim and annual periods beginning after June 15, 2005, and applies to all unvested stock-based payment awards outstanding as of the adoption date. We have not completed an assessment of the impact on our financial statements resulting from potential modifications to our equity-based compensation structure or the use of an alternative fair value model in anticipation of adopting SFAS No. 123R.

In December 2004, the FASB issued SFAS No. 153, *Exchanges of Nonmonetary Assets*, which amends APB Opinion No. 29, *Accounting for Nonmonetary Transactions (SFAS No. 153)*, which requires a nonmonetary exchange of assets be accounted for at fair value, recognizing any gain or loss, if the exchange meets a commercial substance criterion and fair value is determinable. The commercial substance criterion is assessed by comparing the entity s expected cash flows immediately before and after the exchange. This eliminates the similar productive assets exception, which accounts for the exchange of assets at book value with no recognition of gain or loss. SFAS No. 153 will be effective for nonmonetary asset exchanges occurring in fiscal periods beginning after June 15, 2005. We do not believe the adoption of SFAS No. 153 will have a material impact on our financial statements.

FACTORS AFFECTING THE COMPANY S PROSPECTS

Financial Risks

If we fail to obtain necessary funds for our operations, we will be unable to maintain and improve our technology position and we will be unable to develop and commercialize our therapeutic proteins.

To date, we have funded our operations primarily through proceeds from the public and private placements of equity securities. We have also funded our operations to a lesser extent from proceeds from property and equipment financing, interest earned on investments, revenues from corporate collaborations and gains from the sale of investments. We believe that our existing cash and cash equivalents (including the net proceeds from our February 2005 public offering of common stock), expected revenue from collaborations and license arrangements, and interest income should be sufficient to meet our operating and capital requirements at least through mid-2006, although changes in our collaborative relationships or our business, whether or not initiated by us, may affect the rate at which we deplete our cash and cash equivalents. Our present and future capital requirements depend on many factors, including:

level of research and development investment required to develop our therapeutic proteins, and maintain and improve our technology position;

the costs of obtaining or manufacturing proteins and reagents for research and development and at commercial scale;

the results of preclinical and clinical testing, which can be unpredictable in drug development;

changes in product candidate development plans needed to address any difficulties that may arise in manufacturing, preclinical activities, clinical studies or commercialization;

our ability and willingness to enter into new agreements with collaborators and to extend or maintain our existing collaborations, and the terms of these agreements;

our success rate and that of our collaborators in preclinical and clinical efforts associated with milestones and royalties;

the costs of investigating patents that might block us from developing potential drug candidates;

the costs of recruiting and retaining qualified personnel;

the time and costs involved in obtaining regulatory approvals;

the timing, willingness, and ability of our collaborators to commercialize products incorporating our technologies;

the costs of filing, prosecuting, defending, and enforcing patent claims and other intellectual property rights; and

our need or decision to acquire or license complementary technologies or new drug targets.

We will require significant amounts of additional capital in the future, and we do not have any assurance that funding will be available when we need it on terms that we find favorable, if at all. We may seek to raise these funds through public or private equity offerings, debt financings, credit facilities, or corporate collaborations and licensing arrangements.

If we raise additional capital by issuing equity securities, our existing stockholders percentage ownership will be reduced and they may experience substantial dilution. We may also issue equity securities that provide for rights, preference and privileges senior to those of our common stock. If we raise additional funds by issuing debt

securities, these debt securities would have rights, preferences, and privileges senior to those of our common stock, and the terms of the debt securities issued could impose significant restrictions on our operations. If we raise additional funds through collaborations and licensing arrangements, we may be required to relinquish some rights to our technologies or drug candidates, or to grant licenses on terms that are not favorable to us. If adequate funds are not available or are not available on acceptable terms, our ability to fund our operations, take advantage of opportunities, develop products and technologies, and otherwise respond to competitive pressures could be significantly delayed or limited, and we may need to downsize or halt our operations.

Our debt obligations include restrictive covenants which may restrict our operations or otherwise adversely affect us.

We entered into a credit agreement with a bank, dated as of January 30, 2004, under which the outstanding balance, as of December 31, 2004, was $9.0 million. Under the credit agreement, we agreed to limit our total outstanding debt to $22.0 million; therefore, we cannot exceed this limit without the bank s consent. As of December 31, 2004, our total outstanding debt was $18.3 million. The limit on our total debt under the credit agreement could adversely affect us by reducing our flexibility in planning for, or reacting to, changes in our business and our industry.

Under our credit agreement, if the bank determines a material adverse change has occurred in our business, financial condition, results of operations, or business prospects, the bank, in its sole discretion, may declare at any time an event of default, of which one potential outcome could be the accelerated repayment of the then outstanding loan balance under the credit agreement. Under the credit agreement, if we fail at any time to maintain a minimum required cash and short-term investments balance of at least $22.0 million, or at any time after January 30, 2008, the bank has the option to require additional collateral from us in the form of a security interest in certain cash and short-term investments, or in the form of a letter of credit, which may have the effect of requiring us to repay the then outstanding loan balance under the credit agreement. As of December 31, 2004, we maintained a cash and cash equivalents balance of $45.0 million.

The credit agreement also contains covenants that, among other things, require us to obtain consent from the bank prior to paying dividends, making certain investments, changing the nature of our business, assuming or guaranteeing the indebtedness of another entity or individual, selling or otherwise disposing of a substantial portion of our assets, or merging or consolidating with another entity.

A breach of any of the financial tests or other covenants in the credit agreement could result in a default under our credit agreement. Upon the occurrence of such an event of default, the bank could elect to declare all amounts outstanding thereunder to be immediately due and payable, and terminate all commitments to extend further credit.

We have a history of losses, and we may incur continued losses for some time.

We have incurred losses each year of our existence, including net losses of $26.4 million for the year ended December 31, 2002, $37.7 million for the year ended December 31, 2003, and $41.6 million for the year ended December 31, 2004. Given our planned level of operating expenses, we expect to continue incurring losses for some time. As of December 31, 2004, we had an accumulated deficit of approximately $187.4 million. To date, we have derived substantially all of our revenue from corporate collaborations, license agreements, and investments. We expect that substantially all of our revenue for the foreseeable future will result from these sources and from the licensing of our technologies. We also expect to spend significant amounts to expand our research and development on our proprietary drug candidates and technologies, maintain and expand our intellectual property position, expand our manufacturing scale-up activities, and expand our business development and commercialization efforts. Our level of operating expenditures will vary depending upon the stage of development of our proprietary proteins and the number and nature of our collaborations. We may continue to incur substantial losses even if our revenues increase.

We have not yet commercialized any products or technologies, and we may never become profitable.

We have not yet commercialized any products or technologies, and we may never be able to do so. Since we began operations in 1990, we have not generated any revenues, except from corporate collaborations, license

agreements, and investments. We do not know when or if we will complete any of our product development efforts, obtain regulatory approval for any product candidates incorporating our technologies, or successfully commercialize any approved products. Even if we are successful in developing products that are approved for marketing, we will not be successful unless these products gain market acceptance. The degree of market acceptance of these products will depend on a number of factors, including:

- the timing of regulatory approvals in the countries, and for the uses, we seek;
- the competitive environment;
- the establishment and demonstration in the medical community of the safety and clinical efficacy of our products and their potential advantages over existing therapeutic products;
- the adequacy and success of distribution, sales and marketing efforts; and
- the pricing and reimbursement policies of government and third-party payors, such as insurance companies, health maintenance organizations and other plan administrators.

Physicians, patients, payors or the medical community in general may be unwilling to accept, utilize or recommend any of our products or products incorporating our technologies. As a result, we are unable to predict the extent of future losses or the time required to achieve profitability, if at all. Even if we or our collaborators successfully develop one or more products that incorporate our technologies, we may not become profitable.

Risks Related to Development of Products and Technologies

We may be unable to develop next-generation therapeutic proteins.

We are seeking to use our enzymatic technologies to develop proprietary next-generation proteins, generally in collaboration with a partner. The development of protein drugs involves a range of special challenges at various stages of the process.

In the preclinical phase of product development, we and our partners will face several potential problems, including producing or obtaining supplies of the protein on commercially reasonable terms, successfully modifying the protein using our enzymatic technologies, and achieving adequate yields of the next-generation protein. Even if a protein development program appears to be proceeding well in the early phases, a product candidate may fail in clinical trials for several reasons, such as results indicating that the product candidate is less effective than desired (e.g., the trial failed to meet its primary objectives) or that it has harmful or problematic side effects. If clinical trials are successful, it is possible that problems may arise later during commercialization. For example, we are aware that one marketed EPO product of a competitor was associated with pure red cell aplasia in post-marketing surveillance studies. This highlights the fact that even after a product is approved for marketing, problems may arise which can negatively affect sales and increase costs.

Our failure to solve any of these problems could delay or prevent the commercialization of products incorporating our technologies and could negatively impact our business.

Proteins are uniquely susceptible to neutralizing antibodies that could result in diminished efficacy of our products.

Proteins that are foreign to a living body often provoke an immune response. Protein drugs produced by recombinant technology, even though they have the same primary amino acid sequence as a native human protein, sometimes provoke formation of antibodies that bind to the protein drug. Some such antibodies bind so as to prevent the protein drug from engaging its receptor, and thus neutralize the drug activity of the protein. Furthermore, neutralizing antibodies provoked by administration of a protein drug may react with endogenous proteins whose natural activity the drug was intended to supplement, thereby inducing a total lack of the intended activity in the patient. Such a condition can prove fatal. We will not know if the proteins we develop as product candidates will provoke neutralizing antibody responses in humans until they are evaluated in clinical trials. It is possible that our product candidates may be rendered ineffective for the therapeutic purpose for which they are intended or could induce harm to patients because of the neutralizing effect of antibodies created in humans in response to our proteins.

Additionally, all protein drugs expressed by recombinant technology retain some trace of contaminating proteins from the host cells used to express the protein drug. These host cell proteins may increase the chances of an immunogenic response that could diminish the therapeutic efficacy of the protein. Our GlycoAdvance technology enables the use of protein drugs produced in insect cells, an expression system which has certain technical advantages in enabling the application of our technology to this protein, but for which no product to date has received marketing authorization in the U.S. or EU. It is possible that our product candidates may be rendered ineffective for the therapeutic purpose for which they are intended because of the neutralizing effects of antibodies provoked by the presence of trace amounts of insect cell proteins in our drug preparations.

We have limited product development and commercial manufacturing experience, and face challenges unique to proteins.

To date, we have not manufactured, at commercial scale, any pharmaceutically active proteins nor the enzymes, sugar nucleotides or other reagents we use to modify proteins.

We face the significant, normal scale-up risks associated with protein manufacturing: proteins are difficult to produce; it is difficult to scale up protein manufacturing processes; and it is expensive to produce proteins. We also face special risks in connection with the EPO protein that we are currently manufacturing to support preclinical and early clinical development of NE-180. Our success with this program will depend on our ability to manufacture this protein, at commercial scale, in the insect cell expression system (the production source of NE-180), either independently or with a collaborator or supplier. We do not know if we will be able to locate a contract manufacturer outside of the U.S. that will be able to manufacture this protein at commercial scale and on economically feasible terms. To date, no product produced in this expression system has received marketing authorization in the U.S. or the EU, which means that we may face previously unidentified problems resulting from the use of this expression system and related regulatory challenges.

We are also manufacturing, directly or through suppliers, the enzymes, sugar nucleotides and other reagents we need to apply our technologies. We have sought and continue to have collaborators, licensees or contract manufacturers manufacture at least some of the compounds necessary to commercialize our technologies. We may not be able to find parties willing and able to manufacture these compounds at acceptable prices, and we may become dependent on suppliers that could discontinue our supply arrangements or change supply terms to our disadvantage. Our success depends on our ability to manufacture these compounds on a commercial scale or to obtain commercial quantities, in either case, at reasonable cost. Our manufacturing processes also must comply with current Good Manufacturing Practices, or cGMP, prescribed by the FDA. We may not be able to manufacture or obtain sufficient quantities of the products we develop to meet our needs for pre-clinical or clinical development, and we may have problems complying, or maintaining compliance, with cGMP.

Any manufacturing facility must adhere to the FDA s evolving regulations on cGMP, which are enforced by the FDA through its facilities inspection program. The manufacture of products at any facility will be subject to strict quality control, testing, and record keeping requirements, and continuing obligations regarding the submission of safety reports and other post-market information. Ultimately, we or our contract manufacturers may not meet these requirements.

If we encounter delays or difficulties in connection with manufacturing, commercialization of our products and technologies could be delayed, and we could breach our obligations under our collaborative agreements and we may have difficulty obtaining necessary financing.

Our success depends on the success of our collaborative relationships and the success of our collaborators.

We plan to rely to a large extent on collaborative partners to co-develop our products and to commercialize products made using our technologies. We currently have collaborative agreements with Novo Nordisk, BioGeneriX and MacroGenics. We anticipate that substantially all of our revenues during the next several years will continue to be generated from collaboration or license agreements. Our partnering strategy entails many risks, including:

we may be unsuccessful in entering into or maintaining collaborative agreements for the co-development of our products or the commercialization of products incorporating our technologies;

we may not be successful in applying our technologies to the needs of our collaborative partners;

our collaborators may not be successful in, or may not remain committed to, co-developing our products or commercializing products incorporating our technologies;

our collaborators may seek to develop other proprietary alternatives to our products or technologies;

our collaborators may not commit sufficient resources to incorporating our technologies into their products;

our collaborators are not obligated to market or commercialize our products or products incorporating our technologies, and they are not required to achieve any specific commercialization schedule;

our collaborative agreements may be terminated by our partners on short notice; and

continued consolidation in our target markets may limit our ability to enter into collaboration agreements, or may result in terminations of existing collaborations.

Given these risks, there is a great deal of uncertainty regarding the success of our current and future collaborative efforts.

The use in humans of compounds developed by us or incorporating our technologies may result in product liability claims. Product liability claims can be expensive to defend, and may result in large settlements of claims or judgments against us. Even if a product liability claim is not successful, the adverse publicity, time, and expense involved in defending such a claim may interfere with our business. We may not be able to obtain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses.

We may be exposed to product liability and related risks.

The use in humans of compounds developed by us or incorporating our technologies may result in product liability claims. Product liability claims can be expensive to defend, and may result in large settlements of claims or judgments against us. Even if a product liability claim is not successful, the adverse publicity, time, and expense involved in defending such a claim may interfere with our business. We may not be able to obtain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses.

Risks Related to Intellectual Property

Blocking patents or claims of infringement may stop or delay or development of our proprietary products.

Our commercial success depends in part on avoiding claims of infringement of the patents or proprietary rights of third parties. As we seek to develop next-generation proprietary products, we devote significant resources to investigating the patent protection surrounding our target proteins. Patent protection for therapeutic proteins often comprises numerous claims for composition of matter, methods of use, and methods of making. The numerous patents may be difficult to uncover and interpret, leading to uncertainty about our freedom to operate. It is possible that we will not be aware of issued patents or pending patent applications that are relevant to our product candidates because our searches do not find them, or pending patent applications because they are not yet publicly available. Our interpretation of patents could be challenged, leading to litigation, and we could face claims of infringement of rights of which we are unaware.

We rely on certain exemptions and safe harbors in order to conduct the necessary research and development to support our regulatory filings. The Supreme Court of the United States has recently agreed to hear a case related to a particular safe harbor upon which we rely in the U.S. The elements of this safe harbor could be modified by the Supreme Court in a manner that is adverse to us, causing an increase in challenges or claims of infringement against us in relation to the patents of third parties and the possibility of our products being blocked from development in the U.S.

There have been significant litigation and interference proceedings regarding patent rights, and the patent situation regarding particular products is often complex and uncertain. For example, with respect to EPO, the target of our first development program, the status of issued patents is currently being litigated by others and these patents could delay our ability to market a long-acting EPO in the U.S. As we proceed with this program and other targets, we may face uncertainty and litigation could result, which could lead to liability for damages, prevent our development and commercialization efforts, and divert resources from our business strategy.

The cost of any litigation challenging our right to pursue our target proteins or technologies could be substantial. Others seeking to develop next-generation versions of proteins, or the holders of patents on our target proteins, may have greater financial resources, making them better able to bear the cost of litigation. In particular, one company that produces products that will likely be in direct competition with our current product candidates has aggressively defended the patents related to its products and this could increase the likelihood of litigation or the cost of litigation. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to develop, manufacture, and market products, form strategic alliances, and compete in the marketplace.

Third parties from time to time may assert that we are infringing their patents, trade secrets or know-how, although we believe our product candidates do not infringe the products, trade secrets or know-how of third parties. In addition, patents may issue in the future to third parties that our technology may infringe. We could incur substantial costs in defending ourselves and our partners against any such claims. Furthermore, parties making such claims may be able to obtain injunctive or other equitable relief, which could effectively block our ability or our partners ability to further develop or commercialize some or all of our products or technologies in the U.S. and abroad, and could result in the award of substantial damages. If we are found to infringe, we may be required to obtain one or more licenses from third parties or be unable to proceed. There can be no assurance that we will be able to obtain such licenses at a reasonable cost, if at all. Defense of any lawsuit or failure to obtain any such required license could have a material adverse effect on us.

The failure to obtain, maintain or protect patents and other intellectual property could impact our ability to compete effectively.

To compete effectively, we need to develop and maintain a proprietary position with regard to our own technologies, products and business. Legal standards relating to the validity and scope of claims in our technology field are still evolving. Therefore, the degree of future protection for our proprietary rights in our core technologies and products made using these technologies is also uncertain. The risks and uncertainties that we face with respect to our patents and other proprietary rights include the following:

the pending patent applications we have filed or to which we have exclusive rights may not result in issued patents or may take longer than we expect to result in issued patents;

we may be subject to interference proceedings;

we may be subject to opposition proceedings in foreign countries;

the claims of any patents that are issued may not provide meaningful protection;

we may not be able to develop additional proprietary technologies that are patentable;

the patents licensed or issued to us or our customers may not provide a competitive advantage;

other companies may challenge patents licensed or issued to us or our customers;

other companies may independently develop similar or alternative technologies, or duplicate our technologies;

other companies may design around technologies we have licensed or developed; and

enforcement of patents is complex, uncertain and expensive.

We cannot be certain that patents will be issued as a result of any of our pending applications, and we cannot be certain that any of our issued patents will give us adequate protection from competing products. For example, issued patents may be circumvented or challenged, declared invalid or unenforceable, or narrowed in scope. In addition, since publication of discoveries in the scientific or patent literature often lags behind actual discoveries, we cannot be certain that we were the first to make our inventions or to file patent applications covering those inventions. In the event that another party has also filed a patent application relating to an invention claimed by us, we may be required to participate in an interference proceeding declared by the U.S. Patent and Trademark Office to determine priority of invention, which could result in substantial uncertainties and costs for us, even if the eventual outcome were favorable to us. It is also possible that others may obtain issued patents that could prevent us from commercializing our products or require us to obtain licenses requiring the payment of significant fees or royalties in order to enable us to conduct our business. As to those patents that we have licensed, our rights depend on maintaining our obligations to the licensor under the applicable license agreement, and we may be unable to do so.

The cost to us of any patent litigation or other proceeding relating to our patents or applications, even if resolved in our favor, could be substantial. Our ability to enforce our patent protection could be limited by our financial resources, and may be subject to lengthy delays. If we are unable to effectively enforce our proprietary rights, or if we are found to infringe the rights of others, we may be in breach of our license agreements with our partners.

In addition to patents and patent applications, we depend upon trade secrets and proprietary know-how to protect our proprietary technology. We require our employees, consultants, advisors, and collaborators to enter into confidentiality agreements that prohibit the disclosure of confidential information to any other parties. We require our employees and consultants to disclose and assign to us their ideas, developments, discoveries, and inventions. These agreements may not, however, provide adequate protection for our trade secrets, know-how, or other proprietary information in the event of any unauthorized use or disclosure.

International patent protection is uncertain.

In addition to the issues discussed under the two preceding risks, patent law outside the U.S. differs from country to country. The laws of some foreign countries may not protect our intellectual property rights to the same extent as U.S. laws. We may participate in opposition proceedings to determine the validity of foreign patents belonging to us or our competitors, which proceedings could result in substantial costs and diversion of our efforts. Finally, some of our patent protection in the U.S. is not available to us in foreign countries due to the differences in the patent laws of those countries.

We may have to develop or license alternative technologies if we are unable to maintain or obtain key technology from third parties.

We have licensed patents and patent applications from a number of institutions. Some of our proprietary rights have been licensed to us under agreements that have performance requirements or other contingencies. The failure to comply with these provisions could lead to termination or modifications of our rights to these licenses. Additionally, we may need to obtain additional licenses to patents or other proprietary rights from other parties to facilitate development of our proprietary technology base. The ownership of patents exclusively licensed to us may be subject to challenge if inventorship was not adequately investigated and represented. If our existing licenses are terminated or if we are unable to obtain such additional licenses on acceptable terms, our ability to perform our own research and development and to comply with our obligations under our collaborative agreements may be delayed while we seek to develop or license alternative technologies.

Risks Related to Competition

Our competitors may develop better or more successful products.

Our business is characterized by extensive research efforts and rapid technological progress. New developments in molecular biology, medicinal chemistry and other fields of biology and chemistry are expected to continue at a rapid pace in both industry and academia. Our potential competitors include both public and private pharmaceutical and biotechnology companies, as well as academic institutions, governmental agencies and other public and private research organizations that are also conducting research activities and seeking patent protection.

A number of these competitors are working on the development of next-generation protein therapeutics. Some of these competitors include Maxygen, Nektar Therapeutics, Enzon Pharmaceuticals, Human Genome Sciences and Alkermes. Other companies have programs focused on developing next-generation or improved versions of EPO and G-CSF, and some are already marketing improved versions of these products. These companies include Amgen, Roche, Transkaryotic Therapeutics, Human Genome Sciences, Maxygen, ARIAD Pharmaceuticals and Affymax. Other companies are active in this area, and we expect that competition will increase. We are also aware that there are several companies engaged in glycobiology research.

In addition, we may compete with companies commercializing first-generation protein therapeutics, as a result of pricing practices or reimbursement limitations. Even if we succeed in developing and marketing products that have significant advantages over first-generation products, if first-generation products are available at a lower out-of-pocket cost to the consumer, health-care providers and consumers may choose first-generation products instead of next-generation versions.

Compared to us, many of our likely and potential competitors have more:

financial, scientific and technical resources;

product development, manufacturing and marketing capabilities;

experience conducting preclinical studies and clinical trials of new products; and

experience in obtaining regulatory approvals for products.

Competitors may succeed in developing products and technologies that are more effective or less costly than ours and that would render our products or technologies, or both, obsolete or noncompetitive. We know that other companies with substantial resources are working on the development of next-generation proteins, and they may achieve better results in enzymatically modifying our target proteins or the target proteins of our potential collaborators.

Competitors also may prove to be more successful in designing, manufacturing and marketing products. If we are successful in developing our own drug candidates or versions of drugs that are no longer patented, we will compete with other drug manufacturers for market share. If we are unable to compete successfully, our commercial opportunities will be diminished.

In addition, while there is no abbreviated regulatory pathway for follow-on biologics, this possibility is under discussion in the U.S. and other jurisdictions. If an abbreviated regulatory process is adopted for the approval of follow-on biologics in any major market, competition could increase in related segments of the therapeutic protein market.

We may be unable to retain key employees or recruit additional qualified personnel.

Because of the specialized scientific nature of our business, we are highly dependent upon qualified scientific, technical and managerial personnel, including our research and development team and our president, CEO and Chairman, C. Boyd Clarke. The advancement of our business is dependent upon our management team s ability to evaluate collaboration opportunities and on our CEO s ability to focus the Company s efforts. Our anticipated research and development efforts will require additional expertise and the addition of new qualified personnel.

There is intense competition for qualified management and research and development personnel in the pharmaceutical field. Therefore, we may not be able to attract and retain the qualified personnel necessary for our business. The loss of the services of existing personnel, as well as the failure to recruit additional key scientific, technical and managerial personnel in a timely manner, could harm our research and development programs, our ability to manage day-to-day operations, attract collaboration partners, attract and retain other employees, and generate revenues. We do not maintain key man life insurance on any of our employees.

Risks Related to Government Regulation

We are subject to extensive government regulation, and we or our collaborators may not obtain necessary regulatory approvals or may encounter long delays and large expenditures in obtaining such approvals.

The research, development, manufacture and control, marketing, and sale of our reagents and product candidates manufactured using our technologies are subject to significant, but varying, degrees of regulation by a number of government authorities in the U.S. and other countries.

Pharmaceutical product candidates manufactured using our technologies must undergo an extensive regulatory approval process before commercialization. This process is regulated by the FDA and by comparable agencies in the EU and in other countries. The U.S. and foreign regulatory agencies have substantial discretion to terminate clinical trials, require additional testing, delay or withhold registration and marketing approval, and mandate product withdrawals.

We and our collaborators intend to base our submissions for regulatory approval and the information contained in such submissions on our understanding of the requirements of the FDA and its foreign counterparts. If additional information is required, we may face delays and additional costs.

The specific risks of protein drugs may result in the application of more stringent regulatory requirements prior to approval of our product candidates. We face special challenges in connection with the development of proteins produced in the insect cell expression system. To our knowledge, no compound for human use produced in this expression system has been submitted for marketing authorization in the U.S. or EU, and we may encounter long delays and large expenditures or other regulatory hurdles in connection with the approval process for a product produced in this expression system.

Neither we nor our collaborators have submitted any product candidates incorporating our technologies for approval to the FDA or any other regulatory authority. If any product candidate manufactured using our technology is submitted for regulatory approval, it may not receive the approvals necessary for commercialization, the desired labeling claims, or adequate levels of reimbursement. Any delay in receiving, or failure to receive, these approvals would adversely affect our ability to generate product revenues or royalties, and we will have already spent significant sums in pursuing approval.

We anticipate that the development of our next-generation proprietary proteins will involve a traditional development program, including clinical trials. Any new governmental regulations may delay or alter regulatory approval of any product candidate manufactured using our technology. If an abbreviated regulatory process is adopted for the approval of follow-on biologics in any major market, competition could increase in related segments of the therapeutic protein market. We cannot predict the impact of adverse governmental action that might arise from future legislative and administrative action.

Even if we or our collaborators are successful in obtaining regulatory approvals for any of our products, our or their manufacturing processes would be subject to continued review by the FDA and other regulatory authorities. Any later discovery of unknown problems with our products, products incorporating our technologies, or manufacturing processes could result in restrictions on such products or manufacturing processes, including potential withdrawal of the products from the market. In addition, if regulatory authorities determine that we or our collaborators have not complied with regulations in the research and development of a product candidate or the manufacture and control of our reagents, then we or our collaborators may not obtain necessary approvals to market and sell the product candidate.

Third- party reimbursement for our collaborators or our future product candidates may not be adequate.

Even if regulatory approval is obtained to sell any product candidates incorporating our technologies, our future revenues, profitability, and access to capital will be determined in part by the price at which we or our collaborators can sell such products. There are continuing efforts by governmental and private third-party payors to contain or reduce the costs of health care through various means. We expect a number of federal, state, and foreign proposals to control the cost of drugs through governmental regulation. We are unsure of the form that any health care reform legislation may take or what actions federal, state, foreign, and private payors may take in response to the proposed reforms. Therefore, we cannot predict the effect of any implemented reform on our business.

Our and our collaborators ability to commercialize our products successfully will depend, in part, on the extent to which reimbursement for the cost of such products and related treatments will be available from government health administration authorities, such as Medicare and Medicaid in the U.S., private health insurers, and other organizations. Significant uncertainty exists as to the reimbursement status of newly approved healthcare products. Adequate third-party coverage may not be available to enable us to maintain price levels sufficient to realize an appropriate return on investment in product research and development. Inadequate coverage and reimbursement levels provided by government and third-party payors for use of our or our collaborators products may cause these products to fail to achieve market acceptance and would cause us to lose anticipated revenues and delay achievement of profitability. It is possible that reimbursement may be limited to that which is available for first-generation versions of one or more of our or our collaborator s products, making it harder for us and our collaborators to realize an appropriate return.

Risks Related to Facilities, Business Interruption, and the Environment

The use of hazardous materials in our operations may subject us to environmental claims or liability.

Our research and development processes involve the controlled use of hazardous materials, chemicals, and radioactive compounds. We conduct experiments that are quite common in the biotechnology industry, in which we use small quantities of corrosive, toxic and flammable chemicals, and trace amounts of radioactive materials. The risk of accidental injury or contamination from these materials cannot be entirely eliminated. We do not maintain a separate insurance policy for these types of risks. In the event of an accident or environmental discharge, we may be held liable for any resulting damages, and any liability could exceed our resources. We are subject to federal, state, and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. The cost of compliance with these laws and regulations could be significant.

Destructive actions by activists or terrorists could damage our facilities, interfere with our research activities, and cause ecological harm.

Activists and terrorists have shown a willingness to injure people and damage physical facilities, equipment and biological materials to publicize or otherwise further their ideological causes. Our or our collaborators operations and research activities, and services conducted for us by third parties, could be adversely affected by such acts. Any such damage could delay our research projects and decrease our ability to conduct future research and development. Damage caused by activist or terrorist incidents could also cause the release of hazardous materials, including chemicals, radioactive and biological materials.

Any significant interruption to our ability to conduct our business operations, research and development activities, or manufacturing operations could reduce our revenue and increase our expenses.

Risks Related to Stock Market

Our stock price may continue to experience fluctuations.

The market prices of securities of thinly-traded biotechnology companies, such as ours, generally are highly volatile. For example, since March 1, 2004, the price of our common stock reached a high of $10.72 per share in March 2004 and a low of $3.55 per share in March 2005.

In this market environment, the sale of a substantial number of shares of our common stock in the public market or the perception that such a sale might occur would likely have an adverse effect on the market price of our common stock, at least for the short term. We have a number of investors who hold relatively large positions in our securities. A decision by any of these investors to sell all or a block of their holdings of our common stock could cause our stock price to drop significantly.

The market also continues to experience significant price and volume fluctuations, some of which are unrelated to the operating performance of particular companies. In recent years, the price of our common stock has fluctuated significantly and may continue to do so in the future. Many factors could have a significant effect on the market price for our common stock, including:

preclinical and clinical trial results;

product development delays;

regulatory delays;

an announcement or termination of a collaborative relationship by us or any of our partners or competitors;

developments relating to our patent position or other proprietary rights;

announcements of technological innovations or new therapeutic products;

government regulations;

public concern as to the safety of products developed by us or others; and

general market conditions.

Any litigation brought against us as a result of this volatility could result in substantial costs and a diversion of our management s attention and resources, which could negatively impact our financial condition, revenues, results of operations, and the price of our common stock.

If we raise additional capital by issuing equity securities in a fluctuating market, many or all of our existing stockholders may experience substantial dilution, and if we need to raise capital by issuing equity securities at a time when our stock price is down, we may have difficulty raising sufficient capital to meet our requirements. If any of the risks described in these FACTORS AFFECTING THE COMPANY S PROSPECTS occurred, of if any unforeseen risk affected our performance, it could have a dramatic and adverse impact on the market price of our common stock.

Foreign Exchange Risks

Changes in foreign currency exchange rates could result in increased costs.

We have entered into some agreements denominated, wholly or partly, in Euros or other foreign currencies, and, in the future, we may enter into additional, significant agreements denominated in foreign currencies. If the values of these currencies increase against the dollar, our costs would increase. To date, we have not entered into any contracts to reduce the risk of fluctuations in currency exchange rates. In the future, depending upon the amounts payable under any such agreements, we may enter into forward foreign exchange contracts to reduce the risk of unpredictable changes in these costs. However, due to the variability of timing and amount of payments under any such agreements, foreign exchange contracts may not mitigate the potential adverse impact on our financial results.

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

Interest Rate Risk

We are exposed to market risk from changes in interest rates. We are currently not engaged in hedging activities and we do not use derivative financial instruments for speculation or trading purposes. The analysis below presents the sensitivity of our interest income and expense to selected changes in market interest rates**.**

The primary objective of our investment activities is to preserve our capital to fund operations and maximize income from our investments without assuming significant risk. We seek the safety of principal and market liquidity by investing in high credit quality institutional money market funds and fixed income securities. Our market risk exposure consists principally of exposure to changes in interest rates. Our holdings are also exposed to the risks of changes in the credit quality of issuers. Because our investments are short-term in duration, we believe our exposure to interest rate risk is not significant. We held no marketable securities as of December 31, 2004. The approximate principal amount of our investment portfolio as of December 31, 2004 was approximately $45,000,000, and the weighted-average interest rate earned on the portfolio during 2004 was 1.2% and interest income during 2004 was $652,000. The sensitivity analysis as it relates to our investment activities assumes an instantaneous 100 basis point move in interest rates from their weighted-average levels in 2004. A 100 basis point move up or down in market interest rates would have caused a corresponding change of $535,000 in interest income for 2004.

As of December 31, 2004, the principal components of our debt portfolio were (1) a term loan from a bank for $8,000,000 that accrues interest at a rate equal to the 90-day LIBOR plus 3.0%, (2) tax-exempt Industrial Development Authority bonds of $1,000,000 that accrues interest at a rate equal to the 90-day LIBOR plus 1.5%, (3) a term loan from our landlord of $1,327,000 that accrues interest at a fixed rate of 13%, (4) aggregate equipment financing of $7,463,000 that accrues interest at fixed rates ranging from 8.00% to 9.01% and (5) capital lease obligations with a present value of $555,000 for which we imputed interest at fixed rates ranging from 6.20% to 11.51%. Our aggregate interest expense for 2004 was $981,000. By modifying the interest expense associated with our variable rate debt, and notes payable entered into during 2004, a 100 basis point move up or down in market interest rates would have caused a corresponding change of $93,000 in interest expense for 2004.

Foreign Exchange Risk

We have entered into some agreements denominated, wholly or partly, in Euros or other foreign currencies, and, in the future, we may enter into additional, significant agreements denominated in foreign currencies. If the values of these currencies increase against the dollar, our costs would increase. To date, we have not entered into any contracts to reduce the risk of fluctuations in currency exchange rates. In the future, depending upon the amounts payable under any such agreements, we may enter into forward foreign exchange contracts to reduce the risk of unpredictable changes in these costs. However, due to the variability of timing and amount of payments under any such agreements, foreign exchange contracts may not mitigate the potential adverse impact on our financial results.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

The financial statements and supplementary data required by this item are attached to this Annual Report on Form 10-K beginning on page F-1.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Disclosure Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures as such term is defined under Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the Exchange Act), for financial reporting as of December 31, 2004. Based on that evaluation, our principal executive officer and principal financial officer concluded that these controls and procedures are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported as specified in Securities and Exchange Commission rules and forms. There were no changes in these controls or procedures identified in connection with the evaluation of such controls or procedures that occurred during our last fiscal quarter, or in other factors that have materially affected, or are reasonably likely to materially affect, these controls or procedures.

Our disclosure controls and procedures are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the rules and forms of the Securities and Exchange Commission. These disclosure controls and procedures include, among other things, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file under the Exchange Act is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act as a process designed by, or under the supervision of, our principal executive and principal financial and accounting officers and effected by our board of directors and management to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of our management and board of directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2004. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework.*

Based on our assessment, our management believes that, as of December 31, 2004, our internal control over financial reporting is effective.

The company s independent registered public accounting firm has issued an audit report on our assessment of our internal control over financial reporting. This report appears below.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Neose Technologies, Inc.:

We have audited management s assessment, included in the accompanying Management s Report on Internal Control over Financial Reporting, that Neose Technologies, Inc. (a development-stage company) maintained effective internal control over financial reporting as of December 31, 2004, based on the criteria established in Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Neose Technologies, Inc. s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on management s assessment and an opinion on the effectiveness of the Company s internal control over financial reporting based on our audit.

We conducted our audit 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 effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, evaluating management s assessment, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, management s assessment that Neose Technologies, Inc. maintained effective internal control over financial reporting as of December 31, 2004, is fairly stated, in all material respects, based on criteria established in Internal Control Integrated Framework issued by COSO. Also, in our opinion, Neose Technologies, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2004, based on the criteria established in Internal Control Integrated Framework issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the balance sheets of Neose Technologies, Inc. as of December 31, 2004 and 2003, and the related statements of operations, stockholders equity and comprehensive loss, and cash flows for each of the years in the three-year period ended December 31, 2004, and for the period from January 17, 1989 (inception) to December 31, 2004, and our report dated March 10, 2005 expressed an unqualified opinion on those financial statements. The financial statements of Neose Technologies, Inc. for the period from January 17, 1989 (inception) through December 31, 2004, to the extent related to the period from January 17, 1989 (inception) to December 31, 2001,

were audited by other auditors who have ceased operations. Those auditors expressed an unqualified opinion on those financial statements in their report dated January 25, 2002. Our opinion on the statements of operations, stockholders equity and comprehensive loss, and cash flows, insofar as it relates to the amounts included for the period from January 17, 1989 (inception) to December 31, 2001, is based solely on the report of the other auditors.

/s/ KPMG LLP

Philadelphia, Pennsylvania
March 10, 2005

ITEM 9B. OTHER INFORMATION.

The following disclosures would have otherwise been filed on Form 8-K under the headings Item 1.01. Entry into a Material Definitive Agreement and Item 2.03. Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant. :

On December 16, 2004, we borrowed $1,416,000 under two promissory notes in favor of General Electric Capital Corporation (GECC) to finance the purchase of equipment and facility improvements, which collateralize the amount borrowed.

The first note has a principal amount of $1,001,000 and pursuant to the terms of the note, we are required to pay monthly principal and interest payments over 48 months at an interest rate of 9.04%. If any of our monthly payments are not made within 10 days of their due date or if we are in default or fail to perform under the Master Security Agreement with GECC dated December 19, 2002 (the Master Security Agreement), any principal remaining unpaid under the note and any accrued interest shall become immediately due and payable, with interest thereon at the lesser of 18% or the maximum rate of interest allowed by applicable law.

The second note has a principal amount of $415,000 and pursuant to the terms of the note, we are required to pay monthly principal and interest payments over 48 months at an interest rate of 8.95%. If any of our monthly payments are not made within 10 days of their due date or if we are in default or fail to perform under the Master Security Agreement, any principal remaining unpaid under the note and any accrued interest shall become immediately due and payable, with interest thereon at the lesser of 18% or the maximum rate of interest allowed by applicable law.

We have an ongoing relationship with GECC for the provision of equipment acquisition and facility improvement financing. As of December 31, 2004, and including the two notes discussed above, the total amount outstanding to GECC with regard to such financing was $7,463,000.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.

Information concerning directors and executive officers, appearing under the caption Governance of the Company in our Proxy Statement (the Proxy Statement) to be filed with the SEC in connection with our Annual Meeting of Stockholders to be held on May 3, 2005, and information concerning executive officers, appearing under the caption information under the caption Other Matters Section 16(a) Beneficial Ownership Reporting Compliance in the Proxy Statement, are incorporated herein by reference in response to this Item 10**.**

Code of Conduct

We have a Code of Business Conduct and Ethics, which can be viewed on our website at www.neose.com (under About Neose). We require all employees to adhere to the Code in addressing the legal and ethical issues encountered in conducting their work. The Code of Business Conduct and Ethics requires that our employees avoid conflicts of interest, comply with all laws and other legal requirements, conduct business in an honest and ethical manner, and otherwise act with integrity and in our best interest. All of our employees were required to certify that they reviewed and understood the Code when they received it during 2003 or upon their later hire date, and are required to renew this certification annually thereafter. The Code of Business Conduct and Ethics is intended to comply with Item 406 of the SEC s Regulation S-K and the rules of NASDAQ.

The Code of Business Conduct and Ethics includes procedures for reporting violations of the Code, which are applicable to all employees. The Sarbanes-Oxley Act of 2002 requires companies to have procedures to receive, retain and treat complaints received regarding accounting, internal accounting controls or auditing matters and to allow for the confidential and anonymous submission by employees of concerns regarding questionable accounting or auditing matters. The Code of Business Conduct and Ethics also includes these required procedures.

Any waiver or amendment of the Code of Business Conduct and Ethics for designated senior officers, including our chief executive officer and chief financial officer, will be disclosed promptly on our Internet website.

Copies of the Code of Business Conduct and Ethics, which appears on our website, are also available upon request by any stockholder addressed to our Corporate Secretary, 102 Witmer Road, Horsham, PA 19044.

ITEM 11. EXECUTIVE COMPENSATION.

The information contained in the sections titled Executive Compensation and Governance of the Company Compensation of Directors in the Proxy Statement is incorporated herein by reference in response to this Item 11.

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

The information contained in the section titled Stock Ownership of our Directors, Executive Officers and 5% Beneficial Owners in the Proxy Statement is incorporated herein by reference in response to this Item 12.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS.

The information contained in the section titled Certain Relationships and Related Transactions in the Proxy Statement is incorporated herein by reference in response to this Item 13.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The information contained in the section titled Relationship with Independent Registered Public Accountants in the Proxy Statement is incorporated herein by reference in response to this Item 14.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) 1. Financial Statements.

The Financial Statements filed as part of this Annual Report on Form 10-K are listed on the Index to Financial Statements on page F-1.

2. Financial Statement Schedules.

All financial statement schedules have been omitted here because they are not applicable, not required, or the information is shown in the Financial Statements or Notes thereto.

3. Exhibits.

The following is a list of exhibits filed as part of this Annual Report on Form 10-K. We are incorporating by reference to our previous SEC filings each exhibit that contains a footnote. For exhibits incorporated by reference, the location of the exhibit in the previous filing is indicated in parentheses.

Exhibit Number	Description
3.1	Third Amended and Restated Certificate of Incorporation. (Appendix B)(13)
3.2	Second Amended and Restated By-Laws. (Exhibit 3.2)(5)
3.3*	Certificate of Designation establishing and designating the Series A Junior Participating Preferred Stock. (Exhibit 3.3)
4.1	See Exhibits 3.1, 3.2, and 3.3 for instruments defining rights of holders of common stock.
4.2*	Amended and Restated Rights Agreement, dated as of December 3, 1998, between American Stock Transfer & Trust Company, as Rights Agent, and Neose Technologies, Inc. (Exhibit 4.2)
4.3	Amendment No. 1, dated November 14, 2000, to the Amended and Restated Rights Agreement, dated as of December 3, 1998, between Neose Technologies, Inc. and American Stock Transfer & Trust Company, as Rights Agent. (Exhibit 4.1)(2)
4.4	Amendment No. 2, dated June 13, 2002, to the Amended and Restated Rights Agreement, dated as of December 3, 1998, between Neose Technologies, Inc. and American Stock Transfer & Trust Company, as Rights Agent. (Exhibit 4.1)(4)
4.5	Amendment No. 3, dated October 30, 2002, to the Amended and Restated Rights Agreement, dated as of December 3, 1998, between Neose Technologies, Inc. and American Stock Transfer & Trust Company, as Rights Agent. (Exhibit 4.1)(6)
10.1	Amended and Restated License Agreement, dated as of February 27, 2003, between University of Pennsylvania and Neose Technologies, Inc. (Exhibit 10.1)(7)
10.2	1995 Amended and Restated Stock Option/Stock Issuance Plan, as amended. (Appendix B)(9)
10.3	Amended and Restated Employee Stock Purchase Plan. (Appendix C)(9)
10.4	Employment Agreement, dated March 29, 2002, between C. Boyd Clarke and Neose Technologies, Inc. (Exhibit 10.1)(3)
10.5	Non-Qualified Stock Option Agreement, dated March 29, 2002, between C. Boyd Clarke and Neose Technologies, Inc. (Exhibit 10.2)(3)
10.6	Separation and Consulting Agreement, dated March 29, 2002, between Stephen A. Roth and Neose Technologies, Inc. (Exhibit 10.3)(3)
10.7	Confidentiality, Intellectual Property and Non-Competition Agreement, dated March 29, 2003, between Neose Technologies, Inc. and Stephen A. Roth. (Exhibit 10.4)(8)
10.8	Employment Agreement, dated September 12, 2002, between Joseph J. Villafranca and Neose Technologies, Inc. (Exhibit 10.5)(5)

10.9	Form of Change of Control Agreement between Neose Technologies, Inc. and Certain Officers. (Exhibit 10.1)(5)
10.10	Tuition Reimbursement Agreement between A. Brian Davis and Neose Technologies, Inc., dated May 24, 2001. (Exhibit 10.44)(2)
10.11	Change of Control Agreement, dated October 7, 2002, between Debra J. Poul and Neose Technologies, Inc. (Exhibit 10.2)(5)
10.12	Agreement of Lease, dated as of February 15, 2002, between Liberty Property Leased Partnership and Neose Technologies, Inc. (Exhibit 10.40)(2)
10.13	Standard Industrial/Commercial Multi-Tenant Lease-Net, dated February 2, 2001, between Nancy Ridge Technology Center, LLC and Neose Technologies, Inc. (Exhibit 10.47)(2)
10.14	First Amendment to Lease, dated May 18, 2001, between Nancy Ridge Technology Center, LLC and Neose Technologies, Inc. (Exhibit 10.48)(2)
10.15	Agreement, dated as of August 24, 2001, between IPS and Neose Technologies, Inc. (Exhibit 10.49)(2)
10.16	Master Security Agreement between General Electric Capital Corporation and Neose Technologies, Inc., dated as of December 19, 2002. (Exhibit 10.33)(7)
10.17	Amendment to Master Security Agreement between General Electric Capital Corporation and Neose Technologies, Inc., dated as of December 19, 2002. (Exhibit 10.34)(7)
10.18	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated December 27, 2002. (Exhibit 10.35)(7)
10.19	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated March 28, 2003. (Exhibit 10.3)(8)
10.20	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated September 17, 2003. (Exhibit 10.1)(10)
10.21	Research, Development and License Agreement between Neose Technologies, Inc. and Novo Nordisk A/S dated as of November 17, 2003. (Exhibit 10.39)(11)
10.22	Research, Development and License Agreement among Neose Technologies, Inc. and Novo Nordisk A/S and Novo Nordisk Health Care AG dated as of November 17, 2003. (Exhibit 10.40)(11)
10.23	Amendment to Research, Development and License Agreement between Neose Technologies, Inc. and Novo Nordisk A/S dated December 18, 2003. (Exhibit 10.41)(12)
10.24	Amendment to Research, Development and License Agreement among Neose Technologies, Inc. and Novo Nordisk A/S and Novo Nordisk Health Care AG dated December 18, 2003. (Exhibit 10.42)(11)
10.25	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated December 18, 2003. (Exhibit 10.43)(11)
10.26	Credit Agreement by and between Brown Brothers Harriman & Co. and Neose Technologies, Inc., dated as of January 30, 2004. (Exhibit 10.44)(11)
10.27	General Security Agreement by Neose Technologies, Inc. to Brown Brothers Harriman & Co., dated as of January 30, 2004. (Exhibit 10.45)(11)
10.28	Open-end Mortgage and Security Agreement by and between Neose Technologies, Inc. and Brown Brothers Harriman & Co., dated as of January 30, 2004. (Exhibit 10.46)(11)
10.29	Term Loan Note of Neose Technologies, Inc. to Brown Brothers Harriman & Co., dated January 30, 2004. (Exhibit 10.47)(11)
10.30	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated March 30, 2004. (Exhibit 10.1)(12)
10.31	Financing Agreement by and among Montgomery County Industrial Development Authority, Neose Technologies, Inc. and Brown Brothers Harriman & Co., dated February 23, 2004. (Exhibit 10.2)(12)

10.32	General Security Agreement by Neose Technologies, Inc. to Brown Brothers Harriman & Co., dated February 23, 2004. (Exhibit 10.3)(12)
10.33	Open-end Mortgage and Security Agreement by and between Neose Technologies, Inc. and Brown Brothers Harriman & Co., dated February 23, 2004. (Exhibit 10.4)(12)
10.34	Research, Co-Development and Commercialization Agreement between BioGeneriX AG and Neose Technologies, Inc., dated April 20, 2004. (Exhibit 10.5)(14)
10.35	Research, Development and License Agreement between Neose Technologies, Inc. and MacroGenics, Inc., dated April 26, 2004. (Exhibit 10.6)(14)
10.36	First Amendment to Lease between Liberty Property Limited Partnership and Neose Technologies, Inc., dated May 18, 2004. (Exhibit 10.7)(14)
10.37	Promissory Note of Neose Technologies, Inc. to Liberty Property Limited Partnership, dated May 7, 2004. (Exhibit 10.8)(14)
10.38	Neose Technologies, Inc. 2004 Equity Incentive Plan. (Appendix C)(13)
10.39	Separation Agreement between Neose Technologies, Inc. and Robert I. Kriebel, dated September 23, 2004 (Exhibit 10.10)(15)
10.40	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation dated August 20, 2004. (Exhibit 10.11)(16)
10.41	Form of Incentive Stock Option Award Agreement under the Neose Technologies, Inc. 2004 Equity Incentive Plan. (Exhibit 10.12)(16)
10.42	Form of Non-Qualified Stock Option Award Agreement under the Neose Technologies, Inc. 2004 Equity Incentive Plan. (Exhibit 10.13)(16)
10.43	Form of Annual Director Grant Agreement under the Neose Technologies, Inc. 2004 Equity Incentive Plan. (Exhibit 10.14)(16)
10.44	Form of Director Fee Option Grant Agreement under the Neose Technologies, Inc. 2004 Equity Incentive Plan. (Exhibit 10.15)(16)
10.45#*	Letter dated October 12, 2004 (effective November 9, 2004) amending Research, Development and License Agreement among Neose Technologies, Inc. and Novo Nordisk A/S and Novo Nordisk Health Care AG dated November 17, 2003, as amended.
10.46#*	Letter dated October 12, 2004 (effective November 9, 2004) amending Research, Development and License Agreement Between Neose Technologies, Inc. and Novo Nordisk A/S dated as of November 17, 2003, as amended.
10.47*	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated December 16, 2004.
10.48*	Promissory Note of Neose Technologies, Inc. to General Electric Capital Corporation, dated December 16, 2004.
10.49	Form of Restricted Stock Unit Agreement (cliff vesting) between Neose Technologies, Inc. and Certain Employees, Officers and Directors. (Exhibit 10.1)(17)
10.50	Form of Restricted Stock Unit Agreement (quarterly vesting) between Neose Technologies, Inc. and Certain Employees, Officers and Directors. (Exhibit 10.2)(17)
10.51	Letter Agreement dated March 3, 2005 by and between Neose Technologies, Inc and C. Boyd Clarke. (Exhibit 10.3)(17)
10.52	Letter Agreement dated March 3, 2005 by and between Neose Technologies, Inc and Joseph J. Villafranca, Ph.D. (Exhibit 10.4)(17)
23.1*	Consent of KPMG LLP.
24*	Powers of Attorney (included as part of signature page hereof).
31.1*	Certification by Chief Executive Officer pursuant to Rule 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification by Chief Financial Officer pursuant to Rule 13-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1*	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

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* Filed herewith.

Portions of this Exhibit were omitted and filed separately with the Secretary of the SEC pursuant to an order of the SEC granting our application for confidential treatment filed pursuant to Rule 406 under the Securities Act.

Compensation plans and arrangements for executives and others.

\# Portions of this Exhibit were omitted and filed separately with the Secretary of the SEC pursuant to a request for confidential treatment that has been filed with the SEC.

(1) Filed as an Exhibit to our Current Report on Form 8-K filed with the SEC on November 15, 2000.
(2) Filed as an Exhibit to our Annual Report on Form 10-K filed with the SEC on March 29, 2002.
(3) Filed as an Exhibit to our Current Report on Form 8-K/A filed with the SEC on April 30, 2002.
(4) Filed as an Exhibit to our Current Report on Form 8-K filed with the SEC on June 13, 2002.
(5) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2002.
(6) Filed as an Exhibit to our Current Report on Form 8-K filed with the SEC on November 1, 2002.
(7) Filed as an Exhibit to our Annual Report on Form 10-K for the year ended December 31, 2002.
(8) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2003.
(9) Filed as an Exhibit to our Proxy Statement filed with the SEC on April 7, 2003.
(10) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2003.
(11) Filed as an Exhibit to our Annual Report on Form 10-K for the year ended December 31, 2003.
(12) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2004.
(13) Filed as an Exhibit to our Proxy Statement filed with the SEC on April 2, 2004.
(14) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2004.
(15) Filed as an Exhibit to our Current Report on Form 8-K filed with the SEC on September 24, 2004.
(16) Filed as an Exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2004.
(17) Filed as an Exhibit to our Current Report on Form 8-K filed with the SEC on March 4, 2005.

SIGNATURES

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

NEOSE TECHNOLOGIES, INC.

Date: March 10, 2005 By: /s/ C. BOYD CLARKE

C. Boyd Clarke
Chairman, President and Chief Executive Officer

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

Each person, in so signing also makes, constitutes, and appoints C. Boyd Clarke and A. Brian Davis, and each of them acting alone, as his or her true and lawful attorneys-in-fact, with full power of substitution, in his name, place, and stead, to execute and cause to be filed with the Securities and Exchange Commission any or all amendments to this report.

Name	Capacity	Date
/s/ C. BOYD CLARKE **C. Boyd Clarke**	Chairman, President and Chief Executive Officer (Principal Executive Officer)	March 10, 2005
/s/ A. BRIAN DAVIS **A. Brian Davis**	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	March 10, 2005
/s/ BRIAN H. DOVEY **Brian H. Dovey**	Director	March 10, 2005
/s/ L. PATRICK GAGE **L. Patrick Gage**	Director	March 10, 2005
/s/ WILLIAM F. HAMILTON **William F. Hamilton**	Director	March 10, 2005
/s/ DOUGLAS J. MACMASTER, JR. **Douglas J. MacMaster, Jr.**	Director	March 10, 2005
Mark H. Rachesky	Director	March 10, 2005
Stephen A. Roth	Director	March 10, 2005
/s/ LOWELL E. SEARS **Lowell E. Sears**	Director	March 10, 2005
/s/ ELIZABETH H.S. WYATT	Director	March 10, 2005

Elizabeth H.S. Wyatt

Exhibit Index

Exhibit	Description
3.3	Certificate of Designation establishing and designating the Series A Junior Participating Preferred Stock. (Exhibit 3.2)
4.2	Amended and Restated Rights Agreement, dated as of December 3, 1998, between American Stock Transfer & Trust Company, as Rights Agent, and Neose Technologies, Inc. (Exhibit 4.1)
10.46#	Letter dated October 12, 2004 (effective November 9, 2004) amending Research, Development and License Agreement among Neose Technologies, Inc. and Novo Nordisk A/S and Novo Nordisk Health Care AG dated November 17, 2003, as amended.
10.47#	Letter dated October 12, 2004 (effective November 9, 2004) amending Research, Development and License Agreement Between Neose Technologies, Inc. and Novo Nordisk A/S dated as of November 17, 2003, as amended.
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23.1	Consent of KPMG LLP.
24	Powers of Attorney (included as part of signature page hereof).
31.1	Certification by Chief Executive Officer pursuant to Rule 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by Chief Financial Officer pursuant to Rule 13-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

Portions of this Exhibit were omitted and filed separately with the Secretary of the SEC pursuant to a request for confidential treatment that has been filed with the SEC.

Index to Financial Statements

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Neose Technologies, Inc.:

We have audited the accompanying balance sheets of Neose Technologies, Inc. (a development-stage company) as of December 31, 2004 and 2003, and the related statements of operations, stockholders equity and comprehensive loss, and cash flows for each of the years in the three-year period ended December 31, 2004, and for the period from January 17, 1989 (inception) to December 31, 2004. These financial statements are the responsibility of the management of Neose Technologies, Inc. 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. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

The financial statements of Neose Technologies, Inc. for the period from January 17, 1989 (inception) through December 31, 2004, to the extent related to the period from January 17, 1989 (inception) to December 31, 2001, were audited by other auditors who have ceased operations. Those auditors expressed an unqualified opinion on those financial statements in their report dated January 25, 2002. Our opinion on the statements of operations, stockholders equity and comprehensive loss, and cash flows, insofar as it relates to the amounts included for the period from January 17, 1989 (inception) to December 31, 2001, is based solely on the report of the other auditors.

In our opinion, based on our audits and the report of other auditors, the financial statements referred to above present fairly, in all material respects, the financial position of Neose Technologies, Inc. (a development-stage company) as of December 31, 2004 and 2003, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2004, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the effectiveness of the internal control over financial reporting of Neose Technologies, Inc. as of December 31, 2004, based on the criteria established in Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated March 10, 2005 expressed an unqualified opinion on management s assessment of, and the effective operation of, internal control over financial reporting.

/s/ KPMG LLP

Philadelphia, Pennsylvania
March 10, 2005

Neose Technologies, Inc.
(a development-stage company)

Balance Sheets
(in thousands, except per share amounts)

	December 31, 2003	December 31, 2004
Assets		
Current assets:		
Cash and cash equivalents	$ 48,101	$ 45,048
Marketable securities	4,959	
Restricted funds	901	
Accounts receivable and other current assets	909	2,768
Total current assets	54,870	47,816
Property and equipment, net	37,192	41,133
Intangible and other assets, net	2,783	1,782
Total assets	$ 94,845	$ 90,731
Liabilities and Stockholders Equity		
Current liabilities:		
Current portion of long-term debt and capital lease obligations	$ 2,231	$ 4,586
Accounts payable	2,342	1,783
Accrued compensation	2,510	1,916
Accrued expenses	2,433	2,052
Deferred revenue	1,000	1,560
Total current liabilities	10,516	11,897
Long-term debt and capital lease obligations	8,370	13,759
Deferred revenue, net of current portion	3,333	3,688
Other liabilities	413	533
Total liabilities	22,632	29,877
Commitments and contingencies (See Note 14)		
Stockholders equity:		
Preferred stock, par value $.01 per share, 5,000 shares authorized, none issued		
Common stock, par value $.01 per share, 30,000 and 50,000 shares authorized; 19,935 and 24,717 shares issued and outstanding	199	247
Additional paid-in capital	217,849	248,027
Deferred compensation	(96)	(39)
Deficit accumulated during the development stage	(145,739)	(187,381)
Total stockholders equity	72,213	60,854
Total liabilities and stockholders equity	$ 94,845	$ 90,731

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Operations
(in thousands, except per share amounts)

	Year ended December 31,			Period from inception (January 17, 1989) to December 31, 2004
	2002	2003	2004	
Revenue from collaborative agreements	$ 4,813	$ 1,435	$ 5,070	$ 23,951
Operating expenses:				
Research and development	21,481	26,821	34,672	161,171
General and administrative	12,510	11,148	11,711	71,931
Total operating expenses	33,991	37,969	46,383	233,102
Operating loss	(29,178)	(36,534)	(41,313)	(209,151)
Other income	1,653			7,773
Impairment of equity securities		(1,250)		(1,250)
Interest income	1,108	564	652	19,994
Interest expense		(461)	(981)	(4,747)
Net loss	$ (26,417)	$ (37,681)	$ (41,642)	$ (187,381)
Basic and diluted net loss per share	$ (1.85)	$ (2.14)	$ (1.82)	
Weighted-average shares outstanding used in computing basic and diluted net loss per share	14,259	17,611	22,898	

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Stockholders Equity and Comprehensive Loss
(in thousands)

	Convertible Preferred Stock		Common Stock		Additional paid-in capital	Treasury stock	Deferred compen-sation	Deficit accumulated during the development stage	Unrealized gains (losses) on marketable securities	Comprehensive loss accumulated during the development stage
	Shares	Amount	Shares	Amount						
Balance, January 17, 1989 (inception)		$		$	$	$	$	$	$	$
Initial issuance of common stock			1,302	13	(3)					
Shares issued pursuant to consulting, licensing, and antidilutive agreements			329	3	(1)					
Sale of common stock			133	1	1					
Net loss								(460)		(460)
Balance, December 31, 1990			1,764	17	(3)			(460)		(460)
Sale of stock	1,517	15	420	4	4,499		(7)			
Shares issued pursuant to consulting and antidilutive agreements			145	1						
Capital contributions					10					
Dividends on preferred stock					(18)					
Net loss								(1,865)		(1,865)
Balance, December 31, 1991	1,517	15	2,329	22	4,488		(7)	(2,325)		(2,325)
Sale of stock	260	2	17		2,344					
Shares issued pursuant to redemption of notes payable			107	1	682					
Exercise of stock options and warrants			21		51					
Amortization of deferred compensation							5			
Dividends on preferred stock					(36)					
Net loss								(3,355)		(3,355)
Balance, December 31, 1992	1,777	17	2,474	23	7,529		(2)	(5,680)		(5,680)
Sale of preferred stock	250	3			1,997					
Shares issued to licensor			3							
Shares issued to preferred stockholder in lieu of cash dividends			1		18					
Amortization of deferred compensation							2			
Dividends on preferred stock					(36)					
Net loss								(2,423)		(2,423)

Balance, December 31, 1993	2,027		20	2,478	23	9,508			(8,103)		(8,103)
Sale of preferred stock	2,449		25			11,040					
Exercise of stock options				35	1	14					
Shares issued to preferred stockholder in lieu of cash dividends				10	1	53					
Dividends on preferred stock						(18)					
Net loss									(6,212)		(6,212)
Balance, December 31, 1994	4,476	$	45	2,523	$ 25	$ 20,597	$	$	$ (14,315)	$	$ (14,315)

(continued)

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Stockholders Equity and Comprehensive Loss
(in thousands)
(continued)

	Convertible Preferred Stock		Common Stock		Additional paid-in capital	Treasury stock	Deferred compen-sation	Deficit accumulated during the development stage	Unrealized gains (losses) on marketable securities	Comprehensive loss accumulated during the development stage
	Shares	Amount	Shares	Amount						
Sale of preferred stock	2,721	$ 27		$	$ 10,065	$	$	$	$	$
Exercise of stock options and warrants			116	1	329					
Shares issued to employees in lieu of cash compensation			8		44					
Deferred compensation related to grants of stock options					360		(360)			
Shares issued to stockholder related to initial public offering			23							
Shares issued to preferred stockholder in lieu of cash dividends			3		18					
Dividends on preferred stock					(36)					
Conversion of preferred stock into common stock	(1,417)	(14)	472	5	9					
Net loss								(5,067)		(5,067)
Balance, December 31, 1995	5,780	58	3,145	31	31,386		(360)	(19,382)		(19,382)
Dividends on preferred stock					(18)					
Sale of common stock in initial public offering			2,588	26	29,101					
Conversion of preferred stock into common stock	(5,780)	(58)	2,411	24	34					
Exercise of stock options and warrants			65	1	162					
Shares issued pursuant to employee stock purchase plan			6		60					
Stock-based compensation related to modification of options					106					
Amortization of deferred compensation							90			
Net loss								(6,141)		(6,141)
Balance, December 31, 1996			8,215	82	60,831		(270)	(25,523)		(25,523)
Sale of common stock in initial public			1,250	13	20,326					

offering									
Exercise of stock options and warrants		42		139					
Shares issued pursuant to employee stock purchase plan		18		189					
Deferred compensation related to grants of stock options				322		(322)			
Amortization of deferred compensation						231			
Net loss							(9,064)		(9,064)
Balance, December 31, 1997	$	9,525	$ 95	$ 81,807	$	$ (361)	$ (34,587)	$	$ (34,587)

(continued)

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Stockholders Equity and Comprehensive Loss
(in thousands)
(continued)

	Convertible Preferred Stock		Common Stock		Additional paid-in capital	Treasury stock	Deferred compen-sation	Deficit accumulated during the development stage	Unrealized gains (losses) on marketable securities	Comprehensive loss accumulated during the development stage
	Shares	Amount	Shares	Amount						
Exercise of stock options		$	49	$ 1	$ 261	$	$	$	$	$
Shares issued pursuant to employee stock purchase plan			15		171					
Deferred compensation related to grants of stock options					161		(161)			
Amortization of deferred compensation							311			
Unrealized gains on marketable securities									222	222
Net loss								(11,907)		(11,907)
Balance, December 31, 1998			9,589	96	82,400		(211)	(46,494)	222	(46,272)
Sale of common stock in private placements			1,786	18	17,398					
Exercise of stock options and warrants			43		263					
Shares issued pursuant to employee stock purchase plan			16		156					
Deferred compensation related to grants of stock options					796		(796)			
Amortization of deferred compensation							477			
Unrealized losses on marketable securities									(222)	(222)
Net loss								(13,318)		(13,318)
Balance, December 31, 1999			11,434	114	101,013		(530)	(59,812)		(59,812)
Sale of common stock in public offering			2,300	23	68,582					
Exercise of stock options and warrants			247	3	2,735					
Shares issued pursuant to employee stock purchase plan			11		157					
Deferred compensation related to grants of employee stock options					70		(70)			
Deferred compensation related to non-employee stock options					1,200		(1,200)			

Amortization of deferred compensation related to:									
Employee options						70			
Non-employee options						1,013			
Net loss							(8,500)		(8,500)
Balance, December 31, 2000	$	13,992	$ 140	$ 173,757	$	$ (717)	$ (68,312)	$	$ (68,312)

(continued)

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Stockholders Equity and Comprehensive Loss
(in thousands)
(continued)

	Convertible Preferred Stock		Common Stock		Additional paid-in capital	Treasury stock	Deferred compen-sation	Deficit accumulated during the development stage	Unrealized gains (losses) on marketable securities	Comprehensive loss accumulated during the development stage
	Shares	Amount	Shares	Amount						
Exercise of stock options and warrants		$	79	$ 1	$ 867	$	$	$	$	$
Shares issued pursuant to employee stock purchase plan			18		335					
Acquisition of treasury stock, 6 shares at cost			(6)			(175)				
Deferred compensation related to grants of employee stock options					299		(299)			
Deferred compensation related to non-employee stock options					75		(75)			
Stock-based compensation related to modification of options					791					
Amortization of deferred compensation related to:										
Employee options							125			
Non-employee options							463			
Net loss								(13,329)		(13,329)
Balance, December 31, 2001			14,083	141	176,124	(175)	(503)	(81,641)		(81,641)
Exercise of stock options			209	2	1,575					
Shares issued pursuant to employee stock purchase plan			32		384					
Deferred compensation related to grants of employee stock options					118		(118)			
Deferred compensation related to non-employee stock options					(878)		878			
Stock-based compensation related to modification of options					1,622					
Amortization of deferred compensation related to:										
Employee options							171			
Non-employee options							(598)			

Net loss							(26,417)		(26,417)
Balance, December 31, 2002	$	14,324	$ 143	$ 178,945	$ (175)	$ (170)	$ (108,058)	$	$ (108,058)

(continued)

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Stockholders Equity and Comprehensive Loss
(in thousands)
(continued)

	Convertible Preferred Stock		Common Stock		Additional paid-in capital	Treasury stock	Deferred compen-sation	Deficit accumulated during the development stage	Unrealized gains (losses) on marketable securities	Comprehensive loss accumulated during the development stage
	Shares	Amount	Shares	Amount						
Sale of common stock in a registered offering		$	2,655	$ 26	$ 22,351	$	$	$	$	$
Sale of common stock in a private placement			2,867	29	16,291					
Exercise of stock options			63	1	171					
Shares issued pursuant to employee stock purchase plan			26		21	175				
Deferred compensation related to grants of employee stock options					56		(56)			
Deferred compensation related to non-employee stock options					14		(14)			
Amortization of deferred compensation related to:										
Employee options							100			
Non-employee options							44			
Net loss								(37,681)		(37,681)
Balance, December 31, 2003			19,935	199	217,849		(96)	(145,739)		(145,739)
Sale of common stock in a registered offering			4,733	47	29,881					
Exercise of stock options			25	1	73					
Shares issued pursuant to employee stock purchase plan			24		175					
Deferred compensation related to grants of employee stock options					56		(56)			
Deferred compensation related to non-employee stock options					(8)		8			
Stock-based compensation related to modification of options					1					
Amortization of deferred compensation related to:										
Employee options							101			
Non-employee options							4			
Net loss								(41,642)		(41,642)

Balance, December 31, 2004	$	24,717	$ 247	$ 248,027	$	$ (39)	$ (187,381)	$	$	(187,381)

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Statements of Cash Flows
(in thousands)

	Year ended December 31,			Period from inception (January 17, 1989) to December 31, 2004
	2002	2003	2004	
Cash flows from operating activities:				
Net loss	$ (26,417)	$ (37,681)	$ (41,642)	$ (187,381)
Adjustments to reconcile net loss to cash used in operating activities:				
Depreciation and amortization	2,369	4,818	6,063	23,695
Non-cash compensation	1,195	144	106	5,121
Impairment and loss on disposition of equipment	7	264	199	470
Common stock issued for non-cash and other charges				38
Changes in operating assets and liabilities:				
Accounts receivable and other current assets	1,077	(359)	(1,108)	(2,017)
Intangible and other assets	(252)	16	47	(197)
Accounts payable	408	1,215	(559)	1,783
Accrued compensation	484	708	(594)	1,497
Accrued expenses	734	(200)	411	1,989
Deferred revenue	(902)	4,013	213	4,546
Other liabilities	330	(336)	120	114
Net cash used in operating activities	(20,967)	(27,398)	(36,744)	(150,342)
Cash flows from investing activities:				
Purchases of property and equipment	(17,826)	(3,455)	(9,844)	(60,410)
Proceeds from sale-leaseback of equipment				1,382
Purchases of marketable securities	(60,411)	(38,569)		(423,307)
Proceeds from sales of marketable securities		18,219		29,686
Proceeds from maturities of and other changes in marketable securities	51,000	25,500	5,000	394,360
Purchase of acquired intellectual property				(4,550)
Investment in equity securities				(1,250)
Impairment of equity securities		1,250		1,250
Net cash provided by (used in) investing activities	(27,237)	2,945	(4,844)	(62,839)
Cash flows from financing activities:				
Proceeds from issuance of debt	2,261	4,987	14,112	33,386
Repayments of debt	(1,100)	(2,584)	(6,552)	(17,288)
Debt issuance costs		(78)	(103)	(181)
Restricted funds related to debt	(75)	76	901	
Proceeds from issuance of preferred stock, net				29,687
Proceeds from issuance of common stock, net	384	38,893	30,103	206,220
Proceeds from exercise of stock options and warrants	1,577	172	74	6,652
Acquisition of treasury stock				(175)
Dividends paid				(72)
Net cash provided by financing activities	3,047	41,466	38,535	258,229
Net increase (decrease) in cash and cash equivalents	(45,157)	17,013	(3,053)	45,048
Cash and cash equivalents, beginning of period	76,245	31,088	48,101	

Cash and cash equivalents, end of period	$ 31,088	$ 48,101	$ 45,048	$ 45,048

The accompanying notes are an integral part of these financial statements.

Neose Technologies, Inc.
(a development-stage company)

Notes to Financial Statements
(in thousands, except per share amounts)

Note 1. Background

We are a biopharmaceutical company using our enzymatic technologies to develop proprietary drugs, focusing primarily on therapeutic proteins. We believe that our core enzymatic technologies, GlycoAdvance and GlycoPEGylation , improve the drug properties of therapeutic proteins by building out, and attaching polyethylene glycol (PEG) to, carbohydrate structures on the proteins. We are using our technologies to develop proprietary versions of protein drugs with proven safety and efficacy and to improve the therapeutic profiles of proteins being developed by our partners. We expect these modified proteins to offer significant advantages, including less frequent dosing and possibly improved efficacy, over the original versions of the drugs now on the market, as well as to meet or exceed the pharmacokinetic profile of next-generation versions of the drugs now on the market. We believe this strategy of targeting drugs with proven safety and efficacy allows us to lower the risk profile of our proprietary development portfolio as compared to *de novo* protein drug development. We were initially incorporated in New York in January 1989, began operations in October 1990, and were reincorporated in Delaware in May 1991.

We have incurred losses each year since inception. As of December 31, 2004, we had an accumulated deficit during the development stage of $187,381. We expect to spend significant amounts to expand our research and development on our proprietary drug candidates and technologies, maintain and expand our intellectual property position, expand our manufacturing scale-up activities, and expand our business development and commercialization efforts. Given our planned level of operating expenses, we expect to continue incurring losses for some time. In February 2005, we offered and sold 8,050 shares of our common stock at a public offering price of $4.00 per share, generating net proceeds of approximately $30,000. We will require significant amounts of additional capital in the future to fund our operations, and we do not have any assurance that funding will be available when we need it on terms that we find favorable, if at all.

We have not yet developed any products or commercialized any products or technologies, and we may never be able to do so. Even if we are successful in developing products that are approved for marketing, we will not be successful unless our products, and products incorporating our technologies, gain market acceptance. Our operations are subject to risks and uncertainties other than mentioned above including, among others, the uncertainty of product development, including our limited product development and manufacturing experience; our dependence upon collaborative partners to develop and commercialize products incorporating our technologies and the success of collaborative relationships; the uncertainty of intellectual property rights; technological uncertainty and the risk of technological obsolescence; the risk of development and commercialization of competitive products by others that are more effective, less costly, or otherwise gain greater market acceptance; and the uncertainty of achieving regulatory approvals for our products, or products incorporating our technologies.

Note 2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements, in conformity with U.S. generally accepted accounting principles, requires us to make estimates and assumptions. Those estimates and assumptions affect the reported amounts of assets and liabilities as of the date of the financial statements, the disclosure of contingent assets and liabilities as of the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

We consider all highly liquid investments with a maturity of three months or less on the date of purchase to be cash equivalents. As of December 31, 2003 and 2004, cash equivalents consisted of securities and obligations of either the U.S. Treasury or U.S. government agencies and money market investments. Our cash balances have been kept on deposit primarily at one bank and in amounts greater than $100, which is the limit of insurance provided by the Federal Deposit Insurance Corporation.

Neose Technologies, Inc.
(a development-stage company)

Notes to Financial Statements
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Marketable Securities

Marketable securities consist of investments that have a maturity of more than three months on the date of purchase. To help maintain the safety and liquidity of our marketable securities, we have established guidelines for the concentration, maturities, and credit ratings of our investments. We determine the appropriate classification of our debt securities at the time of purchase and re-evaluate such designation as of each balance sheet date. Marketable securities that we have the positive intent and ability to hold to maturity are classified as held-to-maturity securities and recorded at amortized cost.

As of December 31, 2004, we held no marketable securities. As of December 31, 2003, we held a marketable security that was an obligation of a U.S. government agency. The security, which was classified as held-to-maturity, had an original maturity of 11 months. As of December 31, 2003, the amortized cost of the security was $4,959, which included $15 of accrued interest, and the fair value was $4,961. Securities maturing during the years ended December 31, 2002, 2003 and 2004 earned interest of $354, $310, and $55, respectively.

During 2003, securities that were classified as held-to maturity were sold due to an error by the then-custodian of our investment account. We received proceeds of $18,219 from the sales of the securities, which had an aggregate amortized cost of $18,213, and realized a gain of $6.

Property and Equipment

Property and equipment are stated at cost. Property and equipment capitalized under capital leases are recorded at the present value of the minimum lease payments due over the lease term. Expenditures for additions and improvements are capitalized, while maintenance and repairs are charged to expense as incurred. Depreciation and amortization are calculated using the straight-line method over the estimated useful lives of the assets. Buildings are depreciated over 20 years, while laboratory, manufacturing, and office equipment are depreciated over three to seven years. For assets acquired under capital leases and for leasehold improvements, depreciation and amortization are calculated on the straight-line method over the estimated useful lives of the assets or the lease term, whichever is shorter. Upon the disposition of assets, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is included on our statements of operations.

Impairment of Long-Lived Assets

Long-lived assets and certain identifiable intangibles are reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets held and used is measured by a comparison of the carrying amount of an asset to future net undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell. Although our current and historical negative cash flows are indicators of impairment, we believe the future undiscounted cash flows to be received from our long-lived assets will exceed the assets carrying value. Accordingly, other than in connection with assets held for sale (see Note 5), we did not recognize any impairment losses during the year ended December 31, 2004.

Neose Technologies, Inc.
(a development-stage company)

Notes to Financial Statements
(in thousands, except per share amounts)

Financing Costs Related to Long-term Debt

Costs associated with obtaining long-term debt are deferred and amortized over the term of the related debt.

Revenue Recognition

Revenue from collaborative agreements consists of upfront fees, research and development funding, and milestone payments. Non-refundable upfront fees are deferred and amortized to revenue over the related estimated performance period. Periodic payments for research and development activities are recognized over the period in which we perform those activities under the terms of each agreement. Revenue resulting from the achievement of milestone events stipulated in the agreements is recognized when the milestone is achieved.

Research and Development

Research and development costs are charged to expense as incurred. For each of our research and development projects, we incur both direct and indirect expenses. Direct expenses include salaries and other costs of personnel, raw materials, and supplies for each project. We may also incur third-party costs related to these projects, such as contract research and manufacturing, consulting, and preclinical development costs. Indirect expenses include depreciation expense and the costs of operating and maintaining our facilities, property, and equipment, to the extent used for our research and development projects, as well as the costs of general management of our research and development projects.

Interest Expense

During each of the three years ended December 31, 2004, we incurred significant capital expenditures related to improving our owned and leased facilities. See Note 5 for a description of our property and equipment. Accordingly, we capitalized a portion of interest incurred during each reporting period in accordance with Statement of Financial Accounting Standards No. 34, Capitalization of Interest Cost, as amended. Our interest expense for each reporting period is calculated by subtracting the amount of interest capitalized from the amount of interest incurred.

Income Taxes

We account for income taxes under the asset and 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 operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be 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. We provide an allowance for our net deferred tax assets because there is no assurance they will be realized.

Stock-based Employee Compensation

We apply the intrinsic value method of accounting for all stock-based employee compensation in accordance with APB Opinion No. 25, Accounting for Stock Issued to Employees (APB 25), and related interpretations. We record deferred compensation for option grants to employees for the amount, if any, by which the market price per share exceeds the exercise price per share. In addition, we apply fair value accounting for option grants to non-employees in accordance with Statement of Financial Accounting Standards No. 123, Accounting for Stock-Based Compensation (SFAS No. 123), and Emerging Issues Task Force Issue 96-18, Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services (EITF 96-18).

Neose Technologies, Inc.
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Notes to Financial Statements
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We have elected to adopt only the disclosure provisions of Statement of Financial Accounting Standards No. 148, Accounting for Stock-Based Compensation Transition and Disclosure, an amendment of FASB Statement No. 123. The following table illustrates the effect on our net loss and basic and diluted net loss per share if we had recorded compensation expense for the estimated fair value of our stock-based employee compensation, consistent with SFAS No. 123:

Year Ended December 31,	2002	2003	2004
Net loss as reported	$ (26,417)	$ (37,681)	$ (41,642)
Add: Stock-based employee compensation expense included in reported net loss	171	100	101
Deduct: Total stock-based employee compensation expense determined under fair value-based method for all awards	(15,588)	(11,893)	(9,869)
Net loss pro forma	$ (41,834)	$ (49,474)	$ (51,410)
Basic and diluted net loss per share as reported	$ (1.85)	$ (2.14)	$ (1.82)
Basic and diluted net loss per share pro forma	$ (2.94)	$ (2.81)	$ (2.25)

Net Loss Per Share

Basic loss per share is computed by dividing net loss by the weighted-average number of common shares outstanding for the period. Diluted loss per share reflects the potential dilution from the exercise or conversion of securities into common stock. For the years ended December 31, 2002, 2003, and 2004, the effects of the exercise of outstanding stock options were antidilutive; accordingly, they were excluded from the calculation of diluted earnings per share. See Note 10 for a summary of outstanding options.

Comprehensive Loss

Statement of Financial Accounting Standards No. 130, Reporting Comprehensive Income, requires disclosure of comprehensive income (loss) in the financial statements. Comprehensive income (loss) is comprised of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) includes changes to equity that are not included in net income (loss). Our comprehensive loss for the years ended December 31, 2002, 2003, and 2004, and for the period from inception (January 17, 1989) through December 31, 2004, was comprised only of our net loss and is reported on our Statements of Stockholders Equity and Comprehensive Loss.

Fair Value of Financial Instruments

The fair value of our financial instruments is the amount for which the instrument could be exchanged in a current transaction between willing parties. As of December 31, 2004, the carrying values of cash and cash equivalents, accounts receivable, prepaid expenses and other current assets, accounts payable, accrued expenses, and accrued compensation equaled or approximated their respective fair values because of the short duration of these instruments. The fair value of our long-term debt was estimated by discounting the future cash flows of each instrument at rates recently offered to us for similar debt instruments offered by our lenders. As of December 31, 2004, the fair and carrying values of our long-term debt and capital lease obligations were $16,970 and $18,345, respectively.

Neose Technologies, Inc.
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Notes to Financial Statements
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Recent Accounting Pronouncements

In December 2004, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 123R, *Share-Based Payment* (SFAS No. 123R), which requires companies to expense the fair value of stock options and other equity-based compensation to employees. It also provides guidance for determining whether an award is a liability-classified award or an equity-classified award, and determining fair value. SFAS No. 123R will be effective for public companies for interim and annual periods beginning after June 15, 2005, and applies to all unvested stock-based payment awards outstanding as of the adoption date. We have not completed an assessment of the impact on our financial statements resulting from potential modifications to our equity-based compensation structure or the use of an alternative fair value model in anticipation of adopting SFAS No. 123R.

In December 2004, the FASB issued SFAS No. 153, *Exchanges of Productive Assets*, which amends APB Opinion No. 29, *Accounting for Nonmonetary Transactions*, which requires a nonmonetary exchange of assets be accounted for at fair value, recognizing any gain or loss, if the exchange meets a commercial substance criterion and fair value is determinable. The commercial substance criterion is assessed by comparing the entity s expected cash flows immediately before and after the exchange. This eliminates the similar productive assets exception, which accounts for the exchange of assets at book value with no recognition of gain or loss. SFAS No. 153 will be effective for nonmonetary transactions occurring in fiscal periods beginning after June 15, 2005. We do not believe the adoption of SFAS No. 153 will have a material impact on our financial statements.

Reclassification

Certain prior year amounts have been reclassified to conform to our current year presentation.

Neose Technologies, Inc.
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Notes to Financial Statements
(in thousands, except per share amounts)

Note 3. Supplemental Disclosure of Cash Flow Information

The following table contains additional cash flow information for the periods reported.

	Year ended December 31,			Period from inception (January 17, 1989) to December 31, 2004
	2002	2003	2004	
Supplemental disclosure of cash flow information:				
Gross cash paid for interest	$ 152	$ 473	$ 1,097	$ 5,027
Less capitalized interest	(150)	(42)	(139)	(401)
Cash paid for interest, net of amounts capitalized	$ 2	$ 431	$ 958	$ 4,626
Non-compete agreement	$	$ 882	$	$ 882
Non-cash investing activities:				
Increase (decrease) in accrued property and equipment	$ (1,698)	$ 753	$ (792)	$ 63
Assets acquired under capital leases and tenant improvement loan	$ 50	$ 787	$ 184	$ 1,525
Non-cash financing activities:				
Conversion of debt into common stock	$	$	$	$ 660
Issuance of common stock for dividends and interest	$	$	$	$ 150
Issuance of common stock to employees in lieu of cash compensation	$	$	$	$ 44

Note 4. Accounts Receivable and Other Current Assets

Accounts receivable and other current assets consisted of the following:

December 31,	2003	2004
Accounts receivable	$ 10	$ 2,150
Prepaid insurance	122	102
Deposits	410	30
Assets held for sale (see Note 5)		49
Receivable from related party (see Note 6)	32	31
Other prepaid expenses	335	406
	$ 909	$ 2,768

Neose Technologies, Inc.
(a development-stage company)

Notes to Financial Statements
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Note 5. Property and Equipment

Property and equipment consisted of the following:

December 31,	2003	2004
Building and facility improvements	$ 27,989	$ 38,270
Laboratory, manufacturing, and office equipment	16,024	19,364
Land	700	700
Construction-in-progress	5,217	157
	49,930	58,491
Less accumulated depreciation and amortization	(12,738)	(17,358)
	$ 37,192	$ 41,133

To provide credit support for the term loan from our bank and for the industrial development authority bonds, we granted a mortgage to our bank on the land and building where our present headquarters are located, as well as on improvements, certain equipment, and other tangible personal property (see Note 7). Laboratory, manufacturing, and office equipment as of December 31, 2003 and 2004 included $837 and $1,021 respectively, of assets acquired under capital leases. Accumulated depreciation and amortization as of December 31, 2003 and 2004 includes $126 and $429, respectively, related to assets acquired under capital leases. Construction-in-progress as of December 31, 2003 consisted primarily of improvements to our leased facility in Horsham, PA. In April 2004, we occupied the facility and began amortizing the total project cost of $10,175. Construction-in-progress as of December 31, 2004 consisted primarily of improvements to the facility we own in Horsham, PA. During the years ended December 31, 2002, 2003, and 2004, we capitalized $150, $42, and $139, respectively, of interest expense in connection with our facility improvement projects.

Depreciation expense, which includes amortization of assets acquired under capital leases, was $2,311, $4,047, and $5,047 for the years ended December 31, 2002, 2003, and 2004, respectively. During the years ended December 31, 2002, 2003, and 2004, we recorded losses on disposition of property and equipment of $7, $264, and $95, respectively. During the years ended December 31, 2002, 2003 and 2004, we disposed of $1,734, $93, and $0, respectively, of fully depreciated assets.

During the year ended December 31, 2004, we decided to sell idle equipment that had a carrying value of $153. We expect to sell the idle equipment during 2005. Because the carrying value exceeded the realizable value, net of selling costs, we recognized an impairment loss during 2004 of $104, which is included in research and development expenses on our statements of operations. The remaining carrying value of $49 has been reclassified as assets held for sale, and is included in accounts receivable and other current assets on our balance sheets (see Note 4).

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Note 6. Intangible and Other Assets

Intangible and other assets consisted of the following:

December 31,	2003	2004
Acquired intellectual property, net of accumulated amortization of $2,640 and $3,238 as of December 31, 2003 and 2004, respectively	$ 1,910	$ 1,312
Non-competition agreement, net of accumulated amortization of $331 and $772 as of December 31, 2003 and 2004, respectively	551	110
Deferred financing costs, net of accumulated amortization of zero and $18 as of December 31, 2003 and 2004, respectively	78	163
Receivable from related party	86	57
Deposits	158	140
	$ 2,783	$ 1,782

Acquired Intellectual Property, net

In 1999, we acquired the carbohydrate-manufacturing patents, licenses, and other intellectual property of Cytel Corporation for aggregate consideration of $4,750, of which $200 was charged to research and development expense on our statements of operations in 1998. The acquired intellectual property consists of core technology with alternative future uses. The acquired intellectual property balance is being amortized using the straight-line method to research and development expense on our statements of operations over eight years, which is the estimated useful life of the technology. Amortization expense relating to the acquired intellectual property was $598, $597, and $598 for each of the years ended December 31, 2002, 2003, and 2004, respectively. We estimate amortization expense related to acquired intellectual property will be $598, $597, and $117 during the years ended December 31, 2005, 2006, and 2007, respectively.

Non-competition Agreement

In March 2003, our former Chief Executive Officer, Stephen A. Roth, exercised the right under his separation and consulting agreement to enter into a non-competition agreement with us. Upon entering into the separation and consulting agreement with Dr. Roth in 2002, we recorded severance expense of $309, which represented the present value of his future benefit payments under the separation and consulting agreement. Under the non-competition agreement, we are required to pay him $40 per month for 24 months and, should he leave our board of directors during such two-year period, continue his stock option vesting and exercisability. Upon entering into the non-competition agreement, we recorded a liability of $882, which represented the present value of the future payments, and a corresponding asset for the value of the non-competition commitment. The asset is being amortized using the straight-line method to general and administrative expense on our statements of operations over the two-year term of the agreement. Amortization expense relating to the non-competition agreement was $331 and $441 for each of the years ended December 31, 2003 and 2004, respectively. We estimate amortization expense related to the non-competition agreement will be $110 during the year ended December 31, 2005.

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Deferred Financing Costs

During the first quarter of 2004, we entered into agreements with a bank (see Note 7 for a description of these agreements). In connection with entering into these agreements, we incurred $181 of legal and other costs, of which $78 had been incurred as of December 31, 2003. We recorded this amount as an asset, and began amortizing the asset to interest expense on our statements of operations over the ten-year repayment term to the bank. Amortization expense relating to the deferred financing costs was $18 for the year ended December 31, 2004. We estimate amortization expense related to deferred financing costs will be $18 during each of the years ended December 31, 2005, 2006, 2007, 2008, and 2009.

Receivable from Related Party

In 2001, we entered into a tuition reimbursement agreement with an employee who subsequently became an executive officer. Under the agreement, we agreed to lend the amounts necessary to pay for the employee s tuition payments and related costs and fees. Interest accrues on the loan at 4.71% per year, and has been payable annually since May 2002. We agreed to forgive repayment of the principal amount outstanding, in four equal, annual installments, commencing in May 2004, if the employee remains employed by us on each forgiveness date. We also agreed to forgive the accrued interest on each annual due date and, if the employee is terminated without cause, we also agreed to forgive all outstanding principal and interest. During 2004, we forgave principal and accrued interest of $34. As of December 31, 2003 and 2004, the amounts outstanding under the agreement, including accrued interest, were $118 and $88, respectively. Of these amounts, $32 and $31 are included in accounts receivable and other current assets on our balance sheets as of December 31, 2003 and 2004, respectively.

Note 7. Long-Term Debt and Capital Lease Obligations

Long-term debt and capital lease obligations consisted of the following:

December 31,	2003	2004
Term loan from bank	$	$ 8,000
Industrial development authority bonds	3,900	1,000
Term loan from landlord (unsecured), annual interest at 13.00%, due June 2008		1,327
Notes payable to equipment lender, secured by equipment and facility improvements that had a carrying value of $9,282 as of December 31, 2004, interest rates from 8.00% to 9.01%, due 2006 to 2009	6,082	7,463
Subtotal	9,982	17,790
Capital lease obligations (see Note 14)	619	555
Total debt	10,601	18,345
Less current portion	(2,231)	(4,586)
Total debt, net of current portion	$ 8,370	$ 13,759

Minimum principal repayments of long-term debt and capital lease obligations as of December 31, 2004 were as follows: 2005 $4,586; 2006 $3,837; 2007 $2,809; 2008 $1,643; 2009 $915; and thereafter $4,555. Interest expense during the years ended December 31, 2003 and 2004 was $461 and $981, respectively. All interest incurred during the year ended December 31, 2002 was capitalized in connection with our facility improvement projects. See Note 5 for the amounts of interest capitalized during each of the three years ending December 31, 2004.

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Term Loan from Bank and Industrial Development Authority Bonds

During the first quarter of 2004, we and a bank entered into agreements under which the bank acquired and reissued the $1,000 outstanding of our tax-exempt Industrial Development Authority bonds. In addition, we borrowed $8,000 from the bank, of which $1,800 was combined with $1,100 of our restricted cash for the purpose of paying in full the $2,900 outstanding of our taxable Industrial Development Authority bonds. The remaining $6,200 borrowed funded improvements to our leased facility, which we occupied in April 2004, in Horsham, PA.

The interest rate on the bond and bank debt will vary quarterly, depending on 90-day LIBOR rates. At December 31, 2004, the 90-day LIBOR was 2.56%. We have the option each quarter to incur interest on the outstanding principal at the LIBOR-based variable interest rate or a fixed rate offered by our bank.

For the $8,000 term loan, interest will accrue at an interest rate equal to the 90-day LIBOR plus 3.0%. We will make quarterly, interest-only payments through March 31, 2005. Commencing on March 31, 2005, we will make quarterly principal payments of $222 plus interest over the remaining nine years of the ten-year loan period.

For the $1,000 Industrial Development Authority bond, we will make quarterly, interest-only payments for ten years at an interest rate equal to the 90-day LIBOR plus 1.5%, followed by a single repayment of principal at the end of the ten-year loan period. If the 90-day LIBOR at the beginning of any calendar quarter is between 4.0% and 6.0%, the bond will bear interest at the 90-day LIBOR plus 1.25%. If the 90-day LIBOR at the beginning of any calendar quarter exceeds 6.0%, the bond will bear interest at the 90-day LIBOR plus 1.0%.

To provide security for these borrowings, we granted a first mortgage to our bank on the land and building where our present headquarters are located, as well as a security interest of first priority on certain improvements, certain equipment, and other tangible personal property. Under our agreements with the bank, if the bank determines a material adverse change has occurred in our business, financial condition, results of operations, or business prospects, the bank in its sole discretion may declare at any time an event of default, of which one potential outcome could be the accelerated repayment of the loan balance, which was $9,000 as of December 31, 2004. Under our agreements with the bank, we agreed to limit our total outstanding debt to $22,000. As of December 31, 2004, our total outstanding debt was $18,345. At any time after January 30, 2008, or if we fail to maintain a minimum required cash and short-term investments balance of at least $22,000, our bank has the option to require additional collateral from us in the form of a security interest in certain cash and short-term investments, or in the form of a letter of credit, which may have the effect of requiring us to repay the outstanding loan balance to the bank. The agreements with our bank also contain covenants that, among other things, require us to obtain consent from the bank prior to paying dividends, making certain investments, changing the nature of our business, assuming or guaranteeing the indebtedness of another entity or individual, selling or otherwise disposing of a substantial portion of our assets, and merging or consolidating with another entity.

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Note 8. Accrued Expenses

Accrued expenses consisted of the following:

December 31,	2003	2004
Property and equipment	$ 855	$ 63
Professional fees	444	610
Employee relocation	349	186
Outside research expenses	142	174
Other expenses	643	1,019
	$ 2,433	$ 2,052

Note 9. Stockholders Equity

Common Stock

In February 2005, we offered and sold 8,050 shares of our common stock at a public offering price of $4.00 per share, generating net proceeds of approximately $30,000.

In May 2004, we sold 4,733 shares of common stock in a registered offering to a number of institutional and individual investors, including 812 shares sold to officers and an investment fund affiliated with a director, at a price of $6.77 per share, generating net proceeds of $29,928.

In September 2003, we sold 2,655 shares of common stock in a registered offering to a number of institutional and individual investors at a price of $9.00 per share, generating net proceeds of $22,377. In February 2003, we sold 2,867 shares of common stock in a private placement to a number of institutional and individual investors at a price of $6.00 per share, generating net proceeds of $16,320.

In March 2000, we offered and sold 2,300 shares of our common stock at a public offering price of $32.00 per share, generating net proceeds of $68,605.

In June 1999, we sold 1,500 shares of common stock in a private placement to a number of institutional and individual investors at a price of $9.50 per share, generating net proceeds of $13,416. In January 1999, we sold 286 shares of common stock to Johnson & Johnson Development Corporation at a price of $13.98 per share, generating net proceeds of $4,000.

In January 1997, we sold 1,250 shares of common stock in a public offering at a price of $17.50 per share, generating net proceeds of $20,339.

Our initial public offering closed in February 1996. We sold 2,588 shares of common stock, which included the exercise of the underwriters over-allotment option in March 1996, at a price of $12.50 per share. Our net proceeds from this offering after the underwriting discount and payment of offering expenses were $29,127. In connection with this offering, all outstanding shares of Series A, C, D, E, and F Convertible Preferred Stock converted into 2,411 shares of common stock.

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Shareholder Rights Plan

In September 1997, we adopted a Shareholder Rights Plan. Under this plan, which was amended in December 1998, holders of common stock are entitled to receive one right for each share of common stock held. Separate rights certificates would be issued and become exercisable if any acquiring party either accumulates or announces an offer to acquire at least 15% of our common stock. Each right will entitle any holder who owns less than 15% of our common stock to buy one one-hundredth share of the Series A Junior Participating Preferred Stock at an exercise price of $150. Each one one-hundredth share of the Series A Junior Participating Preferred Stock is essentially equivalent to one share of our common stock. If an acquiring party accumulates at least 15% of our common stock, each right entitles any holder who owns less than 15% of our common stock to purchase for $150 either $300 worth of our common stock or $300 worth of the 15% acquirer s common stock. In November 2000, the Plan was amended to increase the threshold from 15% to 20% for Kopp Investment Advisors, Inc. and related parties. In June 2002 and October 2002, the Plan was amended to increase the threshold to 20% and 25%, respectively, for Eastbourne Capital Management, LLC and related parties. The rights expire in September 2007 and may be redeemed by us at a price of $.01 per right at any time up to ten days after they become exercisable.

Note 10. Compensation Plans

Equity Incentive Plans

We have two equity incentive plans, under which a total of 6,874 shares of common stock have been authorized. In addition, we granted nonqualified stock options outside of these plans in 1995 to two consultants to purchase an aggregate of 70 shares and in 2002 to our Chief Executive Officer and President to purchase 488 shares.

The 2004 Equity Incentive Plan incorporates a predecessor plan. The following types of awards are available under the plan: incentive stock options, non-qualified stock options, stock appreciation rights, restricted shares and restricted share units. All employees, non-employee directors, and consultants are eligible to receive awards under the plan. The plan allows us to grant restricted shares and restricted share units with complete discretion as to: when grants are made; the consideration, if any, to be paid for restricted shares; and when the restrictions applicable to each restricted share and restricted share unit will lapse. The plan also allows us to grant options and stock appreciation rights to eligible individuals, with complete discretion as to: when grants are made; the number of shares subject to, and the vesting schedule for, each option grant and stock appreciation right; the designation of each stock option as either an incentive or a non-qualified stock option; the maximum term for which each option grant and stock appreciation right is to remain outstanding, which term, for an incentive stock option, may not exceed ten years (and for an incentive stock option granted to a person who owns more than 10% of the voting power of the Company may not exceed five years); and the exercise price for each option and stock appreciation right, which for a non-qualified stock option may not be less than 85% of the fair market value of the stock on the date of grant and for a qualified stock option must be at least 100% of the fair market value on the date of grant (unless the recipient owns more than 10% of the voting power of the Company, in which case the exercise price must be at least 110% of the fair market value on the date of grant). The following table summarizes the status of stock options as of December 31, 2002, 2003, 2004, and changes during each of the years then ended.

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	2002		2003		2004	
	Shares	Weighted-Average Exercise Price Per Share	Shares	Weighted-Average Exercise Price Per Share	Shares	Weighted-Average Exercise Price Per Share
Outstanding at beginning of year	3,112	$ 20.39	4,327	$ 19.66	4,339	$ 18.20
Granted	1,589	16.92	668	8.44	1,011	10.91
Exercised	(209)	7.42	(63)	2.74	(25)	2.96
Canceled	(165)	22.49	(593)	19.51	(211)	16.55
Outstanding at end of year	4,327	$ 19.66	4,339	$ 18.20	5,114	$ 16.90
Exercisable at end of year	2,042	$ 17.86	2,421	$ 19.03	3,064	$ 18.84

The following table summarizes information about stock options outstanding as of December 31, 2004:

		Options Outstanding			Options Exercisable	
Range of Exercise Prices		Number Outstanding	Weighted-Average Remaining Life (Years)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
$ 3.04	$ 7.92	970	7.9	$ 7.32	414	$ 7.09
$ 7.96	$ 10.00	653	7.5	$ 9.10	435	$ 9.25
$ 10.05	$ 11.91	1,105	8.6	$ 11.41	206	$ 10.74
$ 12.05	$ 18.00	819	3.1	$ 14.36	819	$ 14.36
$ 18.25	$ 27.00	132	5.3	$ 22.04	104	$ 22.39
$ 27.40	$ 41.13	1,435	6.7	$ 32.12	1,086	$ 31.72
		5,114	6.8	$ 16.90	3,064	$ 18.84

Fair Value Disclosures

We have elected to adopt only the disclosure provisions of SFAS No. 123. Accordingly, we apply APB 25 and related interpretations in accounting for our stock-based employee compensation. We record deferred compensation for option grants to employees for the amount, if any, by which the market price per share exceeds the exercise price per share. We amortize deferred compensation over the vesting periods of each option. We recognized $171, $100, and $101 of compensation expense related to employee stock options for the years ended December 31, 2002, 2003, and 2004, respectively. In addition, we recorded $1,608 of expense during the year ended December 31, 2002 related to the modification of certain stock options to a retired employee. See Note 14 for a description of the retirement agreement.

The weighted-average fair value of options granted in 2002, 2003, and 2004 was $12.81, $5.76, and $7.91, respectively. The weighted-average fair value of employee purchase rights granted under our employee stock purchase plan (see below) in 2002, 2003, and 2004 was $15.37, $19.79, and $7.52, respectively. These weighted-average fair values were determined as of the date of grant using the Black-Scholes option-pricing model with the following assumptions:

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Year Ended December 31,	2002	2003	2004
Expected life (years):			
Stock options	6.7	5.5	6.6
Employee stock purchase plan	1.4	1.8	1.3
Risk-free interest rate:			
Stock options	4.2%	3.0%	3.5%
Employee stock purchase plan	2.9%	2.9%	1.6%
Volatility	80%	80%	80%
Dividend yield	0%	0%	0%

During the years ended December 31, 2002, 2003, and 2004, we granted no options at an exercise price in excess of the market price on the date of grant. A summary of options granted at exercise prices equal to and less than the market price on the date of grant is presented below:

Year Ended December 31,	2002	2003	2004
Exercise Price = Market Value			
Options granted	1,579	660	1,002
Weighted-average exercise price	$ 16.98	$ 8.51	$ 10.98
Weighted-average fair value	$ 12.79	$ 5.73	$ 7.92
Exercise Price < Market Value			
Options granted	10	8	9
Weighted-average exercise price	$ 6.00	$ 3.26	$ 3.04
Weighted-average fair value	$ 15.46	$ 8.18	$ 7.86

Non-employee Stock Options

During the years ended December 31, 2003 and 2004, we recognized $44 and $4, respectively, of compensation expense in connection with the vesting of stock options granted to non-employees. During the year ended December 31, 2002, we recognized a gain of $598 in connection with the vesting of stock options granted to non-employees. The compensation expense or gain was based on each option s estimated fair value, which was calculated using the Black-Scholes option-pricing model. Because we re-value each option over the related vesting term in accordance with EITF 96-18, increases in our stock price result in increased expense while decreases in our stock price result in a gain. At December 31, 2002, our closing stock price was significantly lower than at December 31, 2001 and, therefore, we recognized a gain during 2002.

Employee Stock Purchase Plan

We maintain an employee stock purchase plan, or ESPP, for which 183 shares are reserved for issuance. The ESPP allows any eligible employee the opportunity to purchase shares of our common stock through payroll deductions. The ESPP provides for successive, two-year offering periods, each of which contains four semiannual purchase periods. The purchase price at the end of each purchase period is 85% of the lower of the market price per share on the employee s entry date into the offering period or the market price per share on the purchase date. Any employee who owns less than 5% of our common stock may purchase up to the lesser of:

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10% of his or her eligible compensation;
1 share per purchase; or
the number of shares per year that does not exceed the quotient of $25 divided by the market price per share on the employee s entry date into the offering period.

A total of 19 shares of common stock remained available for issuance under the ESPP as of December 31, 2004. The total purchases of common stock under the ESPP during the years ended December 31, 2002, 2003, and 2004, were 32 shares at a total purchase price of $384, 26 shares at a total purchase price of $196, and 24 shares at a total purchase price of $175, respectively. We have not recorded any compensation expense for the ESPP. In connection with the employee stock purchases occurring in 2003, we reissued 6 shares of treasury stock, which were originally acquired in 2001 for $175. Effective January 31, 2005, we terminated the ESPP.

Restricted Stock Units

In March 2005, we concluded that the 2004 bonus award to our Chief Executive Officer would be paid solely in restricted stock units (RSUs) instead of cash, and that 2004 bonus awards to other officers would be payable 50% in cash and 50% in RSUs. The liability associated with the cash portion of the bonus was $441 and was included in accrued compensation at December 31, 2004 on our balance sheet. The number of RSUs granted was determined by dividing the dollar amount of the bonus to be paid in the form of RSUs by the fair market value of our common stock on the date of grant. Except for two officers that retired, the RSUs will not vest until the first anniversary of the grant, and will not be distributed until 18 months from grant, subject to the occurrence of certain events. The amount of the RSU portion of the bonus for the retired officers was $67, which we charged to general and administrative expenses on our statement of operations in 2004 because the RSUs were immediately vested. The amount of the RSU portion of the bonus for other officers was $588, which we are charging to operating expenses on our statements of operations on a straight-line basis over the 26-month period from January 2004 to the vesting date of the RSUs (March 2006). As a result, at December 31, 2004 our accrued compensation included $339 related to the RSUs. The liability classification of the award continued until the grant date, at which time the liability for the award as of that date became equity classified.

401(k) Savings Plan

We maintain a 401(k) Savings Plan for our employees. Employee contributions are voluntary, determined on an individual basis, and limited to the maximum amount allowable under federal income tax regulations. We match employee contributions up to specified limits. We contributed $176, $216, and $181 to the 401(k) Savings Plan for the years ended December 31, 2002, 2003, and 2004, respectively. In addition, during 2004, we allocated $79 of prior year plan forfeitures to match employee contributions to the 401(k) Savings Plan.

Note 11. Collaborative Agreements and Significant Customer Concentration

Our revenues from collaborative agreements have historically been derived from a few major collaborators. Our collaborative agreements have had some or all of the following elements: upfront fees, research and development funding, milestone revenues, and royalties on product sales.

In November 2003, we entered into two research, development and license agreements with Novo Nordisk A/S to use our GlycoPEGylation technology to develop three next-generation proteins within Novo Nordisk s therapeutic areas, one of which is currently marketed by them. Under the terms of the agreements, we received a non-refundable, upfront fee of $4,300, which is being amortized to revenue over the expected performance period. In November 2004, we amended our agreements with Novo Nordisk to provide an amended work plan for one of the proteins, a method of applying some of the project-related funds to tasks that are mutually agreed upon by the parties, a change in the timing of one milestone payment, and the addition of a new milestone payment. We also

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received from Novo Nordisk a payment, which is being amortized to revenue over the expected remaining performance period. As a result of entering into the amendments in November 2004, we changed our estimate of the expected performance period from five years to six years. During the years ended December 31, 2003 and 2004, we amortized $108 and $842, respectively, of payments from Novo Nordisk to revenue. We may also receive up to $51,450 in milestone payments based on the progress of the programs. Novo Nordisk is responsible for funding our research and development activities under the agreements, and we will receive royalties on sales of any products commercialized under the agreements. In addition, we could receive additional milestones and royalties on new indications for the two proteins not currently marketed by Novo Nordisk.

The agreements provide for us to invoice Novo Nordisk before the beginning of each calendar quarter for the budgeted amount of our anticipated research and development activities during the quarter. Following the end of each quarter, we provide a statement to Novo Nordisk of the actual costs of our research and development activities for the quarter, and we arrange with Novo Nordisk to have any difference either paid by one party to the other or reflected as an adjustment on the next scheduled invoice. As of December 31, 2004, our accounts receivable and current portion of deferred revenue each included $702 of budgeted costs relating to research and development activities we expect to complete during the first quarter of 2005.

In April 2004, we entered into an agreement with BioGeneriX AG, a company of the ratiopharm Group, to use our proprietary GlycoPEGylation technology to develop a long-acting, next-generation version of granulocyte colony stimulating factor (G-CSF). In connection with the agreement, we received from BioGeneriX a non-refundable, upfront fee, which is being amortized to revenue over the expected performance period of 18 years. Under the agreement, we and BioGeneriX will pursue development and commercialization of a next-generation G-CSF. The parties will share equally preclinical expenses. Because we do not know which party will incur greater preclinical expenses during any given quarter, we cannot estimate whether BioGeneriX will be reimbursing us or whether we will be reimbursing BioGeneriX during each quarter of the preclinical phase. BioGeneriX will fund the entire clinical development program. If we and BioGeneriX proceed to commercialization, we will have commercial rights in the U.S., Canada, Mexico and Japan. BioGeneriX will have commercial rights in Europe and the rest of the world. Each company will receive royalties on product sales in the other company s territory.

During the years ended December 31, 2003 and 2004, one customer accounted for 48% and 66%, respectively, of total revenues. Another customer accounted for 34% of our revenues during 2004. A third customer accounted for 29% of our revenues in 2003. A fourth customer accounted for 93% and 17% of total revenues during the years ended December 31, 2002 and 2003, respectively.

Note 12. Other Income

In 2000, we invested $563 in an 8% convertible subordinated debenture, which included a warrant to purchase shares of common stock, issued by Novazyme Pharmaceuticals, Inc. The investment was charged to research and development expense on our statement of operations for 2000 due to uncertainty regarding realizability. In 2001, Novazyme committed to pay us $1,653 in 2002 in exchange for restructuring our agreement. In accordance with Statement of Financial Accounting Standards No. 115, Accounting for Certain Investments in Debt and Equity Securities, we did not record the $1,653 due to uncertainty regarding the fair value of the note, thereby reducing our cost basis to zero. Later in 2001, Genzyme General acquired Novazyme and assumed Novazyme s obligation to pay us $1,653. We exercised our warrant to purchase shares of Novazyme, converted our debenture into shares of Novazyme, and exchanged our shares of Novazyme for shares of Genzyme. In 2001, we realized a gain on the sale of Genzyme shares of $6,120, which was reflected as other income on our statement of operations. In 2002, Genzyme paid us $1,653, which resulted in the recognition of a gain that was reflected as other income on our statements of operations.

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Note 13. Impairment of Equity Securities

In 2000, we made an investment of $1,250 in Series A convertible preferred stock of Neuronyx, Inc. We recorded the equity investment at cost. In 2003, Neuronyx informed us that they were nearing completion of an equity financing, under which new and other existing Neuronyx investors would have an aggregate liquidation preference senior to the Series A liquidation preference and in excess of the assumed post-money valuation of Neuronyx. As a result, we reduced the carrying value of our equity investment to zero in 2003 by recording a non-cash charge, which is reflected as an impairment of equity securities on our statements of operations.

Note 14. Commitments and Contingencies

Leases

Our future minimum lease payments as of December 31, 2004 under capital leases and under non-cancelable operating leases, with initial or remaining lease terms in excess of one year, were as follows:

	Capital Leases	Operating Leases
2005	$ 312	$ 948
2006	182	698
2007	61	508
2008	57	454
2009	8	463
Thereafter		6,684
Total minimum lease payments	620	$ 9,755
Less amounts representing imputed interest	(65)	
Present value of minimum lease payments	555	
Less current portion of capital lease obligations	(275)	
Capital lease obligations, excluding current portion	$ 280	

Capital Lease Obligations

In February 2004, we entered into a capital lease obligation for equipment with a book value of $184, which was calculated using an assumed incremental annual borrowing rate of 8.66%. The terms of the lease require us to make monthly payments through February 2009. This equipment had an aggregate net book value of $154 as of December 31, 2004.

In September 2003, we entered into a capital lease obligation for equipment with a book value of $354, which was calculated using an assumed incremental annual borrowing rate of 7.96%. The terms of the lease required us to make an initial payment of $90 followed by monthly payments through September 2006. This equipment had an aggregate net book value of $207 as of December 31, 2004. We also entered into a capital lease obligation during September 2003 for software with a fair value of $60. The terms of the lease require us to make monthly payments through September 2008. As of December 31, 2004, this software had a net book value of $45.

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During the quarter ended June 30, 2003, we entered into various capital lease obligations for equipment and software with an aggregate book value of $373, which was calculated using an assumed incremental annual borrowing rate of 8.35%. We are required to make monthly payments on each lease. The leases have expiration dates ranging from April 2006 to June 2006. As of December 31, 2004, the aggregate net book value of the assets under these leases was $172.

In November 2002, we entered into a capital lease obligation for computer equipment that had a book value of $50. The lease has an imputed interest rate of 6.2%. We are required to make monthly payments over a three-year period ending November 2005. As of December 31, 2004, this equipment had an aggregate net book value of $16.

Operating Leases

We lease laboratory, office, warehouse facilities, and equipment under operating lease agreements. In April 2001, we entered into a lease agreement for approximately 10,000 square feet of laboratory and office space in California. The initial term of the lease ends in March 2006, at which time we have an option to extend the lease for an additional five years. We lease approximately 5,000 square feet of office and warehouse space in Pennsylvania under a lease agreement that expires April 2007. In February 2002, we entered into a lease agreement for approximately 40,000 square feet of laboratory and office space in Pennsylvania. The initial term of the lease ends in July 2022, at which time we have an option to extend the lease for an additional five years, followed by another option to extend the lease for an additional four and one-half years. Pursuant to the lease, we received $250 from the landlord in September 2004 as a partial reimbursement for improvements we made to the facility (see Note 5 for a description of these improvements). This landlord incentive, which is included in other liabilities on our balance sheet, is being amortized ratably as a reduction to rental expense over the lease term. Our laboratory, office, and warehouse facility leases contain escalation clauses, under which the base rent increases annually by 2-4%. Our rental expense for the years ended December 31, 2002, 2003, and 2004 was $583, $923, and $981, respectively.

Purchase Obligations

As of December 31, 2004, we had non-cancelable purchase obligations for 2005 in the amount of $839, which all relate to goods or services. Our non-cancelable purchase obligations for 2006, 2007, 2008 and 2009 are $191, $40, $8, and $4, respectively.

Agreements with Employees

We have employment agreements with our chief executive officer, C. Boyd Clarke, and our executive vice president, pharmaceutical development and operations, Joseph J. Villafranca. Under the terms of the agreements, we are required to pay Mr. Clarke an annual base salary of at least $405, and Dr. Villafranca an annual base salary of at least $273, for continuing their employment with Neose.

Separation and Retirement Agreements

In September 2004, we entered into a separation agreement with our Chief Financial Officer in connection with his retirement in January 2005. Under the agreement, we are required to pay him $11 per month (or one-half of his monthly base salary) and provide medical benefits over a 12-month period commencing on his retirement date. We also committed to pay any bonus earned by him for 2004, as determined using the same criteria as if he were employed as of the time of payment. We estimate the present value of these benefits as of the anticipated retirement date will be approximately $244, of which $226 was accrued as of December 31, 2004. In addition, we extended for twelve months the period during which he may exercise his stock options that were vested and outstanding as of his retirement date. Because the stock options had no intrinsic value as of the modification date, there was no charge associated with the option modification.

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In 2002, we entered into a retirement agreement with our Vice President, Research. Under the agreement, we committed to pay a retirement benefit over a five-year period and to provide health insurance benefits through December 31, 2003. We are committed to pay $100 during each of 2005 and 2006 under this agreement. During 2002, we recorded severance expense related to this agreement of $516, which represented the present value of his future retirement benefit and is included in research and development expense on our statements of operations. In addition, we extended the period during which he may exercise his stock options and recorded a non-cash severance charge associated with this option modification of $1,608, which is also included in research and development expense in 2002 on our statements of operations.

Note 15. Income Taxes

We had no income taxes payable as of December 31, 2003 and 2004. As of December 31, 2004, we had $61,488 of federal and $58,949 of state net operating loss (NOL) carryforwards potentially available to offset future taxable income. As of December 31, 2004, our federal NOL carryforward includes $8,993 related to equity-based compensation, which will be recorded as additional paid-in capital upon recognition of the tax benefit associated with these deductions. As of December 31, 2004, we had federal and state research and development tax credit carryforwards of $5,493 and $323, respectively, potentially available to offset future taxable income.

The Tax Reform Act of 1986 (the Act) provided for a limitation on the annual use of NOL and research and development tax credit carryforwards following certain ownership changes. Because we may have experienced various ownership changes, as defined by the Act, as a result of past equity financings, our ability to utilize federal NOL carryforwards in any given year may be limited. In addition, federal tax law limits the time during which carryforwards may be applied against future taxes, and Pennsylvania tax law limits the utilization of state NOL carryforwards to $2,000 annually. Therefore, we may not be able to take full advantage of these carryforwards to offset future taxable income. The federal and state NOL and tax credit carryforwards will expire as follows:

	Net Operating Loss Carryforwards		Research and Development Tax Credit Carryforwards	
	Federal	State	Federal	State
2005	$ 360	$ 110	$ 15	$
2006	1,086	150	46	
2007	2,147	777	41	
2008	638		146	
2009	385		207	
Thereafter	56,872	57,912	5,038	323
	$ 61,488	$ 58,949	$ 5,493	$ 323

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We have incurred a loss in each period since our inception. Due to the uncertainty surrounding the realization of the tax benefit associated with our federal and state carryforwards, we have provided a full valuation allowance against these tax benefits. The approximate income tax effect of each type of carryforward and temporary difference is as follows:

	Current	Noncurrent	Total
December 31, 2004			
Net operating loss carryforwards	$	$ 24,773	$ 24,773
Research and development tax credit carryforwards		5,816	5,816
Capitalized research and development expenses		33,863	33,863
Capitalized start-up costs		10,213	10,213
Depreciation and amortization		3,932	3,932
Deferred revenue	349	1,462	1,811
Deferred compensation		1,406	1,406
Impairment of equity securities		647	647
Accrued expenses not currently deductible	225		225
Total deferred tax assets	574	82,112	82,686
Less valuation allowance	(574)	(82,112)	(82,686)
Net deferred tax assets	$	$	$
December 31, 2003			
Net operating loss carryforwards	$	$ 12,230	$ 12,230
Research and development tax credit carryforwards		4,236	4,236
Capitalized research and development expenses		22,063	22,063
Capitalized start-up costs		13,617	13,617
Depreciation and amortization		5,789	5,789
Deferred revenue	349	1,353	1,702
Impairment of equity securities		507	507
Accrued expenses not currently deductible	357		357
Total deferred tax assets	706	59,795	60,501
Less valuation allowance	(706)	(59,795)	(60,501)
Net deferred tax assets	$	$	$

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Note 16. Related-party Transaction

We have a joint venture with McNeil Nutritionals to develop bulking agents for use in the food industry. We account for our investment in the joint venture under the equity method, under which we recognize our share of the income and losses of the joint venture. For the year ended December 31, 2004, the joint venture had a net loss and a loss from continuing operations of $26. Because we previously reduced the carrying value of our initial investment of $345 in the joint venture to zero, we will record our share of the losses of the joint venture only to the extent of our future actual or committed investment in the joint venture. We do not intend to commit the joint venture to make any further investments.

As of December 31, 2004, the joint venture had no assets, $150 of current liabilities, and $8,606 of noncurrent liabilities, which consisted of amounts owed to McNeil Nutritionals. The joint venture had no revenues during 2004. During the years ended December 31, 2002, 2003, and 2004, we incurred expenses related to the joint venture of $252, $21, and $22, respectively, which were reimbursed to us by the joint venture. These amounts have been reflected as a reduction of research and development expense on our statements of operations. As of December 31, 2004, the joint venture owed us $6.

If the joint venture becomes profitable, we will recognize our share of the joint venture s profits only after the amount of our capital contributions to the joint venture is equivalent to our share of the joint venture s accumulated losses. As of December 31, 2004, the joint venture had an accumulated loss since inception of $10,251. Until the joint venture is profitable, McNeil Nutritionals is required to fund, as a non-recourse, no-interest loan to the joint venture, all of the joint venture s aggregate capital expenditures in excess of an agreed-upon amount, and all of the joint venture s operating losses. The loan balance would be repayable by the joint venture to McNeil Nutritionals over a seven-year period commencing on the earlier of September 30, 2006 or the date on which Neose attains a 50% ownership interest in the joint venture after having had a lesser ownership interest. In the event of any dissolution of the joint venture, the loan balance would be payable to McNeil Nutritionals by the joint venture before any distribution of assets to us.

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Note 17. Quarterly Data (unaudited)

The following tables summarize our quarterly results of operations for each of the quarters in 2004 and 2003. These quarterly results are unaudited, but in the opinion of management have been prepared on the same basis as our audited financial information and include all adjustments (consisting only of normal recurring adjustments) necessary for a fair presentation of our results of operations.

	2004 Results				
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
Revenue from collaborative agreements	$ 1,250	$ 891	$ 1,451	$ 1,478	$ 5,070
Operating expenses	10,740	11,112	12,166	12,365	46,383
Operating loss	(9,490)	(10,221)	(10,715)	(10,887)	(41,313)
Interest expense, net	(13)	(105)	(109)	(102)	(329)
Net loss	$ (9,503)	$ (10,326)	$ (10,824)	$ (10,989)	$ (41,642)
Basic and diluted net loss per share	$ (0.48)	$ (0.47)	$ (0.44)	$ (0.44)	$ (1.82)*
Weighted-average shares outstanding used in computing basic and diluted net loss per share	19,943	22,146	24,712	24,717	22,898

	2003 Results				
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
Revenue from collaborative agreements	$ 70	$ 651	$ 150	$ 564	$ 1,435
Operating expenses	8,624	9,861	9,203	10,281	37,969
Operating loss	(8,554)	(9,210)	(9,053)	(9,717)	(36,534)
Impairment of equity securities			(1,250)		(1,250)
Interest income (expense), net	133	(16)	(35)	21	103
Net loss	$ (8,421)	$ (9,226)	$ (10,338)	$ (9,696)	$ (37,681)
Basic and diluted net loss per share	$ (0.53)	$ (0.54)	$ (0.59)	$ (0.49)	$ (2.14)*
Weighted-average shares outstanding used in computing basic and diluted net loss per share	15,801	17,229	17,437	19,935	17,611

* The loss per share in each quarter is computed using the weighted-average number of shares outstanding during the quarter. The loss per share for the full year, however, is computed using the weighted-average number of shares outstanding during the year. Thus, the sum of

the quarterly loss per share amounts does not equal the full-year loss per share.