

NEOSE TECHNOLOGIES INC

Form S-3

June 20, 2003

Table of Contents

As filed with the Securities and Exchange Commission on June 20, 2003

Registration No.333-

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3

Registration Statement

Under The Securities Act of 1933

Neose Technologies, Inc.

(Exact name of Registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

13-3549286

(I.R.S. Employer Identification No.)

102 Witmer Road

Horsham, Pennsylvania 19044

(215) 315-9000

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Debra J. Poul, Esquire

Senior Vice President and

General Counsel

Neose Technologies, Inc.

102 Witmer Road

Horsham, Pennsylvania 19044

(215) 315-9000

(Name, address, including zip code, and telephone
number, including area code, of agent for service)

COPY TO:

Barry M. Abelson, Esquire

Pepper Hamilton LLP

3000 Two Logan Square

Eighteenth and Arch Streets

Philadelphia, PA 19103-2779

(215) 981-4000

Approximate date of commencement of proposed sale to the public:

As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. x

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

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If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. _____

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If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. " _____

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. " _____

| Title of Shares to be Registered | Proposed Maximum Aggregate Offering Price (1) | Amount of Registration Fee (2) |
|---|---|--------------------------------|
| Common Stock, \$0.01 par value, including preferred stock purchase rights | \$75,000,000 | \$6,068 |

(1) Pursuant to Rule 457(o) and General Instruction II.D. of Form S-3 under the Securities Act of 1933, as amended, the table does not specify by the amount of shares of common stock to be registered or the proposed maximum aggregate price per share of common stock. In addition to such presently indeterminate number of shares of common stock as may be offered, from time to time, by the Registrant being registered hereunder. The amount to be registered, the proposed maximum aggregate price per share and the proposed maximum aggregate offering price will be determined from time to time by us in connection with the issuance of the securities registered hereunder. In no event will the aggregate initial offering price of all securities issued from time to time pursuant to the prospectus contained in this registration statement exceed \$75,000,000.

(2) Calculated pursuant to Rule 457(o) under the Securities Act of 1933.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the SEC, acting pursuant to said Section 8(a), may determine.

Table of Contents

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated June 20, 2003

PROSPECTUS

\$75,000,000

Common Stock

[NEOSE TECHNOLOGIES, INC. LOGO]

We may sell from time to time shares of common stock in one or more offerings and the total offering price, in the aggregate, will not exceed \$75,000,000. This means:

we will provide a prospectus supplement each time we issue common stock; and

the prospectus supplement will inform you about the specific terms of that offering and may also add, update or modify information contained in this document.

Our common stock is listed on The Nasdaq National Market under the symbol NTEC. On June 19, 2003, the reported last sale price of our common stock on The Nasdaq National Market was \$10.52 per share.

Our principal offices are located at 102 Witmer Road, Horsham, Pennsylvania 19044, and our telephone number is (215) 315-9000.

INVESTING IN OUR COMMON STOCK INVOLVES RISKS. YOU SHOULD CAREFULLY CONSIDER THE RISK FACTORS BEGINNING ON PAGE 1 OF THIS PROSPECTUS BEFORE YOU DECIDE TO INVEST.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus is , 2003.

Table of Contents

TABLE OF CONTENTS

| | Page |
|---|-------------|
| <u>WHO WE ARE</u> | 1 |
| <u>RISK FACTORS</u> | 1 |
| <u>ABOUT THIS PROSPECTUS</u> | 9 |
| <u>SPECIAL NOTE REGARDING FORWARDING LOOKING STATEMENTS</u> | 9 |
| <u>USE OF PROCEEDS</u> | 9 |
| <u>DESCRIPTION OF CAPITAL STOCK</u> | 10 |
| <u>PLAN OF DISTRIBUTION</u> | 13 |
| <u>LEGAL MATTERS</u> | 15 |
| <u>EXPERTS</u> | 15 |
| <u>ADDITIONAL INFORMATION</u> | 16 |

You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. We may from time to time offer to sell, and seek offers to buy, shares of our common stock in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.

Table of Contents

WHO WE ARE

We are a biopharmaceutical company focused on improving glycoprotein therapeutics using our proprietary technologies. Most therapeutic proteins in development or on the market today are glycoproteins—proteins with carbohydrate structures attached. These carbohydrates are important to the proper functioning of the proteins. The process by which carbohydrates are attached to proteins is called glycosylation. Manufacturing protein drugs using traditional biotech cell systems often results in the problem of incomplete glycosylation. We are using our GlycoAdvance, GlycoPEGylation and GlycoConjugation technologies to develop improved versions of currently marketed drugs with proven efficacy, to complete the natural glycosylation of proteins, and to improve therapeutic profiles of glycoproteins in development for our partners. We expect these next generation proteins to offer significant advantages over drugs that are now on the market, including less frequent dosing and improved safety and efficacy. In addition to developing our own products or co-developing products with others, we expect to enter into strategic partnerships for including our technologies into the product design and manufacturing processes of other biotechnology and pharmaceutical companies. While our primary goal is protein drug development, our technologies offer multiple opportunities to participate in the evolving therapeutic protein market by addressing other challenges, such as manufacturing efficiency, manufacturing consistency, and the use of non-mammalian cell expression systems.

We were incorporated in Delaware in May 1991. Our executive offices are located at 102 Witmer Road, Horsham, PA 19044, our telephone number is 215-315-9000 and our website is at <http://www.neose.com>. Information contained on our website is not incorporated into this registration statement.

RISK FACTORS

You should carefully consider the risks described below before making an investment decision. These are the material risks currently known to us. Additional risks not presently known to us or that we currently deem immaterial may also impair our business operations.

Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our common stock could decline due to any of these risks, and you may lose all or part of your investment.

This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks faced by us described below and elsewhere in this prospectus.

Risks Related to Development Stage Company

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.

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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 interest earned on investments, proceeds from property and equipment financing, revenues from corporate collaborations and gains from the sale of investments. We believe that our existing cash and short-term investments, expected revenue from collaborations and license arrangements, anticipated financing of capital expenditures, and interest income should be sufficient to meet our operating and capital requirements at least through the middle of 2004. Our present and future capital requirements depend on many factors, including:

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

the progress of preclinical and clinical testing;

the time and cost involved in obtaining regulatory approvals;

Table of Contents

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

our success rate or that of our collaborators in discovery efforts associated with milestones and royalties;

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

costs of recruiting and retaining qualified personnel;

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

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

changes in product candidate development plans needed to address any difficulties in clinical studies or in commercialization.

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 through corporate collaborations and licensing arrangements.

If we raise additional capital by issuing equity securities, our existing stockholders' percentage ownership would be reduced and they may experience substantial dilution. We may also issue equity securities that provide for rights, preferences, or 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 enter into a credit facility, the agreement may require us to maintain compliance with financial covenants and restrict our ability to incur additional debt, pay dividends, make redemptions or repurchases of capital stock, make loans, investments or capital expenditures, or engage in other activities. 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 or technologies, or otherwise respond to competitive pressures could be significantly delayed or limited, and we may need to downsize or halt our operations.

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

We have incurred losses each year, including net losses of approximately \$8.5 million for the year ended December 31, 2000, approximately \$13.3 million for the year ended December 31, 2001, and approximately \$26.4 million for the year ended December 31, 2002. Given our planned level of operating expenses, we expect to continue incurring losses for some time. As of December 31, 2002, we had an accumulated deficit of approximately \$108 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. We may continue to incur substantial losses even if our revenues increase.

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In 2003, we expect our investment in capital expenditures to be approximately \$3.0 million to \$5.0 million, which we may finance through the issuance of new debt or equity. Our level of operating expenditures will vary depending upon the stage of development of our proprietary proteins and the number and nature of collaboration agreements we enter into.

We have a joint venture with McNeil Nutritionals, a subsidiary of Johnson & Johnson. The joint venture has incurred losses since its inception, and we expect that the joint venture will incur additional losses for some time while it explores opportunities to continue the development of this technology.

Table of Contents

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

We have not yet developed any products or 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 for interest income and revenues from collaborative agreements and investments. We do not know when or if we will complete any of our product development efforts, receive regulatory approval of any of our product candidates, or successfully commercialize any approved products. Even if we should be 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. The degree of market acceptance of these products will depend on a number of factors, including:

the receipt of regulatory approvals for the uses we seek;

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; and

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 have limited product development and commercial manufacturing capability and experience, and we may be unable to develop therapeutic proteins and commercialize our technologies.

Until recently, we have not focused on the development of our own proprietary products. We are now seeking to use our GlycoAdvance, GlycoPEGylation and GlycoConjugation technologies to develop proprietary next generation proteins, generally in collaboration with a partner. Our technologies may not result in the successful remodeling, optimization or development of proteins that are safe or efficacious. Because the development of new pharmaceutical products is highly uncertain, our technologies may not produce any commercially successful proteins. If we fail to validate our technologies through the successful remodeling of the proteins we select for development, we will not be able to license our next generation drug candidates, and our customers will not be able to develop drug candidates incorporating our technologies.

To date, we have manufactured only smaller, noncommercial quantities of our enzymes, sugar nucleotides, and complex carbohydrates. We intend to manufacture enzymes and sugar nucleotides for use in our proprietary product development programs and for use by our customers. Our success depends on our ability to manufacture these compounds on a commercial scale and in accordance with current Good Manufacturing Practices, or cGMP, prescribed by the U.S. Food and Drug Administration, or FDA. We may not be able to manufacture sufficient quantities of the products we develop, even to meet our needs for pre-clinical or clinical development, and we may have problems complying, or maintaining compliance, with cGMP.

In addition to the normal scale-up risks associated with any manufacturing process, we may face unanticipated problems unique to the manufacture of enzymes, sugar nucleotides, or complex carbohydrates. If we are unable to develop commercial-scale manufacturing capacity, we would seek collaborators, licensees, or contract manufacturers to manufacture the compounds necessary to commercialize our technologies. We may not be able to find parties willing to manufacture these compounds at acceptable prices.

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 these facilities 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.

Table of Contents

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

Our success depends on collaborative relationships, and our failure to enter into new collaborations or to expand our existing relationships could prevent us from commercializing any product candidates.

We cannot fully develop any proprietary product without the help of a partner. We plan to rely on new collaborative partners to co-develop products and to commercialize products made using our technologies. We are now conducting early stage research programs for our two existing collaborative partners. We anticipate that substantially all of our revenues during the next several years will continue to be generated from collaboration or license agreements. This strategy entails many risks, including:

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

our existing collaborators may not continue or expand the work we are now conducting;

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

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

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

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

none of our existing collaborators is contractually obligated to continue developing products with us or to market or commercialize products incorporating our technologies, nor is any of them contractually required to achieve any specific production schedule;

our collaborative agreements are generally terminable by our partners on short notice; and

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

Any of our present or future collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. In addition, we may dispute the application of payment provisions under any of our collaborative agreements. If any of these events occur or if we fail to enter into or maintain collaborative agreements, we may not be able to commercialize our products and technologies.

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

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

Our commercial success depends in part on avoiding infringing patents and proprietary rights of third parties and developing and maintaining a proprietary position with regard to our own technologies, products and business. As we seek to develop next generation proprietary products, we will investigate the patent protection for our target proteins. Patent protection often comprises multiple claims in multiple patents, requiring complex analysis of which claims may be applicable. In addition, 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 an improved erythropoietin (EPO), the target of our first development

Table of Contents

program, there are numerous patents containing numerous claims. The status of issued patents is currently being litigated. It is possible that applicable claims may be invalidated, opening up the field for us as well as others. It is also possible that applicable claims contained in numerous patents will be upheld. If some or all of these claims are upheld, our ability to market EPO in the U.S. could be delayed until 2015. Even if our product candidate would not infringe issued patent claims, litigation could result, the outcome of which would be uncertain. As we choose 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.

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;

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; and

other companies may design around technologies we have licensed or developed.

We cannot be certain that patents will be issued as a result of any of our pending applications. Nor can we be certain that any of our issued patents would give us adequate protection from competing products. For example, issued patents may be circumvented or challenged and declared invalid, narrow in scope, or unenforceable. 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 cost 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. 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. 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.

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.

Patent law outside the U.S. is uncertain, and is currently undergoing review and revision in many countries. In addition, the laws of some foreign countries may not protect our intellectual property rights to the same extent as

Table of Contents

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. 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

If our competitors succeed in developing more effective or less costly products, we will may not be able to commercialize any next generation protein therapeutics.

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 which 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, Applied Molecular Evolution, Nektar, Enzon, Human Genome Sciences, BioRexis and Alkermes. There are a number of companies that have active programs focused on developing next generation or improved versions of EPO. These companies include Roche, Amgen, Johnson & Johnson, Gryphon, Transkaryotic Therapeutics, Human Genome Sciences, and ARIAD. Other companies are active in this area, and we expect that competition will increase. There are several companies that are engaged in glycobiology research. These companies include Crucell, Glycart, and GlycoFi.

Compared to us, many of these companies 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 and less costly than ours, which 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 remodeling our target proteins or the target proteins of our potential collaborators.

Competitors also may prove to be more successful in designing, manufacturing and marketing of 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.

Table of Contents

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 and CEO, C. Boyd Clarke. The development 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 the development of 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 would 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 Approvals

We are subject to extensive government regulation, and we or our collaborators may not obtain necessary regulatory approvals.

The research, development, manufacture, 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 European Union and 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. Even if regulatory approvals were obtained, our 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 have not complied with regulations in the research and development of a product candidate or the manufacture of our reagents, then we may not obtain necessary approvals to market and sell the product candidate or reagents.

Neither we nor our collaborators have submitted any product candidates for marketing 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. In addition, new governmental regulations may delay or alter regulatory approval of any product candidate manufactured using our technology. We cannot predict the impact of adverse governmental action that might arise from future legislative and administrative action.

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 chemical hazards, including those that are

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corrosive, toxic and flammable, 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.

Table of Contents

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 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, particularly for indications for which there is no current effective treatment or for which medical care typically is not sought. 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.

Risks Related to Stock Market

Our stock price may continue to experience fluctuations.

The market prices of securities of thinly traded companies, such as ours, have historically been highly volatile. For example, in the past 24 months, the price of our common stock reached a low of \$5.90 per share in October 2002 and a high of \$47.42 per share in July 2001. During the past 12 months the price of our common stock has traded as low as \$5.90 per share and as high as \$14.00 per share. Sales of a substantial number of shares of our common stock in the public market or the perception that such sales might occur could adversely affect the market price of our common stock. 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, many 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. If we raise additional capital by issuing equity securities in a fluctuating market, many or all of our existing stockholders may experience substantial dilution. If any of the risks described in these RISK FACTORS occurred, or if any unforeseen risk affected our performance, it could have a dramatic and adverse impact on the market price of our common stock.

The issuance of additional equity securities may have a dilutive effect on our existing stockholders and could lead to a decline of the price of our common stock.

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. Accordingly, we will need to raise substantial additional funds to continue our business activities and fund our

operations beyond the middle of 2004 and may seek to do so by sales of equity securities.

Any additional sale of equity securities may have a dilutive effect on our existing stockholders. Subsequent sales of common stock in the open market or the private placement of common stock or securities convertible into common stock could also have the effect of lowering our stock price, thereby increasing the number of shares issuable and consequently further diluting our outstanding shares. These sales could have an immediate adverse effect on the market price of the shares and could result in dilution to the holders of our shares.

Table of Contents

The perceived risk associated with the possible sale of a large number of shares could cause some of our stockholders to sell their stock, thus causing the price of our stock to decline. In addition, actual or anticipated downward pressure on our stock price due to actual or anticipated sales of stock could cause some institutions or individuals to engage in short sales of our common stock, which may itself cause the price of our stock to decline.

If our stock price declines, we may be unable to raise additional capital. A sustained inability to raise capital could force us to go out of business. Significant declines in the price of our common stock could also impede our ability to attract and retain qualified employees, reduce the liquidity of our common stock and result in the delisting of our common stock from The Nasdaq Stock Market.

ABOUT THIS PROSPECTUS

This prospectus is part of a shelf registration statement that we filed with the Securities and Exchange Commission (the SEC). By using a shelf registration statement, we may sell, from time to time, in one or more offerings, shares of common stock in a dollar amount that does not exceed \$75,000,000. For further information about our business, and the securities, you should refer to the registration statement, the reports incorporated by reference in this prospectus, and its exhibits. The exhibits to our registration statement contain the full text of certain contracts and other important documents we have summarized in this prospectus. Since these summaries may not contain all the information that you may find important in deciding whether to purchase the securities we may offer, you should review the full text of these documents. The registration statement can be obtained from the SEC as indicated under the heading *Where You Can Find More Information*.

You should rely only on the information contained or incorporated by reference in this prospectus and the prospectus supplement. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, as well as information we previously filed with the SEC and incorporated by reference in this prospectus, is accurate only as of the date on the front cover of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

*Some of the statements in the sections entitled *Who We Are*, *Risk Factors*, and elsewhere in this prospectus constitute forward-looking statements. These statements involve known and unknown risks, uncertainties, and other factors that may cause our or our industry's results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance, or achievements expressed or implied by such forward-looking statements. Such factors include, among others, those listed under *Risk Factors* and elsewhere in this prospectus. In some cases, you can identify forward-looking statements by terminology such as *may*, *will*, *should*, *intend*, *expect*, *plan*, *anticipate*, *believe*, *estimate*, *predict*, *potential*, or *continue* or the negative of such terms or other comparable terminology.*

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. We do not intend to update any of the forward-looking statements after the date of this prospectus to conform them to actual results, except as required by the federal securities laws.

USE OF PROCEEDS

Except as otherwise described in the applicable prospectus supplement, the net proceeds from the sale of the common stock offered hereunder will be added to our general funds and used for general corporate purposes, which may include, but are not limited to:

ongoing research and development activities, and the conduct of human clinical trials, for our proprietary protein product candidates;

Table of Contents

expansion, either through lease or purchase, of additional facilities that may be required for our research and development activities, manufacturing operations and corporate staff;

capital expenditures;

debt retirement;

potential acquisitions; and

general working capital.

The amounts and timing of our actual expenditures for each purpose may vary significantly depending upon numerous factors, including the status of our product development efforts, regulatory approvals, competition, marketing and sales activities and the market acceptance of any products introduced by us. Pending such uses, we intend to invest the net proceeds of this offering in short-term, investment grade, interest-bearing securities.

DESCRIPTION OF CAPITAL STOCK

Under our certificate of incorporation our authorized capital stock consists of 30,000,000 shares of common stock, par value \$0.01 per share, and 5,000,000 shares of preferred stock, par value \$0.01 per share. As of June 1, 2003, we had 17,241,595 shares of common stock outstanding and no shares of preferred stock outstanding. As of June 1, 2003, we had reserved for issuance 300,000 shares of series A junior participating preferred stock in connection with our stockholder rights agreement described below. As of the date of this prospectus, we have not issued any shares of our series A junior participating preferred stock.

Common Stock

Voting. For all matters submitted to a vote of stockholders, each holder of common stock is entitled to one vote for each share registered in his or her name. Our common stock does not have cumulative voting rights. As a result, subject to the voting rights of any outstanding preferred stock, of which there currently is none, persons who hold more than 50% of the outstanding common stock entitled to elect members of our board of directors can elect all of the directors who are up for election in a particular year.

Dividends. If our board of directors declares a dividend, holders of common stock would receive payments from our funds that are legally available to pay dividends. However, this dividend right would be subject to any preferential dividend rights we may grant to holders of preferred stock, if any is outstanding.

Liquidation and Dissolution. If we are liquidated or dissolve, the holders of our common stock would be entitled to share ratably in all the assets that remain after we pay our liabilities and any preferential liquidation or dissolution rights we may owe to holders of preferred stock, if any is outstanding.

Other Rights and Restrictions. Holders of our common stock do not have preemptive rights, and they have no right to convert their common stock into any other securities. Our common stock is not subject to redemption by us. The rights, preferences and privileges of holders of our common stock are subject to the rights of the holders of any series of preferred stock which we may designate in the future. Our certificate of incorporation and bylaws do not restrict the ability of a holder of common stock to transfer his or her shares of common stock. When we issue shares of common stock under this prospectus, the shares will be fully paid and non-assessable and will not have, or be subject to, any preemptive or similar rights.

Listing. Our common stock is listed on the Nasdaq National Market under the symbol NTEC .

Transfer Agent and Registrar. The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005.

Preferred Stock

Table of Contents

Our certificate of incorporation authorizes the issuance of up to 5,000,000 shares of preferred stock, par value \$0.01 per share. We have reserved for issuance 300,000 shares of series A junior participating preferred stock in connection with our stockholder rights agreement. We may issue, from time to time in one or more series, up to 4,700,000 shares of preferred stock, the terms of which may be determined at the time of issuance by our board of directors, without further action by our stockholders, and may include voting rights, including the right to vote as a series on particular matters, preferences as to dividends and liquidation, conversion rights, redemption rights and sinking fund provisions.

Certain Effects of Authorized But Unissued Stock

We have shares of our common stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, facilitating corporate acquisitions or paying a dividend on the capital stock.

The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. The issuance of any preferred stock could adversely affect the rights of the holders of common stock and, therefore, reduce the value of the common stock.

We believe that the preferred stock provides us with increased flexibility in structuring possible future financings and acquisitions, and in meeting other corporate needs that might arise. Having such authorized shares available for issuance allows us to issue shares of preferred stock without the expense and delay of holding a special stockholders meeting. The authorized shares of preferred stock, as well as shares of common stock, will be available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange or quotation system on which our securities may be listed or quoted.

Delaware Anti-Takeover Law

We are subject to Section 203 of the DGCL which, subject to certain exceptions and limitations, prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that such stockholder became an interested stockholder, unless:

- (i) prior to such date, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- (ii) upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (for the purposes of determining the number of shares outstanding under the DGCL, those shares owned (x) by persons who are directors and also officers and (y) by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer are excluded from the calculation); or

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- (iii) on or subsequent to such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

For purposes of Section 203, a business combination includes:

Table of Contents

- (i) any merger or consolidation involving the corporation and the interested stockholder;
- (ii) any sale, transfer, pledge or other disposition of 10% or more of either the aggregate market value of all of the assets of the corporation determined on a consolidated basis or the aggregate market value of all of the outstanding stock of the corporation involving the interested stockholder;
- (iii) subject to certain exceptions, any transaction which results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- (iv) any transaction involving the corporation which has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- (v) the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

For purposes of Section 203, an interested stockholder is defined as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Selected Certificate of Incorporation and Bylaw Provisions

Our certificate of incorporation and by-laws authorize our Board of directors to fill vacant directorships or increase the size of Board without stockholder action. In addition, Delaware law and our by-laws provide that directors may only be removed by the stockholders by the affirmative vote of all outstanding securities of Neose then entitled to vote in the election of directors.

Our certificate of incorporation eliminates the ability of stockholders to act by written consent. Our by-laws provide that special meetings of stockholders may be called only by our president and shall be called by our president or secretary at the request in writing of a majority of our Board.

The preceding provisions could have the effect of discouraging, delaying or making more difficult certain attempts to acquire us or remove incumbent directors even if a majority of our stockholders believe the attempt to be in their or our best interests.

Our by-laws provide that stockholders seeking to bring business before an annual meeting of stockholders, or to nominate candidates for election as directors at the annual meeting of stockholders, must provide us with timely written notice of their proposal or nomination. To be timely, a stockholder's notice must be delivered to or mailed and received at our principal executive offices not less than 120 days before the date we publicly announced the notice of annual meeting to stockholders in connection with the previous year's annual meeting. Our by-laws also specify certain requirements as to the form and content of a stockholder's notice. These provisions may preclude stockholders from bringing matters before the annual meeting of stockholders or from making nominations for directors at an annual meeting of stockholders.

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Delaware law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless a corporation's certificate of incorporation or by-laws, as the case may be, requires a greater percentage. Our by-laws imposes supermajority vote requirements in connection with the amendment of certain provisions of our by-laws relating to providing notice of proposals or nominations of directors to us for an annual meeting of stockholders. In addition, our Board is authorized to adopt, amend or repeal any provision of our by-laws without stockholder approval.

Stockholder Rights Plan

On September 17, 1997, our board of directors adopted a stockholder rights plan and, in connection with that plan, designated 300,000 shares of series A junior participating preferred stock. Under this plan, a preferred

Table of Contents

share purchase right was issued as a dividend on each outstanding share of our common stock as of October 6, 1997. This preferred share purchase right entitles its holder to purchase from us a unit consisting of 1/100th of a share of our series A junior participating preferred stock at an exercise price of \$150 per unit, subject to adjustment. Each unit carries voting and dividend rights that are intended to produce the equivalent of one share of common stock. These rights expire on October 6, 2007.

The preferred share purchase rights granted under the stockholder rights plan generally will be exercisable and will trade separately from our common stock only if a person or group acquires beneficial ownership of 15% or more of our common stock. Only when one or more of these events occur will stockholders receive certificates for the rights granted under the stockholder rights plan. Except as discussed in the next paragraph, if any person actually acquires 15% or more of our common stock other than through a tender or exchange offer for our common stock at a price and on terms that provide fair value to all stockholders or if a holder of 15% or more of our common stock engages in certain self-dealing transactions or engages in a merger or other business combination in which we survive and our common stock remains outstanding, the other holders of our common stock will be able to exercise their preferred share purchase rights and receive shares of our common stock having a value equal to double the exercise price of the right. Additionally, if we are involved in certain other mergers where our shares are exchanged or certain major sales of our assets occur, the holders of our common stock will be able to exercise their preferred share purchase rights and receive shares of the acquiring company having a value equal to double the exercise price of the right. In either case, the holders of the rights may, in lieu of exercise, surrender the rights in exchange for one-half of the amount of securities otherwise purchasable. Upon the occurrence of any of these events, the preferred share purchase rights will no longer be exercisable for the purchase of series A junior participating preferred stock.

We have amended the stockholder rights plan to provide the following exceptions to the general provisions discussed above. We have agreed that Kopp Investment Advisors, Inc. (on its own behalf, or on behalf of LeRoy C. Kopp, Kopp Emerging Growth Fund, and Kopp Holding Company) will not trigger the share purchase rights until it (i) is the beneficial owner of 20% or more of our common stock or (ii) is the beneficial owner of 15% or more of our common stock and is not permitted to file a Schedule 13G, in lieu of a Schedule 13D, to report its beneficial ownership of our securities under the Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder. We have also agreed that Eastbourne Capital Management, LLC, and Richard Jon Barry, will not trigger the share purchase rights until they (i) are the beneficial owner of 25% or more of our common stock or (ii) are the beneficial owner of 15% or more of our common stock and are not permitted to file a Schedule 13G, in lieu of a Schedule 13D, to report their beneficial ownership of our securities under the Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

We will be entitled to redeem the preferred share purchase rights at \$.01 per right at any time until the 10th day following a public announcement that a person has acquired a 15% ownership position in our common stock. In our discretion, we may extend the period during which we can redeem these rights.

Stock Option Plan

As of June 1, 2003, options to purchase a total of 4,636,635 shares of common stock have been granted and remain outstanding.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby at prices and under terms then prevailing, at prices related to the then current market price or in negotiated transactions from time to time in one or more of the following ways:

through one or more underwriters on a firm commitment or best-efforts basis;

through broker-dealers, who may act as agents or principals, including a block trade in which a broker or dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;

Table of Contents

directly to one or more purchasers;

through agents;

in privately negotiated transactions; and

in any combination of these methods of sale.

We will set forth in a prospectus supplement the terms of the offering of securities, including:

the name or names of any agents or underwriters, dealers or agents;

the purchase price of the common stock being offered and the proceeds we will receive from the sale;

any underwriting discounts and commissions or agency fees and other items constituting underwriters' or agents' compensation

any over-allotment options under which underwriters may purchase additional securities from us;

any discounts or concessions allowed or reallowed or paid to dealers; and

any securities exchange on which the common stock may be listed.

The distribution of the common stock may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, at prices related to the prevailing market prices or at negotiated prices.

Agents

We may designate agents who agree to use their reasonable efforts to solicit purchases for the period of their appointment or to sell common stock on a continuing basis. Agents may receive compensation in the form of commissions, discounts or concessions from us. Agents may also receive compensation from the purchasers of the common stock for whom they sell as principals. Each particular agent will receive compensation in amounts negotiated in connection with the sale, which might be in excess of customary commissions. Agents and any other participating broker-dealers may be deemed to be underwriters within the meaning of Section 2(11) of the Securities Act in connection with sales of the shares. Accordingly, any commission, discount or concession received by them and any profit on the resale of the common stock purchased by them may be deemed to be underwriting discounts or commissions under the Securities Act. We have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their securities. As of the date of this prospectus, there are no special selling arrangements between any broker-dealer or other person and us. No period of time has been fixed within which the shares will be offered or sold.

If required under applicable state securities laws, we will sell the common stock only through registered or licensed brokers or dealers. In addition, in some states, we may not sell shares of common stock unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and complied with.

Underwriters

If we use underwriters for a sale of common stock, the underwriters will acquire the common stock for their own account. The underwriters may resell the common stock in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the common stock will be subject to the conditions set forth in the applicable underwriting agreement. We may change from time to time any initial public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a

Table of Contents

material relationship. We will describe in the prospectus supplement naming the underwriter the nature of any such relationship.

Direct Sales

We may also sell common stock directly to one or more purchasers without using underwriters or agents. Underwriters, dealers and agents that participate in the distribution of the common stock may be underwriters as defined in the Securities Act and any discounts or commissions they receive from us and any profit on their resale of the common stock may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers and agents may engage in transactions with or perform services for us in the ordinary course of their businesses.

Stabilization Activities

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the common stock in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the common stock originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the common stock to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. These transactions may be effected on The Nasdaq Stock Market or otherwise.

Passive Market Marking

Any underwriters who are qualified market makers on the Nasdaq National Market may engage in passive market making transactions in the common stock on the Nasdaq National Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Costs

We will bear all costs, expenses and fees in connection with the registration of the common stock, as well as the expense of all commissions and discounts, if any, attributable to the sales of the common stock by us.

LEGAL MATTERS

The validity of the shares of our common stock offered by this prospectus will be passed upon for us by Pepper Hamilton LLP, Philadelphia, Pennsylvania.

EXPERTS

The financial statements of Neose Technologies, Inc. as of December 31, 2002 and for the year then ended, have been incorporated by reference herein and elsewhere in the registration statement on Form S-3 of which this prospectus forms a part, in reliance upon the report of KPMG LLP, independent accountants, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

Table of Contents

The financial statements incorporated by reference in this registration statement on Form S-3 of which this prospectus forms a part as of December 31, 2001 and for the years ended December 31, 2001 and 2000 and for the period from January 17, 1989 (inception) through December 31, 2001 have been incorporated by reference in reliance on the report of Arthur Andersen LLP, independent public accountants, given on the authority of said firm as experts in auditing and accounting.

Effective April 29, 2002, the Company's Board of Directors approved the dismissal of Andersen as the Company's independent auditors and the appointment of KPMG LLP to serve as the Company's independent auditors. After reasonable efforts, the Registrant has not been able to obtain the written consent of Arthur Andersen LLP to the incorporation by reference of its report into this Registration Statement. The Registrant has dispensed with the requirement to file the written consent of Arthur Andersen LLP in reliance on Rule 437a promulgated under the Securities Act of 1933, as amended (the "Securities Act"). Since the Registrant has not been able to obtain the written consent of Arthur Andersen LLP, you will not be able to recover against Arthur Andersen LLP under Section 11 of the Securities Act for any untrue statements of material fact contained in the financial statements audited by Arthur Andersen LLP incorporated by reference herein or any omissions to state a material fact required to be stated therein.

ADDITIONAL INFORMATION

This prospectus is part of a registration statement we have filed with the Securities and Exchange Commission. This prospectus does not contain all of the information contained in the registration statement or the exhibits to the registration statement. For further information about us, please see the complete registration statement. Summaries of agreements or other documents in this prospectus are not necessarily complete. Please refer to the exhibits to the registration statement for complete copies of these documents.

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended and file reports, proxy statements and other information with the SEC. You may read and copy such reports, proxy statements and other information, including the registration statements and all of their exhibits, at the SEC public reference room at:

450 Fifth Street, N.W.

Judiciary Plaza

Room 1024

Washington, D.C. 20549

You may obtain information on the operation of the SEC public reference room in Washington, D.C. by calling the SEC at 1-800-SEC-0330. Our SEC filings, including the registration statement of which this prospectus forms a part and the documents incorporated by reference that are listed below, are also available from the SEC's Web site at <http://www.sec.gov>, which contains reports, proxy and information statements and other information regarding issuers that file electronically.

The SEC allows us to incorporate by reference into this prospectus certain information that we file with it. This means that we can disclose important information to you by referring you to another document that we filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for any information superseded by information in this prospectus. You should read the

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information incorporated by reference because it is an important part of this prospectus.

We incorporate by reference the following documents we have filed, or may file, with the SEC:

1. Our Annual Report on Form 10-K for the year ended December 31, 2002;
2. Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2003;
3. Our Proxy Statement on Schedule 14A filed on April 7, 2003;

Table of Contents

4. Our Current Reports on Form 8-K filed on January 7, 2003, January 8, 2003, February 14, 2003 and two filed on April 29, 2003;
5. The description of our common stock contained in the Registration Statement on Form 8-A filed with the Securities and Exchange Commission on February 7, 1996;
6. The description of rights to purchase preferred shares contained in the Registration Statement on Form 8-A filed with the Securities and Exchange Commission on October 1, 1997; and
7. All documents filed by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement and before the termination of this offering (other than those portions of such documents described in paragraphs (i), (k), and (l) of Item 402 of Regulation S-K promulgated by the SEC).

If you request, either orally or in writing, we will provide you with a copy of any or all documents which are incorporated by reference. We will provide such documents to you free of charge, but will not include any exhibits, unless those exhibits are incorporated by reference into the document. You should address written requests for documents to Debra J. Poul, Senior Vice President and General Counsel, Neose Technologies, Inc., 102 Witmer Road, Horsham, Pennsylvania 19044, (215) 315-9000.

We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make on related subjects in our 10-Q, 8-K and 10-K reports to the SEC. Also note that we provide a cautionary discussion of risks and uncertainties relevant to our business in the Risk Factors section of this prospectus. These are factors that we think could cause our actual results to differ materially from expected results. Other factors besides those listed here could also adversely affect us. This discussion is provided as permitted by the Private Securities Litigation Reform Act of 1995.

Table of Contents**Part II****Information Not Required In Prospectus****Item 14. Other Expenses of Issuance and Distribution**

The following table sets forth the various expenses in connection with the sale and distribution of the securities being registered. All of the amounts shown are estimates except the Securities and Exchange Commission registration fee.

| | |
|---------------------------------|------------------|
| SEC registration fee | \$ 6,068 |
| Legal fees and expenses | \$ 25,000 |
| Accounting fees and expenses | \$ 5,000 |
| Miscellaneous fees and expenses | \$ 5,000 |
| TOTAL | \$ 41,068 |

Item 15. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law (Section 145) permits a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director, officer or agent of the corporation or another enterprise if serving at the request of the corporation. Depending on the character of the proceeding, a corporation may indemnify against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding if the person indemnified acted in good faith and, in respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. In the case of an action by or in the right of the corporation, no indemnification may be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine that, despite the adjudication of liability, such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper. Section 145 further provides that to the extent a director, officer, employee or agent of a corporation has been successful in the defense of any action, suit or proceeding referred to above, or in the defense of any claim, issue or matter therein, he shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him in connection therewith.

The Certificate of Incorporation of Neose limits the personal liability of directors to Neose or any of its stockholders for monetary damages for breach of fiduciary duty as a director, provided, however, that this limitation does not apply to any liability of a director (i) for any breach of the director's duty of loyalty to Neose or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of Title 8 of the General Corporation Law of Delaware, or (iv) for any transaction from which the director derived an improper personal benefit.

Section 6 of Article 7 of Neose's second amended and restated by-laws provides to the fullest extent permitted by Section 145 for the indemnification of each person who was or is a party or is threatened to be made a party to any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative, by reason of the fact that he or she is or was, or has agreed to become, a

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director or officer of the corporation, or is or was serving, or has agreed to serve, at the request of the corporation, as a director, officer, or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust, or other enterprise (including any employee benefit plan), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by such person or on such person's behalf in connection with such action, suit, or proceeding and any appeal therefrom.

II-1

Table of Contents

Item 16. List of Exhibits

The exhibits filed as part of this registration statement are as follows:

| Exhibit | Description |
|----------------|---|
| 5.1 | Opinion of Pepper Hamilton LLP regarding legality of securities being registered. |
| 23.1 | Consent of KPMG LLP. |
| 23.2 | Consent of Pepper Hamilton LLP (included in its Opinion filed as Exhibit 5.1 hereto). |
| 24.1 | Powers of Attorney (included on signature page). |

Item 17. Undertakings

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of the securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (i) and (ii) above do not apply if the registration statement is on Form S-3 or Form S-8 and the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement

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(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

II-2

Table of Contents

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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| | | |
|--------------------------------------|----------|---------------|
| <u>/s/ WILLIAM F. HAMILTON</u> | Director | June 20, 2003 |
| William F. Hamilton | | |
| <u>/s/ DOUGLAS J. MACMASTER, JR.</u> | Director | June 20, 2003 |
| Douglas J. MacMaster, Jr. | | |
| <u>/s/ MARK H. RACHESKY</u> | Director | June 20, 2003 |
| Mark H. Rachesky | | |
| <u>/s/ STEPHEN A. ROTH</u> | Director | June 20, 2003 |
| Stephen A. Roth | | |
| <u>/s/ LOWELL E. SEARS</u> | Director | June 20, 2003 |
| Lowell E. Sears | | |
| <u>/s/ ELIZABETH H.S. WYATT</u> | Director | June 20, 2003 |
| Elizabeth H. S. Wyatt | | |

Table of Contents

Exhibit Index

| Exhibit | Description |
|----------------|---|
| 5.1 | Opinion of Pepper Hamilton LLP regarding legality of securities being registered. |
| 23.1 | Consent of KPMG LLP. |
| 23.2 | Consent of Pepper Hamilton LLP (included in its Opinion filed as Exhibit 5.1 hereto). |
| 24.1 | Powers of Attorney (included on signature page). |