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

AMENDMENT NO. 1
TO
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ADVENTRX Pharmaceuticals, Inc.

(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

84-1318182
(I.R.S. Employer Identification Number)

6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(Address, including zip code, and telephone number, including area code,
of Registrant's principal executive offices)

Carrie E. Carlander
Chief Financial Officer
ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(858) 552-0866
facsimile: (858) 552-0876
(Name, address, including zip code, and telephone number,
including area code, of agent for service)

Copies of all communications to:

Henry D. Evans, Esq.
Francis W. Sarena, Esq.
Bingham McCutchen LLP
Three Embarcadero Center
San Francisco, California 94111
phone: (415) 393-2000
facsimile: (415) 393-2286

Approximate date of commencement of proposed sale to the public: as soon as practicable after the effective date of this registration statement.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

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, as amended, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

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

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, as amended, 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:

CALCULATION OF REGISTRATION FEE

Title of each class of	Proposed maximum	Proposed maximum
------------------------	------------------	------------------

securities to be registered (1)	Amount to be registered	offering price per share (2)	aggregate offering price (2)	Amount of registration fee
common stock, par value \$0.001 per share	23,240,340 shares	\$3.82	\$88,778,098.80	\$10,449.18

- (1) In addition to the common stock set forth in the table, the amount to be registered includes an indeterminate number of shares issuable pursuant to stock splits and stock dividends in accordance with Rule 416(b) under the Securities Act of 1933, as amended.
- (2) Estimated solely for purposes of calculating the amount of the registration fee. The estimate is made pursuant to Rule 457(c) of the Securities Act of 1933, as amended.

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 SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

The information in this prospectus is not complete and may be changed. No securities may be sold 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: _____, 2005

PROSPECTUS

23,240,340 Shares

Common Stock

ADVENTRX Pharmaceuticals, Inc.

6725 Mesa Ridge Road, Suite 100

San Diego, California 92121

(858) 558-0866

The security holders of ADVENTRX Pharmaceuticals, Inc. (the "Company") listed in this prospectus are offering an aggregate of 23,240,340 shares of common stock, including shares issuable upon exercise of outstanding warrants.

The shares and warrants were sold to the selling security holders in transactions exempt from registration under the Securities Act of 1933, as amended (the "Securities Act"). We will not receive any of the proceeds from the sale of the shares of common stock offered hereby although we will receive the proceeds of sales of shares of common stock to the selling security holders upon exercise of their warrants (except to the extent warrants are exercised on a net exercise basis).

The selling security holders may sell the shares covered by this prospectus from time to time in transactions on the American Stock Exchange LLC, in the over-the-counter market or in negotiated transactions. The selling security holders directly, or through agents or dealers designated from time to time, may sell the shares of common stock offered by them at fixed prices, at prevailing market prices at the time of sale, at varying prices determined at the time of sale or at negotiated prices.

Our common stock is listed on the American Stock Exchange LLC under the symbol "ANX." On August 30, 2005, the last reported sale price of our common stock on the American Stock Exchange LLC was \$3.84 per share.

INVESTING IN THE COMMON STOCK INVOLVES RISKS.
SEE "RISK FACTORS" BEGINNING ON PAGE 4.

Neither the Securities and Exchange Commission nor any state securities regulator has approved or disapproved the shares of common stock covered by this prospectus, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2005

Table of Contents

Special Note Regarding Forward-Looking Statements	Page
Where You Can Find More Information About Us	2
Our Company	2
Risk Factors	4
Use of Proceeds	4
Selling Security Holders	10
Plan of Distribution	10
Indemnification	15
Legal Matters	17
Experts	17
EXHIBIT 4.27	
EXHIBIT 4.28	
EXHIBIT 4.29	
EXHIBIT 4.30	
EXHIBIT 5.1	
EXHIBIT 23.1	

In this prospectus, "ADVENTRX," the "company," "we," "us," and "our" refer to ADVENTRX Pharmaceuticals, Inc.

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 in this prospectus. This prospectus is offering to sell, and is seeking offers to buy, shares of common stock only in jurisdictions where such offers

and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus.

Special Note Regarding Forward-Looking Statements

Some of the statements under “Our Company,” “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 actual 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. These factors include, among others, those listed under “Risk Factors” and elsewhere in this prospectus.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” or “continue” or similar terms.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements. Our actual results could differ materially from those expressed or implied by these forward-looking statements as a result of various factors, including the risk factors described under the heading “Risk Factors” and elsewhere in this prospectus. We undertake no obligation to update publicly any forward-looking statements for any reason, except as required by law, even as new information becomes available or other events occur in the future.

Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of these statements. We undertake no obligation to update or revise any of the forward-looking statements, whether as a result of new information, future events or otherwise. In light of these risks, uncertainties and assumptions, the forward-looking events discussed in this prospectus may not occur.

Where You Can Find More Information About Us

We file annual, quarterly and special reports and other information with the Securities and Exchange Commission (the “Commission”). You may read and copy any document we file with the Commission at the Public Reference Room at the Commission, at 100 F Street, N.E., Washington, D.C. 20549. Please call 1-800-SEC-0330 for further information concerning the Public Reference Room. The Commission also makes these documents and

Table of Contents

other information available on its website at <http://www.sec.gov>. We also maintain a website at <http://www.adventrx.com>. The material on our website is not a part of this prospectus.

We have filed with the Commission a registration statement on Form S-3 under the Securities Act relating to the common stock offered by this prospectus. This prospectus constitutes a part of the registration statement but does not contain all of the information set forth in the registration statement and its exhibits. For further information, we refer you to the registration statement and its exhibits.

The Commission allows us to “incorporate by reference” the information we file with it, which means that we can disclose important information to you by referring you to another document we have filed with the Commission. The information incorporated by reference is an important part of this prospectus and information that we file later with the Commission will automatically update and supersede this information. We incorporate by reference the following:

- (a) the section entitled “Description of Registrant’s Securities” contained in the Registrant’s Registration Statement on Form 8-A (file No. 001-32157) filed with the Commission on April 27, 2004, pursuant to Section 12(b) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), including any amendment or report filed for the purpose of updating such description.
- (b) our Annual Report on Form 10-KSB for the fiscal year ended December 31, 2004 filed with the Commission on March 31, 2005;
- (c) our Amendment No. 1 to our Annual Report on Form 10-KSB for the fiscal year ended December 31, 2004 filed with the Commission on August 11, 2005;
- (d) our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2005 filed with the Commission on May 16, 2005;
- (e) our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2005 filed with the Commission on August 12, 2005;
- (f) our Current Report on Form 8-K filed with the Commission on June 10, 2005;
- (g) our Current Report on Form 8-K filed with the Commission on July 27, 2005;
- (h) our Current Report on Form 8-K filed with the Commission on August 12, 2005;
- (i) our Current Report on Form 8-K filed with the Commission on August 30, 2005; and
- (j) any future filings we make with the Commission under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act, until we file a post-effective amendment which indicates the termination of the offering of the securities made by this prospectus.

We will provide exhibits to these filings at no cost only if they are specifically incorporated into those filings.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Carrie E. Carlander
Chief Financial Officer
ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(858) 552-0866

Our Company

We are a biopharmaceutical research and development company focused on introducing new technologies for anticancer and antiviral treatments that improve the performance and safety of existing drugs by addressing significant problems such as drug metabolism, toxicity, bioavailability or resistance. The Company currently does not manufacture, market, sell or distribute any product. Through our license agreements with University of Southern California (USC), and the National Institutes of Health (NIH), the Company has rights to drug candidates in varying early stages of development.

We were initially organized as a corporation under the Delaware General Corporation Law in December 1995. On May 30, 2003, the Company merged our wholly owned subsidiary, Biokeys, Inc., into itself and changed the name of the Company from Biokeys Pharmaceuticals, Inc. to ADVENTRX Pharmaceuticals, Inc. The merger had no effect on the financial statements of the Company.

In July 2004, the Company formed a wholly owned subsidiary, ADVENTRX (Europe) Ltd., in the United Kingdom for the purpose of conducting drug trials in the European Union.

Risk Factors

You should carefully consider the risks described below before making an investment decision. The risks described below are not the only ones facing our company. 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.

We have a substantial accumulated deficit and limited working capital.

We had an accumulated deficit of \$41 million as of June 30, 2005. Since we presently have no source of revenues and are committed to continuing our product research and development program, significant expenditures and losses will continue until development of new products is completed and such products have been clinically tested, approved by the FDA or other regulatory agencies and successfully marketed. In addition, we fund our operations primarily through the sale of securities, and have had limited working capital for our product development and other activities. We do not believe that debt financing from financial institutions will be available until at least the time that one of our products is approved for commercial production.

We have no current product sales revenues or profits.

We have devoted our resources to developing a new generation of therapeutic drug products, but such products cannot be marketed until clinical testing is completed and governmental approvals have been obtained. Accordingly, there is no current source of revenues, much less profits, to sustain our present activities, and no revenues will likely be available until, and unless, the new products are clinically tested, approved by the FDA or other regulatory agencies and successfully marketed, either by us or a marketing partner, an outcome which we are not able to guarantee.

It is uncertain that we will have access to future capital.

It is not expected that we will generate positive cash flow from operations for at least the next several years. As a result, substantial additional equity or debt financing for research and development or clinical development will be required to fund our activities. Although we have raised such equity financing in April 2004 and July 2005, we cannot be certain that we will be able to continue to obtain such financing on favorable or satisfactory terms, if at all, or that it will be sufficient to meet our cash requirements. Any additional equity financing could result in substantial dilution to stockholders, and debt financing, if available, will most likely involve restrictive covenants that preclude us from making distributions to stockholders and taking other actions beneficial to stockholders. If adequate funds are not available, we may be required to delay or reduce the scope of our drug development program or attempt to

continue development by entering into arrangements with collaborative partners or others that may require us to relinquish some or all of our rights to proprietary drugs. The inability to fund our capital requirements would have a material adverse effect on us.

We are not certain that we will be successful in the development of our drug candidates.

The successful development of any new drug is highly uncertain and is subject to a number of significant risks. Our drug candidates, all of which are in a development stage, require significant, time-consuming and costly development, testing and regulatory clearance. This process typically takes several years and can require substantially more time. Risks include, among others, the possibility that a drug candidate will (i) be found to be ineffective or unacceptably toxic, (ii) have unacceptable side effects, (iii) fail to receive necessary regulatory clearances, (iv) not achieve broad market acceptance, (v) be subject to competition from third parties who may market equivalent or superior products, (vi) be affected by third parties holding proprietary rights that will preclude us from marketing a drug product, or (vii) not be able to be immediately manufactured by manufacturers in a timely manner in accordance with required standards of quality. There can be no assurance that the development of our drug candidates will demonstrate the efficacy and safety of our drug candidates as therapeutic drugs, or, even if demonstrated, that there will be sufficient advantages to their use over other drugs or treatments so as to render the drug product commercially viable. In the past, we have been faced with limiting the scope and/or delaying the launch of preclinical and clinical drug trials due to limited cash and personnel resources. We have also chosen to terminate licenses of some drug candidates that were not showing sufficient promise to justify continued expense and development. In the event that we are not successful in developing and commercializing one or more drug candidates, investors are likely to realize a loss of their entire investment.

We have been delayed at certain times in the past in the development of our drug products by limited funding. In addition, if certain of our scientific and technical personnel resigned at or about the same time, the development of our drug products would probably be delayed until new personnel were hired and became familiar with the development programs.

Positive results in preclinical and clinical trials do not ensure that future clinical trials will be successful or that drug candidates will receive any necessary regulatory approvals for the marketing, distribution or sale of such drug candidates.

Success in preclinical and clinical trials does not ensure that large-scale clinical trials will be successful. Clinical results are frequently susceptible to varying interpretations that may delay, limit or prevent regulatory approvals. The length of time necessary to complete clinical trials and to submit an application for marketing approval for a final decision by a regulatory authority varies significantly and may be difficult to predict. In the past, we have terminated licenses of drug candidates when our preclinical trials did not support or verify earlier preclinical data. There is a significant risk that any of our drug candidates could fail to show satisfactory results in continued trials, and would not justify further development.

We will face intense competition from other companies in the pharmaceutical industry.

We are engaged in a segment of the pharmaceutical industry that is highly competitive and rapidly changing. If successfully developed and approved, any of our drug candidates will likely compete with several existing therapies. CoFactor, our leading drug candidate, would likely compete against a well-established product, leucovorin. In addition, there are numerous companies with a focus in oncology and/or anti-viral therapeutics that are pursuing the development of new pharmaceuticals that target the same diseases as are targeted by the drugs being developed by us. We anticipate that we will face intense and increasing competition in the future as new products enter the market and advanced technologies become available. We cannot assure that existing products or new products developed by competitors will not be more effective, or more effectively marketed and sold than those we may market and sell. Competitive products may render our drugs obsolete or noncompetitive prior to our recovery of development and commercialization expenses.

Many of our competitors such as Merck and Pfizer will also have significantly greater financial, technical and human resources and will likely be better equipped to develop, manufacture and market products. In addition, many of these competitors have extensive experience in preclinical testing and clinical trials, obtaining FDA and other

Table of Contents

regulatory approvals and manufacturing and marketing pharmaceutical products. A number of these competitors also have products that have been approved or are in late-stage development and operate large, well-funded research and development programs. Smaller companies may also prove to be significant competitors, particularly through collaborative arrangements with large pharmaceutical and biotechnology companies. Furthermore, academic institutions, government agencies and other public and private research organizations are becoming increasingly aware of the commercial value of their inventions and are actively seeking to commercialize the technology they have developed. Companies such as Gilead, Roche, GlaxoSmithKline all have drugs in various stages of development that could become competitors. Accordingly, competitors may succeed in commercializing products more rapidly or effectively than us, which would have a material adverse effect on us.

There is no assurance that our products will have market acceptance.

Our success will depend in substantial part on the extent to which a drug product, once approved, achieves market acceptance. The degree of market acceptance will depend upon a number of factors, including (i) the receipt and scope of regulatory approvals, (ii) the establishment and demonstration in the medical community of the safety and efficacy of a drug product, (iii) the product's potential advantages over existing treatment methods and (iv) reimbursement policies of government and third party payors. We cannot predict or guarantee that physicians, patients, healthcare insurers or maintenance organizations, or the medical community in general, will accept or utilize any of our drug products.

The unavailability of health care reimbursement for any of our products will likely adversely impact our ability to effectively market such products and whether health care reimbursement will be available for any of our products is uncertain.

Our ability to commercialize our technology successfully will depend in part on the extent to which reimbursement for the costs of such products and related treatments will be available from government health administration authorities, private health insurers and other third-party payors. Significant uncertainty exists as to the reimbursement status of newly approved medical products. We cannot guarantee that adequate third-party insurance coverage will be available for us to establish and maintain price levels sufficient for realization of an appropriate return on our investments in developing new therapies. If we are successful in getting FDA approval for CoFactor, we will be competing against a generic drug, leucovorin, which has a lower cost and a long, established history of reimbursement. Receiving sufficient reimbursement for purchase costs of CoFactor will be necessary to make it cost effective and competitive versus the established drug, leucovorin. Government, private health insurers, and other third-party payors are increasingly attempting to contain health care costs by limiting both coverage and the level of reimbursement for new therapeutic products approved for marketing by the FDA. Accordingly, even if coverage and reimbursement are provided by government, private health insurers, and third-party payors for use of our products, the market acceptance of these products would be adversely affected if the amount of reimbursement available for the use of our therapies proved to be unprofitable for health care providers.

Uncertainties related to health care reform measures may affect our success.

There have been some federal and state proposals in the past to subject the pricing of health care goods and services, including prescription drugs, to government control and to make other changes to the U.S. health care system. None of the proposals seems to have affected any of the drugs in our programs. However, it is uncertain if future legislative proposals would be adopted that might affect the drugs in our programs or what actions federal, state, or private payors for health care treatment and services may take in response to any such health care reform proposals or legislation. Any such health care reforms could have a material adverse effect on the marketability of any drugs for which we ultimately require FDA approval.

Further testing of our drug candidates will be required and there is no assurance of FDA approval.

The FDA and comparable agencies in foreign countries impose substantial requirements upon the introduction of medical products, through lengthy and detailed laboratory and clinical testing procedures, sampling activities and other costly and time-consuming procedures. Satisfaction of these requirements typically takes several years or more and varies substantially based upon the type, complexity, and novelty of the product.

Table of Contents

The effect of government regulation and the need for FDA approval will delay marketing of new products for a considerable period of time, impose costly procedures upon our activities, and provide an advantage to larger companies that compete with us. There can be no assurance that the FDA or other regulatory approval for any products developed by us will be granted on a timely basis or at all. Any such delay in obtaining or failure to obtain, such approvals would materially and adversely affect the marketing of any contemplated products and the ability to earn product revenue. Further, regulation of manufacturing facilities by state, local, and other authorities is subject to change. Any additional regulation could result in limitations or restrictions on our ability to utilize any of our technologies, thereby adversely affecting our operations.

Human pharmaceutical products are subject to rigorous preclinical testing and clinical trials and other approval procedures mandated by the FDA and foreign regulatory authorities. Various federal and foreign statutes and regulations also govern or influence the manufacturing, safety, labeling, storage, record keeping and marketing of pharmaceutical products. The process of obtaining these approvals and the subsequent compliance with appropriate U.S. and foreign statutes and regulations are time-consuming and require the expenditure of substantial resources. In addition, these requirements and processes vary widely from country to country.

Among the uncertainties and risks of the FDA approval process are the following: (i) the possibility that studies and clinical trials will fail to prove the safety and efficacy of the drug, or that any demonstrated efficacy will be so limited as to significantly reduce or altogether eliminate the acceptability of the drug in the marketplace, (ii) the possibility that the costs of development, which can far exceed the best of estimates, may render commercialization of the drug marginally profitable or altogether unprofitable, and (iii) the possibility that the amount of time required for FDA approval of a drug may extend for years beyond that which is originally estimated. In addition, the FDA or similar foreign regulatory authorities may require additional clinical trials, which could result in increased costs and significant development delays. Delays or rejections may also be encountered based upon changes in FDA policy and the establishment of additional regulations during the period of product development and FDA review. Similar delays or rejections may be encountered in other countries.

Our success will depend on licenses and proprietary rights we receive from other parties, and on any patents we may obtain.

Our success will depend in large part on our ability and our licensors' ability to (i) maintain license and patent protection with respect to their drug products, (ii) defend patents and licenses once obtained, (iii) maintain trade secrets, (iv) operate without infringing upon the patents and proprietary rights of others and (v) obtain appropriate licenses to patents or proprietary rights held by third parties if infringement would otherwise occur, both in the U.S. and in foreign countries. We have obtained licenses to patents and other proprietary rights from University of Southern California, and the National Institutes of Health.

The patent positions of pharmaceutical companies, including ours, are uncertain and involve complex legal and factual questions. There is no guarantee that we or our licensors have or will develop or obtain the rights to products or processes that are patentable, that patents will issue from any of the pending applications or that claims allowed will be sufficient to protect the technology licensed to us. In addition, we cannot be certain that any patents issued to or licensed by us will not be challenged, invalidated, infringed or circumvented, or that the rights granted thereunder will provide competitive disadvantages to us.

Litigation, which could result in substantial cost, may also be necessary to enforce any patents to which we have rights, or to determine the scope, validity and unenforceability of other parties' proprietary rights, which may affect our rights. U.S. patents carry a presumption of validity and generally can be invalidated only through clear and convincing evidence. There can be no assurance that our licensed patents would be held valid by a court or administrative body or that an alleged infringer would be found to be infringing. The mere uncertainty resulting from the institution and continuation of any technology-related litigation or interference proceeding could have a material adverse effect on us pending resolution of the disputed matters.

We may also rely on unpatented trade secrets and know-how to maintain our competitive position, which we seek to protect, in part, by confidentiality agreements with employees, consultants and others. There can be no assurance that these agreements will not be breached or terminated, that we will have adequate remedies for any breach, or that trade secrets will not otherwise become known or be independently discovered by competitors.

Our license agreements can be terminated in the event of a breach.

The license agreements pursuant to which we license our core technologies for our potential drug products permit the licensors, respectively National Institutes of Health, and the University of Southern California, to terminate the agreement under certain circumstances, such as the failure by us to use our reasonable best efforts to commercialize the subject drug or the occurrence of any other uncured material breach by us. The license agreements also provide that the licensor is primarily responsible for obtaining patent protection for the technology licensed, and we are required to reimburse the licensor for the costs it incurs in performing these activities. The license agreements also require the payment of specified royalties. Any inability or failure to observe these terms or pay these costs or royalties could result in the termination of the applicable license agreement in certain cases. In the past, we have let lapse certain licenses for drug candidates when we determined that the expense and risk of continued development outweighed the likely benefits of that continued development. The termination of any license agreement could have a material adverse effect on us.

Protecting our proprietary rights is difficult and costly.

The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and involve complex legal and factual questions. Accordingly, we cannot predict the breadth of claims allowed in these companies' patents or whether we may infringe or be infringing these claims. Although we have not been notified of any patent infringement, nor notified others of patent infringement, such patent disputes are common and could preclude the commercialization of our products. Patent litigation is costly in its own right and could subject us to significant liabilities to third parties. In addition, an adverse decision could force us to either obtain third-party licenses at a material cost or cease using the technology or product in dispute.

We may be unable to retain skilled personnel and maintain key relationships.

The success of our business depends, in large part, on our ability to attract and retain highly qualified management, scientific and other personnel, and on our ability to develop and maintain important relationships with leading research institutions and consultants and advisors. Competition for these types of personnel and relationships is intense from numerous pharmaceutical and biotechnology companies, universities and other research institutions. We are currently dependent upon our scientific staff, which has a deep background in our drug candidates and the ongoing preclinical and clinical trials. Recruiting and retaining senior employees with relevant drug development experience in oncology and anti-viral therapeutics is costly and time-consuming. There can be no assurance that we will be able to attract and retain such individuals on an uninterrupted basis and on commercially acceptable terms, and the failure to do so could have a material adverse effect on us by significantly delaying one or more of our drug development programs. These individuals are employed under offer letters, rather than employment agreements.

We currently have no sales capability, and limited marketing capability.

We currently do not have sales personnel. We have limited marketing and business development personnel. We will have to develop a sales force, or rely on marketing partners or other arrangements with third parties for the marketing, distribution and sale of any drug product which is ready for distribution. There is no guarantee that we will be able to establish marketing, distribution or sales capabilities or make arrangements with third parties to perform those activities on terms satisfactory to us, or that any internal capabilities or third party arrangements will be cost-effective.

In addition, any third parties with which we may establish marketing, distribution or sales arrangements may have significant control over important aspects of the commercialization of a drug product, including market identification, marketing methods, pricing, composition of sales force and promotional activities. There can be no assurance that we will be able to control the amount and timing of resources that any third party may devote to our products or prevent any third party from pursuing alternative technologies or products that could result in the development of products that compete with, or the withdrawal of support for, our products.

We do not have manufacturing capabilities and may not be able to efficiently develop manufacturing capabilities or contract for such services from third parties on commercially acceptable terms.

We do not have any manufacturing capacity. When required, we will seek to establish relationships with third-party manufacturers for the manufacture of clinical trial material and the commercial production of drug products as we have with our current manufacturing partners. There can be no assurance that we will be able to establish relationships with third-party manufacturers on commercially acceptable terms or that third-party manufacturers will be able to manufacture a drug product on a cost-effective basis in commercial quantities under good manufacturing practices mandated by the FDA.

The dependence upon third parties for the manufacture of products may adversely affect future costs and the ability to develop and commercialize a drug product on a timely and competitive basis. Further, there can be no assurance that manufacturing or quality control problems will not arise in connection with the manufacture of our drug products or that third party manufacturers will be able to maintain the necessary governmental licenses and approvals to continue manufacturing such products. Any failure to establish relationships with third parties for our manufacturing requirements on commercially acceptable terms would have a material adverse effect on us.

We are dependent in part on third parties for drug development and research facilities.

We do not possess research and development facilities necessary to conduct all of our drug development activities. We engage consultants and independent contract research organizations to design and conduct clinical trials in connection with the development of our drugs. As a result, these important aspects of a drug's development will be outside our direct control. In addition, there can be no assurance that such third parties will perform all of their obligations under arrangements with us or will perform those obligations satisfactorily.

In the future, we anticipate that we will need to obtain additional or increased product liability insurance coverage and it is uncertain that such increased or additional insurance coverage can be obtained on commercially reasonable terms.

Our business will expose us to potential product liability risks that are inherent in the testing, manufacturing and marketing of pharmaceutical products. There can be no assurance that product liability claims will not be asserted against us. We intend to obtain additional limited product liability insurance for our clinical trials, directly or through our marketing development partners or contract research organization (CRO) partners, when they begin in the U.S. and to expand our insurance coverage if and when we begin marketing commercial products. However, there can be no assurance that we will be able to obtain product liability insurance on commercially acceptable terms or that we will be able to maintain such insurance at a reasonable cost or in sufficient amounts to protect against potential losses. A successful product liability claim or series of claims brought against us could have a material adverse effect on us.

The market price of our shares, like that of many biotechnology companies, is highly volatile.

Market prices for our Common Stock and the securities of other medical and biomedical technology companies have been highly volatile and may continue to be highly volatile in the future. Factors such as announcements of technological innovations or new products by us or our competitors, government regulatory action, litigation, patent or proprietary rights developments, and market conditions for medical and high technology stocks in general can have a significant impact on any future market for the Common Stock.

Changes in laws and regulations that affect the governance of public companies has increased our operating expenses and will continue to do so.

Recently enacted changes in the laws and regulations affecting public companies, including the provisions of the Sarbanes-Oxley Act of 2002 and the listing requirements for American Stock Exchange have imposed new duties on us and on our executives, directors, attorneys and independent accountants. In order to comply with these new rules, we have hired and expect to hire additional personnel and use additional outside legal, accounting and advisory services, which have increased and are likely to continue increasing our operating expenses. In particular, we expect to incur additional administrative expenses as we implement Section 404 of the Sarbanes-Oxley Act, which requires

Table of Contents

management to report on, and our independent registered public accounting firm to attest to, our internal controls. For example, we expect to incur significant expenses in connection with the implementation, documentation and testing of our existing and newly implemented control systems. Management time associated with these compliance efforts necessarily reduces time available for other operating activities, which could adversely affect operating results. If we are unable to achieve full and timely compliance with these regulatory requirements, we could be required to incur additional costs, expend additional money and management time on remedial efforts which could adversely affect our results of operations.

Failure to implement effective control systems, or failure to complete our assessment of the effectiveness of our internal control over financial reporting, may subject us to regulatory sanctions and could result in a loss of public confidence, which could harm our operating results.

Under the supervision of our Chief Executive Officer and our Chief Financial Officer, we evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2004 and again as of June 30, 2005. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that as of both these dates, our disclosure controls and procedures were not effective to ensure that management is alerted to material information required to be disclosed by us in the reports we file with the SEC and that such material information is recorded and reported within the time periods specified in the SEC's rules and forms. Since December 31, 2004, management has implemented changes intended to improve certain aspects of our disclosure controls and procedures. If we fail to implement effective disclosure controls and procedures, we may be unable to make timely disclosure of material information, which could subject us to regulatory sanctions, loss of public confidence and stockholder lawsuits.

Pursuant to Section 404 of the Sarbanes-Oxley Act, beginning with our year ending December 31, 2005, if we are an "accelerated filer" as of December 31, 2005, or December 31, 2006, if we are not an "accelerated filer" as of December 31, 2005, we will be required to include in our annual report our assessment of the effectiveness of our internal control over financial reporting and our audited financial statements as of the end of that fiscal year. Furthermore, our independent registered public accounting firm will be required to attest to whether our assessment of the effectiveness of our internal control over financial reporting is fairly stated in all material respects and separately report on whether it believes we maintained, in all material respects, effective internal control over financial reporting as of December 31, 2005, if we are an "accelerated filer" as of December 31, 2005, or December 31, 2006, we are not an "accelerated filer" as of December 31, 2005.

In connection with its audit of our financial statements for the fiscal year ended December 31, 2004, J.H. Cohn LLP, our independent registered public accounting firm, advised our Audit Committee that it had identified material weaknesses in our accounting function that we need to re-evaluate and strengthen. We are taking steps intended to remedy these material weaknesses. However, if we fail to remedy these material weaknesses, fail to timely complete our assessment, or if our independent registered public accounting firm cannot timely attest to our assessment, we could be subject to regulatory sanctions and a loss of public confidence in our internal control. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to timely meet our regulatory reporting obligations.

Use of Proceeds

All of the shares of common stock and shares of common stock issuable upon exercise of warrants offered pursuant to this prospectus are being offered by the selling security holders listed under "Selling Security Holders." We will not receive any proceeds from sales of shares of common stock by the selling security holders. The shares offered hereby include an aggregate of 12,048,042 shares issuable upon exercise of outstanding warrants held by security holders named in this prospectus. We will receive proceeds from any exercise of these warrants (except to the extent warrants are exercised on a net exercise basis). The proceeds, if any, will be added to our working capital and be available for general corporate purposes.

Selling Security Holders

All of the shares of common stock and shares of common stock issuable upon exercise of warrants registered for sale under this prospectus (the "Registered Shares") are owned (or capable of being owned upon exercise of warrants as described herein), as of the date of this prospectus, by

Table of Contents

the selling security holders listed in the table below. We issued the Registered Shares (or the warrants exercisable for Registered Shares, as the case may be) in the ordinary course of business in transactions exempt from the registration requirements of the Securities Act. We are registering the Registered Shares for the selling security holders. At the time of the issuance of the Registered Shares (or the warrants exercisable for Registered Shares, as the case may be) we had no agreement or understanding with any selling security holder to distribute any of our securities.

The following table sets forth information as of August 30, 2005 with respect to the selling security holders and the respective number of shares of common stock beneficially owned by each selling security holder, all of which are offered pursuant to this prospectus. Except as otherwise noted in this prospectus, for purposes of computing the number and percentage of shares beneficially owned by a selling security holder on August 30, 2005, any shares which such person has the right to acquire within 60 days after such date are deemed to be outstanding, but those shares are not deemed to be outstanding for the purpose of computing the percentage ownership of any other selling security holder:

<u>Name</u>	<u>Shares Owned Before Offering(1)</u>	<u>Percent Owned Before Offering(2)</u>	<u>Shares Being Offered</u>	<u>Shares Owned Upon Completion Of Offering</u>	<u>Percent Owned After Offering(2)</u>
Andrew J. Maffey	188,000(3)	*	63,000	125,000	*
Caroline A. Levine	11,250	*	11,250	0	0
Centrum Bank AG	91,500(4)	*	46,500	45,000	*
Charles and Leslie Close	65,000(5)	*	15,000	50,000	*
Clifford Ross	65,000(6)	*	15,000	50,000	*
Delaware Charter Guarantee and Trust Co. FBO					
Michael Kooper IRA	77,865(7)	*	17,969	59,896	*
Elaine Dines	65,000(8)	*	15,000	50,000	*
Franco Merlo	2,989	*	2,989	0	0
High River Limited Partnership	1,729,730(9)	2.5%	1,729,730	0	0
Icahn Partners LP	3,321,080(10)	4.8%	3,321,080	0	0
Icahn Partners Master Fund LP	3,597,838(11)	5.2%	3,597,838	0	0
James Simpson	7,500(12)	*	7,500	0	0
Jay Silberman	97,500(13)	*	22,500	75,000	*
John J. Kissane	13,000	*	3,000	10,000	*
Legend Merchant Group, Inc.	1,500(14)	*	1,500	0	0
Michael Kooper	308,750	*	71,250	237,500	*
North Sound Legacy Institutional Fund LLC	1,005,756(15)	1.5%(15)	807,756	198,000(16)	*
North Sound Legacy International Ltd.	2,396,946(17)	3.5%(17)	2,012,946	384,000(18)	*
Paul Mezei	2,600(19)	*	600	2,000	*
Richard Melnick	201,000	*	201,000	0	0
Robert J. Neborsky MD Combination Retirement					
Trust	670,641(20)	*	320,414	350,227(21)	*
Royal Bank of Canada	2,702,702(22)		2,702,702	0	0
Schenk Family Trust Carl Schenk Trustee	32,500(23)	*	7,500	25,000	*
The Prudent Bear Fund	375,000(24)	*	375,000	0	0
Thomas DePetrillo	300,000(25)	*	300,000	0	0
VGE III Portfolio Ltd.	3,902,600(26)	5.6%	3,902,600	0	0
Viking Global Equities LP	3,664,966(27)	5.3%	3,664,966	0	0
Steve Salovitch	13,000	*	3,000	10,000	*
EFG Private Bank S.A.	23,250(28)	*	750	22,500	*

Table of Contents

* Less than 1.0%.

- (1) Options and warrants to purchase our common stock that are presently exercisable or exercisable within 60 days of August 30, 2005, even if such options or warrants may otherwise be subject to restriction on exercise, are included in the total number of shares beneficially owned for the person holding those options or warrants and are considered outstanding for the purpose of calculating percentage ownership of the particular holder.
- (2) The percentage of ownership of common stock is based on 67,346,575 shares of common stock outstanding as of August 30, 2005 and excludes all shares of common stock issuable upon the exercise of outstanding options or warrants to purchase common stock, other than the shares of common stock issuable upon the exercise of options or warrants to purchase common stock held by the named person to the extent such options or warrants are exercisable within 60 days of August 30, 2005, even if such options or warrants may otherwise be subject to restriction on exercise.
- (3) Includes 16,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (4) Includes 16,500 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (5) Includes 15,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (6) Includes 15,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (7) Includes 17,969 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (8) Includes 15,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (9) Includes 864,865 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not exercisable until January 27, 2006. Based on our review of a Schedule 13D filed with the Commission on August 5, 2005 (the "Icahn 13D") by High River Limited Partnership ("High River"), Hopper Investments, LLC ("Hopper"), Barberry Corp. ("Barberry"), Icahn Partners Master Fund LP ("Icahn Master"), Icahn Offshore LP ("Icahn Offshore"), CCI Offshore Corp. ("CCI Offshore"), Icahn Partners LP ("Icahn Partners"), Icahn Onshore LP ("Icahn Onshore"), CCI Onshore Corp. ("CCI Onshore") and Carl C. Icahn, we believe that as of the date of this prospectus each of Barberry, Hopper and Mr. Icahn may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) directly held by High River because such persons are in a position to directly or indirectly determine the investment and voting decisions of High River. Barberry, Hopper and Mr. Icahn each disclaim beneficial ownership of such shares for all other purposes.
- (10) Includes 1,660,540 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not exercisable until January 27, 2006. Based on our review of the Icahn 13D, we believe that as of the date of this prospectus each of CCI Onshore, Icahn Onshore and Mr. Icahn may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) directly held by Icahn Partners because such persons are in a position to directly or indirectly determine the investment and voting decisions of Icahn Partners. CCI Onshore, Icahn Onshore and Mr. Icahn each disclaim beneficial ownership of such shares for all other purposes. Based on our review of a Form 3 filed with the Commission on August 16, 2005 (the "Form 3") by Keith Meister, a member of our board of directors, and the information disclosed in the Icahn 13D, we believe that because Mr. Meister is a limited partner of Icahn Onshore and has an interest in the

Table of Contents

fees, including the performance fees, relating to Icahn Onshore and Icahn Offshore he may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) beneficially owned by Icahn Partners. Mr. Meister disclaims beneficial ownership of all such shares (including warrant shares) in the Form 3.

- (11) Includes 1,798,919 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not exercisable until January 27, 2006. Based on our review of the Icahn 13D, we believe that as of the date of this prospectus each of CCI Offshore, Icahn Offshore and Mr. Icahn may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) directly held by Icahn Master because such persons are in a position to directly or indirectly determine the investment and voting decisions of Icahn Master. CCI Offshore, Icahn Offshore and Mr. Icahn each disclaim beneficial ownership of such shares for all other purposes. Based on our review of the Form 3 and the information disclosed in the Icahn 13D, we believe that because Mr. Meister is a limited partner of Icahn Onshore and has an interest in the fees, including the performance fees, relating to Icahn Onshore and Icahn Offshore he may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) beneficially owned by Icahn Master. Mr. Meister disclaims beneficial ownership of all such shares (including warrant shares) in the Form 3.
- (12) Includes 7,500 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (13) Includes 22,500 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (14) Includes 1,500 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (15) Includes 483,378 shares of common stock issuable upon exercise of warrants held by this person, 417,378 of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that warrants to purchase 378,378 shares are not exercisable until January 27, 2006. We have been advised by this person that North Sound Capital LLC ("North Sound Capital") may be deemed the beneficial owner of the shares beneficially owned by this person because North Sound Capital is the managing member of this person and the investment advisor of North Sounds Legacy International Ltd. As the managing member or investment advisor, respectively, of such entities, North Sound Capital has voting and investment control with respect to the shares of common stock held thereby. The ultimate managing member of North Sound Capital is Thomas McAuley. This person holds warrants to purchase 105,000 shares and a warrant to purchase 378,378 shares of common stock that contain provisions that would prohibit this person from exercising these warrants to the extent that upon such exercise this person would beneficially hold more than 9.99% or 4.9%, respectively, of the total number of shares of common stock then issued and outstanding (determined in

Table of Contents

accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended) unless this person shall have provided us with 61-days' notice of this person's waiver of this provision.

- (16) All of the shares this person will beneficially own upon completion of this offering (including shares issuable upon the exercise of warrants) have been registered on the registration statement on Form S-3 (No. 333-117022), as amended, initially filed with the Commission on June 30, 2003.
- (17) Includes 1,167,973 shares of common stock issuable upon exercise of warrants held by this person, 1,039,973 of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that warrants to purchase 972,973 shares are not exercisable until January 27, 2006. See also footnote 15 regarding North Sound Capital's beneficial ownership of shares owned by this person. This person holds warrants to purchase 195,000 shares and a warrant to purchase 972,973 shares of common stock that contain provisions that would prohibit this person from exercising these warrants to the extent that upon such exercise this person would beneficially hold more than 9.99% or 4.9%, respectively, of the total number of shares of common stock then issued and outstanding (determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended) unless this person shall have provided us with 61-days' notice of this person's waiver of this provision.
- (18) All of the shares this person will beneficially own upon completion of this offering (including shares issuable upon the exercise of warrants) have been registered on the registration statement on Form S-3 (No. 333-117022), as amended, initially filed with the Commission on June 30, 2003.
- (19) Includes 600 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (20) Includes 320,414 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (21) Of the shares this person will beneficially own upon completion of this offering, 167,500 have been registered on the registration statement on Form S-3 (No. 333-117022), as amended, initially filed with the Commission on June 30, 2003.
- (22) Includes 1,351,351 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not exercisable until January 27, 2006.
- (23) Includes 7,500 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (24) Includes 375,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (25) Includes 300,000 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.
- (26) Includes 1,951,300 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not

Table of Contents

exercisable until January 27, 2006. Based on our review of a Schedule 13G filed with the Commission on August 5, 2005 (the “Viking 13G”) by Viking Global Performance LLC (“VGP”), Viking Global Investors LP (“VGI”), Viking Global Equities LP (“VGE Global”), O. Andreas Halvorsen, Brian T. Olson and David C. Ott, we believe that as of the date of this prospectus each of VGP, VGI and Messrs. Halvorsen, Olson and Ott may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) directly held by VGE III Portfolio Ltd. (“VGE Portfolio”) because such persons are in a position to directly or indirectly determine the investment and voting decisions of VGE Portfolio.

- (27) Includes 1,832,483 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered. All of the shares issuable upon exercise of warrants held by this person have been included in the total number of shares beneficially owned for this person notwithstanding the fact that the warrants are not exercisable until January 27, 2006. Based on our review of the Viking 13G, we believe that as of the date of this prospectus each of VGP, VGI and Messrs. Halvorsen, Olson and Ott may be deemed to beneficially own (as that term is defined in Rule 13d-3 under the Exchange Act) the shares (including warrant shares) directly held by VGE Global because such persons are in a position to directly or indirectly determine the investment and voting decisions of VGE Global.
- (28) Includes 750 shares of common stock issuable upon exercise of warrants held by this person, all of which will be offered.

Within the past three years, none of the selling security holders had any position, office or other material relationship with us or, to our knowledge, any of our predecessors or affiliates.

PLAN OF DISTRIBUTION

We are registering the shares of common stock covered by this prospectus on behalf of the selling security holders listed in this prospectus. Sales of shares may be made by selling security holders, including their respective donees or other successors-in-interest directly to purchasers or to or through underwriters, broker-dealers or through agents. Sales may be made from time to time on the American Stock Exchange, any other exchange or market upon which our shares may trade in the future, in the over-the-counter market or otherwise, at market prices prevailing at the time of sale, at prices related to market prices, or at negotiated or fixed prices. The shares may be sold by one or more of, or a combination of, the following:

- a block trade in which the broker-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 (including crosses in which the same broker acts as agent for both sides of the transaction);
- purchases by a broker-dealer as principal and resale by such broker-dealer, including resales for its account, pursuant to this prospectus;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchases;
- through options, swaps or derivatives;
- in privately negotiated transactions;
- in making short sales or in transactions to cover short sales entered into after the date of this prospectus;
- put or call option transactions relating to the shares; or
- any other method permitted by applicable law.

The selling security holders may effect these transactions by selling shares directly to purchasers or to or through broker-dealers, which may act as agents or principals. These broker-dealers may receive compensation in the form of discounts, concessions or commissions from the selling security holders or the purchasers of shares for whom such broker-dealers may act as agents or to whom they sell as principals, or both (which compensation as to a particular broker-dealer might be in excess of customary commissions). Each of the selling security holders has advised us that they have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their securities.

Each selling security holder will act independently of us in making decisions regarding the timing, manner and size of each sale of shares of common stock covered by this registration statement.

Table of Contents

Each of the selling security holders may enter into hedging transactions with broker-dealers or other financial institutions. In connection with those transactions, the broker-dealers or other financial institutions may engage in short sales of the shares or of securities convertible into or exchangeable for the shares in the course of hedging positions they assume with the selling security holders. Each of the selling security holders may also enter into options or other transactions with broker-dealers or other financial institutions which require the delivery of shares offered by this prospectus to those broker-dealers or other financial institutions. The broker-dealer or other financial institution may then resell the shares pursuant to this prospectus (as amended or supplemented, if required by applicable law, to reflect those transactions).

Each of the selling security holders and any broker-dealers that act in connection with the sale of shares may be deemed to be “underwriters” within the meaning of Section 2(11) of the Securities Act, and any commissions received by broker-dealers or any profit on the resale of the shares sold by them while acting as principals may be deemed to be underwriting discounts or commissions under the Securities Act. Each of the selling security holders may agree to indemnify any agent, dealer or broker-dealer that participates in transactions involving sales of the shares against liabilities, including liabilities arising under the Securities Act. We have agreed to indemnify each of the selling security holders and each selling security holder has agreed, severally and not jointly, to indemnify us against some liabilities in connection with the offering of the shares, including liabilities arising under the Securities Act.

Each selling security holder and any other persons participating in a distribution of the securities covered by this registration statement will be subject to the prospectus delivery requirements of the Securities Act and will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including, without limitation, Regulation M, which may restrict certain activities of, and limit the timing of purchases and sales of securities by, selling security holders and other persons participating in a distribution of securities. Furthermore, under Regulation M, persons engaged in a distribution of securities are prohibited from simultaneously engaging in market making and certain other activities with respect to such securities for a specified period of time prior to the commencement of such distribution, subject to specified exceptions or exemptions. All of the foregoing may affect the marketability of the securities offered hereby.

Each of the selling security holders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act rather than under this prospectus, provided they meet the criteria and conform to the requirements of Rule 144.

Upon being notified by a selling security holder that a material arrangement has been entered into with a broker-dealer for the sale of shares through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, we will file a supplement to this prospectus, if required pursuant to Rule 424(b) under the Securities Act, disclosing:

- the name of each such selling security holder and of the participating broker-dealer(s);
- the number of shares involved;
- the initial price at which the shares were sold;
- the commissions paid or discounts or concessions allowed to the broker-dealer(s), where applicable;
- that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus; and
- other facts material to the transactions.

In addition, if required under applicable law or the rules or regulations of the Commission, we will file a supplement to this prospectus when a selling security holder notifies us that a donee intends to sell more than 500 shares of common stock.

We are paying all expenses and fees customarily paid by the issuer in connection with the registration of the shares. Each of the selling security holders will bear all brokerage or underwriting discounts or commissions paid to broker-dealers and any transfer agent fees in connection with the sale of the shares.

Legal Matters

The validity of the issuance of shares of common stock offered hereby will be passed upon for us by Bingham McCutchen LLP, San Francisco, California. To our knowledge, no attorney at Bingham McCutchen LLP who has worked on substantive matters for us owns any of our securities.

Experts

Our consolidated balance sheets as of December 31, 2004 and 2003, and the related consolidated statements of operations, shareholders' equity (deficit) and cash flows for the years then ended and for the period from June 12, 1996 (date of inception) through December 31, 2004, have been incorporated by reference in this prospectus and in the registration statement in reliance on the report of J.H. Cohn LLP, independent registered public accounting firm, given upon the authority of said firm as experts in accounting and auditing. The report of J.H. Cohn LLP notes that the consolidated financial statements for the period from June 12, 1996 (date of inception) through December 31, 2001, were audited by other auditors. J.H. Cohn LLP's opinion insofar as it relates to the period from June 12, 1996 to December 31, 2001, is based solely on the report of these other auditors.

23,240,340 SHARES

ADVENTRX PHARMACEUTICALS, INC.

COMMON STOCK

PROSPECTUS

_____, 2005

PART II

Information Not Required In Prospectus

Item 14. Other Expenses Of Issuance And Distribution

The estimated expenses in connection with the distribution of the securities being registered, all of which are to be paid by us, are as follows:

Securities and Exchange Commission Registration Fee	\$10,449
Legal Fees and Expenses	60,000
Accounting Fees and Expenses	10,000
Miscellaneous Fees and Expenses	5,000
Total	\$85,449

Item 15. Indemnification Of Directors And Officers

Section 145 of the Delaware General Corporation Law grants corporations the power to indemnify their directors, officers, employees and agents in accordance with the provisions thereof. Article VI of our by-laws provide for indemnification of our directors, officers, agents and employees to the full extent permissible under Section 145 of the Delaware General Corporation Law. Section 102(b)(7) of the Delaware General Corporation Law authorizes a corporation to eliminate the liability of directors for breach of fiduciary duty in certain cases. Article VI of our certificate of incorporation eliminates such liability to the full extent permitted by Section 145.

Pursuant to warrants issued by us and registration rights agreements entered into between us and certain selling security holders, we are obligated to indemnify certain of the selling security holders with respect to various matters.

We maintain directors' and officers' liability insurance coverage protecting our officers and directors against certain liabilities.

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 described in Item 15 above, 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 Securities 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 whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

Item 16. Exhibits And Financial Statement Schedules

(a) Exhibits

An Exhibit Index has been attached as part of this Registration Statement and is incorporated herein by reference.

(b) Financial Statement Schedules

[Table of Contents](#)

Schedules are omitted because they are either not required, are not applicable or because equivalent information has been included in the financial statements, the notes thereto or elsewhere herein.

Item 17. Undertakings

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made pursuant to this registration statement, a post-effective amendment to this registration statement to include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

(2) That, for the purpose of determining any liability under the Securities Act of 1933, 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 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to 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.

Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on a Form S-3 and has duly caused this Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on September 1, 2005.

ADVENTRX Pharmaceuticals, Inc.

By: /s/ Carrie E. Carlander
Name: Carrie E. Carlander
Title: Chief Financial Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 1 to the Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ M. Ross Johnson*</u> M. Ross Johnson, Ph.D.	Director, Chairman of the Board	September 1, 2005
<u>/s/ Evan M. Levine</u> Evan M. Levine	Director, Chief Executive Officer and President (Principal Executive Officer)	September 1, 2005
<u>/s/ Carrie E. Carlander</u> Carrie E. Carlander	Chief Financial Officer, Vice President Finance, Secretary and Treasurer (Principal Financial and Accounting Officer)	September 1, 2005
<u>/s/ Michael M. Goldberg*</u> Michael M. Goldberg, M.D.	Director	September 1, 2005
<u>/s/ Mark J. Pykett*</u> Mark J. Pykett, V.M.D., Ph.D.	Director	September 1, 2005
<u>/s/ Mark Bagnall*</u> Mark Bagnall	Director	September 1, 2005
<u>/s/ Keith Meister*</u> Keith Meister	Director	September 1, 2005

*By: /s/ Carrie E. Carlander
Carrie E. Carlander
Attorney-in-Fact

Exhibit Index

<u>Exhibit Number</u>	<u>Description</u>
3.1(1)	Certificate of Incorporation of Victoria Enterprises, Inc.
3.2(1)	Certificate of Amendment of Certificate of Incorporation of Victoria Enterprises, Inc.
3.3(1)	Certificate of Amendment of Certificate of Incorporation of BioQuest, Inc.
3.4(1)	Certificate of Amendment of Certificate of Incorporation of BioQuest, Inc.
3.5(1)	Certificate of Ownership and Merger Merging Biokeys, Inc. with and into Biokeys Pharmaceuticals, Inc.
3.6(2)	Amended and Restated Bylaws of Biokeys Pharmaceuticals, Inc.
3.7(1)	Certificate of Amendment to the Certificate of Incorporation of ADVENTRX Pharmaceuticals, Inc.
4.1*	Specimen common stock certificate for shares of Common Stock
4.10(3)	Registration Rights Agreement, dated as of April 5, 2004 , among the Registrant and the Investors named therein
4.23(4)	Securities Purchase Agreement, dated July 21, 2005, among the Registrant and the Purchasers named therein
4.24(4)	Rights Agreement, dated July 27, 2005, among the Registrant and the Purchasers named therein
4.25*	Common Stock Warrants Nos. WP-1 to WP-5 and WP-8
4.26*	Common Stock Warrants Nos. WP-6 and WP-7
4.27	A-1 Warrant to Purchase Common Stock issued to the persons named therein
4.28	A-2 Warrant to Purchase Common Stock issued to the persons named therein
4.29	Warrant to Purchase Common Stock issued to the persons named therein
4.30	Warrant to Purchase Common Stock issued to the persons named therein
4.31*	Warrant to Purchase Common Stock, No. WC-290, issued to Robert J. Neborsky MD Inc Combination Retirement Trust
4.32*	Warrant to Purchase Common Stock, No. WC-291, issued to S. Neborsky and R Neborsky TTEE Robert J. Neborsky MD Inc Comb Retirement Trust
4.33*	Warrant to Purchase Common Stock, No. WC-292, issued to S. Neborsky and R Neborsky TTEE Robert J. Neborsky MD Inc Comb Retirement Trust
4.34*	Warrant to Purchase Common Stock, No. WC-287, issued to Thomas J. DePetrillo
5.1	Opinion of Bingham McCutchen LLP
23.1	Consent of J. H. Cohn LLP
23.2	Consent of Bingham McCutchen LLP (included in Exhibit 5.1)
24*	Power of Attorney (filed as part of signature page to Registration Statement)

(1) Incorporated by reference to the same-numbered exhibit to the Registrant's Registration Statement on Form 8-A filed April 27, 2004.

(2) Incorporated by reference to the same-numbered exhibit to the Registrant's Registration Statement on Form 10-SB, filed October 2, 2001, as amended.

(3) Incorporated by reference to the same-numbered exhibit to the Registrant's Registration Statement on Form S-3, filed June 30, 2004, as amended.

(4) Incorporated by reference to the same-numbered exhibit to the Registrant's Quarterly Report on Form 10-Q filed August 12, 2005.

* Previously filed.

THIS WARRANT HAS BEEN, AND THE SHARES OF COMMON STOCK WHICH MAY BE RECEIVED PURSUANT TO THE EXERCISE OF THIS WARRANT WILL BE, ACQUIRED SOLELY FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF. NEITHER THIS WARRANT NOR SUCH SHARES (TOGETHER, THE "SECURITIES") HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO THE COMPANY THAT SUCH DISPOSITION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF THE ACT AND OF ANY APPLICABLE STATE SECURITIES LAWS.

NO. [SEE ATTACHED SCHEDULE]

ISSUED: APRIL 8, 2004

A-1 WARRANT TO PURCHASE COMMON STOCK

THIS CERTIFIES THAT, for good and valuable consideration, [SEE ATTACHED SCHEDULE] (the "HOLDER") is entitled to purchase from ADVENTRX Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), [SEE ATTACHED SCHEDULE] fully paid and nonassessable shares of Common Stock, par value \$0.001 per share ("COMMON STOCK"), of the Company (as adjusted pursuant to Section 3 hereof) (the "WARRANT SHARES") at a price per share equal to Two Dollars (\$2.00) (as adjusted pursuant to Section 3 hereof) (the "EXERCISE PRICE"), subject to the provisions and upon the terms and conditions hereinafter set forth.

1. METHOD OF EXERCISE; PAYMENT.

(A) Exercise Period. The purchase right represented by this Warrant may be exercised in whole or part by the Holder during the term of this Warrant (as set forth in Section 9 hereof) at any time after the Commencement Date, as defined below, by the surrender of this Warrant (with the notice of exercise form attached hereto as Exhibit A (the "NOTICE OF EXERCISE") duly executed) at the principal office of the Company. If this Warrant shall have been exercised in part, the Company shall, at the time of delivery of the certificate or certificates representing Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased shares of Common Stock called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant, or at the request of the Holder, appropriate notation may be made on this Warrant and the same returned to the Holder.

(B) Exercise. Upon exercise of this Warrant, the Holder shall pay the Company an amount equal to the product of (x) the Exercise Price multiplied by (y) the total number of Warrant Shares purchased pursuant to this Warrant, by wire transfer or certified check payable to the order of the Company or, at any time following the first anniversary of the Warrant Date, if there is not an effective Registration Statement (as defined in the

Registration Rights Agreement) with respect to all of the Warrant Shares, then at the option of the Holder, such amount may be paid by the surrender of a portion of shares of Common Stock then held by the Holder or issuable upon such exercise of this Warrant, which shall be valued and credited toward such amount due to the Company for the exercise of the Warrant based upon the Current Market Price of the Common Stock. The person or persons in whose name(s) any certificate(s) representing the Warrant Shares shall be issuable upon exercise of this Warrant shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date upon which this Warrant is exercised.

"CURRENT MARKET PRICE" means, in respect of any share of Common Stock on any date herein specified,

(1) if there shall not then be a public market for the Common Stock, the higher of

(a) the book value per share of Common Stock at such date, and

(b) the value per share of Common Stock at such date as determined in good faith by the Board,

or

(2) if there shall then be a public market for the Common Stock, the higher of (x) the book value per share of Common Stock at such date, and (y) the average of the daily market prices for the 10 consecutive trading days immediately before such date. The daily market price (the "DAILY MARKET PRICE") for each such trading day shall be (i) the closing price on such day on the principal stock exchange (including Nasdaq) on which such Common Stock is then listed or admitted to trading, or quoted, as applicable, (ii) if no sale takes place on such day on any such exchange, the last reported closing price on such day as officially quoted on any such exchange (including Nasdaq), (iii) if the Common Stock is not then listed or admitted to trading on any stock exchange, the last reported closing bid price on such day in the over-the-counter market, as furnished by the National Association of Securities Dealers Automatic Quotation System or the National Quotation Bureau, Inc., (iv) if neither such corporation at the time is engaged in the business of reporting such prices, as furnished by any similar firm then engaged in such business, or (v) if there is no such firm, as furnished by any member of the National Association of Securities Dealers, Inc. (the "NASD") selected mutually by the holder of this Warrant and the Company or, if they cannot agree upon such selection, as selected by two such members of the NASD, one of which shall be selected by holder of this Warrant and one of which shall be selected by the Company.

(C) Stock Certificates. In the event of the exercise of this Warrant, certificates for the Warrant Shares so purchased shall be delivered to the Holder within a reasonable time after exercise, but in no case later than the date that is three business days following receipt by the Company of a Notice of Exercise duly completed and executed.

2. STOCK FULLY PAID; RESERVATION OF SHARES. All of the Warrant Shares issuable upon the exercise of the rights represented by this Warrant will, upon issuance and receipt of the Exercise

Price therefor, be fully paid and nonassessable, and free from all preemptive rights, rights of first refusal or first offer, taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved for issuance a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

3. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF SHARES. The number and kind of Warrant Shares purchasable upon the exercise of this Warrant and the Exercise Price therefor shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(A) Reclassification, Consolidation or Reorganization. In case of any reclassification of the Common Stock (other than a change in par value, or as a result of a subdivision or combination), or in case of any consolidation or merger of the Company with or into another corporation (other than a Change of Control, as defined below) (any of which is a "REORGANIZATION TRANSACTION"), the Company, or such successor corporation as the case may be, shall execute a new warrant, providing that the Holder shall have the right to exercise such new warrant, and procure upon such exercise and payment of the same aggregate Exercise Price, in lieu of the Warrant Shares theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property as would be payable for the Warrant Shares issuable upon exercise of this Warrant as if such Warrant Shares were outstanding on the consummation of the Reorganization Transaction. For purposes of this Warrant, the term "CHANGE OF CONTROL" shall mean (i) any acquisition of the Company by means of merger, acquisition, or other form of corporate reorganization in which outstanding shares of the Company are exchanged for securities or other consideration issued, or caused to be issued, by the acquiring corporation or its subsidiary or parent (other than a reincorporation transaction or change of domicile) and pursuant to which the holders of the outstanding voting securities of the Company immediately prior to such consolidation, merger or other transaction fail to hold equity securities representing a majority of the voting power of the Company or surviving entity immediately following such consolidation, merger or other transaction (excluding voting securities of the acquiring corporation held by such holders prior to such transaction) or (ii) a sale of all or substantially all of the assets of the Company.

(B) Stock Splits, Dividends and Combinations. In the event that the Company shall at any time subdivide the outstanding shares of Common Stock, or shall issue a stock dividend on its outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such subdivision or to the issuance of such stock dividend shall be proportionately increased, and the Exercise Price shall be proportionately decreased, and in the event that the Company shall at any time combine the outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such combination shall be proportionately decreased, and the Exercise Price shall be proportionately increased, effective at the close of business on the date of such subdivision, stock dividend or combination, as the case may be.

(C) Issuance of Additional Shares.

(I) If at any time while this Warrant is outstanding and after June 30, 2004, the Company shall issue or sell any shares of its Common Stock (other than Excluded Shares (as that term is defined below), "ADDITIONAL SHARES") in exchange for consideration in an amount per Additional Share less than the Exercise Price at the time the Additional Shares are issued or sold, then the Exercise Price immediately prior to such issue or sale shall be reduced to a price determined by dividing:

(1) an amount equal to the sum of (a) the number of shares of Common Stock outstanding immediately prior to such issue or sale multiplied by the then existing Exercise Price, plus (b) the consideration, if any, received by the Company upon such issue or sale, by

(2) the total number of shares of Common Stock outstanding immediately after such issue or sale.

(II) The provisions of Section 3(c)(i) shall not apply to any deemed issuance of Additional Shares for which an adjustment is provided under Section 3(a) or 3(b). No adjustment of the number of shares of Common Stock acquirable upon exercise of this Warrant shall be made under Section 3(c) upon the issuance of any shares of Common Stock which are issued pursuant to the exercise of any warrants or other subscription or purchase rights or pursuant to the exercise of any conversion or exchange rights in any convertible securities, if any such adjustment shall previously have been made upon the issuance of such warrants or other rights or upon the issuance of such convertible securities (or upon the issuance of any warrant or other rights therefor) pursuant to Section 3(d).

For purposes of this Warrant the term "EXCLUDED SHARES" means: (i) shares of Common Stock issuable or issued after the Closing Date to officers, employees, consultants or directors of the Company directly or pursuant to a stock purchase, stock option, restricted stock or other written compensation plan or agreement approved by the Board of Directors of the Company (the "BOARD"); (ii) shares of Common Stock issued or issuable after the Closing Date, primarily for non-equity financing purposes and as approved by the Board, to financial institutions or lessors in connection with commercial credit arrangements, equipment financings or similar transactions or to vendors of goods or services or customers; (iii) shares of Common Stock issuable upon (a) exercise of warrants, options, notes or other rights to acquire securities of the Company, in each case, outstanding on the issuance date of this Warrant (the "WARRANT Date"), (b) conversion of shares of the Company's Preferred Stock, par value \$0.01 per share, outstanding on the Warrant Date, (c) exchange of promissory notes issued by the Company outstanding on the Warrant Date, (iv) the Shares (as such term is defined Common Stock and Warrant Purchase Agreement, dated as of the Warrant Date, among the Company and the persons and entities listed on Schedule 1 thereto (the "PURCHASE AGREEMENT")); (v) the Warrants (as such term is defined in the Purchase Agreement); (vi) capital stock or warrants or options to purchase capital stock issued in connection with bona fide acquisitions, mergers or similar transactions, the terms of which

are approved by the Board; (vii) shares of Common Stock issued or issuable to licensors of technology of the Company to pay expenses, royalties or milestone payments for which the Company is obligated under any licensing or related agreement; (viii) shares of Common Stock issuable or issued pursuant to stock splits, stock dividends and the like, or (ix) shares of Common Stock issued or issuable by way of dividend or other distribution on Excluded Shares.

(D) Issuance of Common Stock Equivalents.

(I) If at any time while this Warrant is outstanding the Company shall issue or sell any warrants or other rights to subscribe for or purchase any additional shares of Common Stock or any securities convertible into shares of Common Stock (other than the Additional Shares) (collectively, "COMMON STOCK EQUIVALENTS"), whether or not the rights to exchange or convert thereunder are immediately exercisable, and the effective price per share for which Common Stock is issuable upon the exercise, exchange or conversion of such Common Stock Equivalents shall be less than the Exercise Price in effect immediately prior to the time of such issue or sale, then the Exercise Price shall be adjusted as provided in Section 3(c) on the basis that the maximum number of additional shares of Common Stock issuable pursuant to all such Common Stock Equivalents shall be deemed to have been issued and outstanding and the Company shall have received all of the consideration payable therefor, if any, as of the date of the actual issuance of such Common Stock Equivalents. No further adjustments to the current Warrant Price shall be made under this Section 3(d) upon the actual issue of such Common Stock upon the exercise, conversion or exchange of such Common Stock Equivalents.

(II) Upon the expiration or termination of any such Common Stock Equivalents, the Exercise Price, to the extent in any way affected by or computed using such Common Stock Equivalents, shall be recomputed to reflect the issuance of the total number of shares of Common Stock (and convertible or exchangeable securities which remain in effect) actually issued upon the exercise, exchange or conversion of such Common Stock Equivalents to the extent that this Warrant is then outstanding.

(E) Other Action Affecting Common Stock. In case at any time or from time to time the Company shall take any action in respect of its Common Stock, other than the payment of dividends permitted by Section 3 or any other action described in Section 3, then, unless such action will not have a materially adverse effect upon the rights of the Holder, the number of shares of Common Stock or other stock into which this Warrant is exercisable and/or the purchase price thereof shall be adjusted in such manner as may be equitable in the circumstances.

(F) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Exercise Price, the Company, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to the Holder of this Warrant a certificate setting forth such adjustment or readjustment and

showing in detail the facts upon which such adjustment or readjustment is based. The Company shall, upon the written request at any time of the Holder of this Warrant, furnish or cause to be furnished to such Holder a like certificate setting forth (i) such adjustments and readjustments, (ii) the Exercise Price at the time in effect and (iii) the number of shares of Common Stock and the amount, if any, or other property which at the time would be received upon the exercise of Warrants owned by such Holder.

(G) Notice of Corporate Action. If at any time:

(i) the Company shall take a record of the holders of its Common Stock for the purpose of entitling them to receive a dividend (other than a cash dividend payable out of earnings or earned surplus legally available for the payment of dividends under the laws of the jurisdiction of incorporation of the Company) or other distribution, or any right to subscribe for or purchase any evidences of its indebtedness, any shares of stock of any class or any other securities or property, or to receive any other right, or

(ii) there shall be any capital reorganization of the Company, any reclassification or recapitalization of the capital stock of the Company or any consolidation or merger of the Company with, or any sale, transfer or other disposition of all or substantially all the property, assets or business of the Company to, another corporation, or

(iii) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Company;

then, in any one or more of such cases, the Company shall give to the Holder (i) at least 10-days' prior written notice of the date on which a record date shall be selected for such dividend, distribution or right or for determining rights to vote in respect of any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up, and (ii) in the case of any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up, at least 10-days' prior written notice of the date when the same shall take place. Such notice in accordance with the foregoing clause also shall specify (i) the date on which any such record is to be taken for the purpose of such dividend, distribution or right, the date on which the holders of Common Stock shall be entitled to any such dividend, distribution or right, and the amount and character thereof, and (ii) the date on which any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up is to take place and the time, if any such time is to be fixed, as of which the holders of Common Stock shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up. Each such written notice shall be sufficiently given if addressed to the Holder at the last address of the Holder appearing on the books of the Company and delivered in accordance with Section 11(d).

(H) Adjustment if Registration Statement Not Effective. If a Registration Statement (as defined in the Registration Rights Agreement, dated as of the Warrant Date, among the Company and the persons and entities listed on Schedule 1 thereto (the "REGISTRATION RIGHTS

AGREEMENT")) is not effective with respect to all the Registrable Securities (as defined in the Registration Rights Agreement), other than Registrable Securities held by holders (i) which have not complied with the Registration Rights Agreement, including, without limitation, Section 4 thereof, or (ii) have otherwise not permitted the Company to include such Registrable Securities on the Registration Statement, on or prior to November 12, 2004, then the Exercise Price shall be adjusted to equal \$1.50 (subject to adjustment for stock splits, reverse splits, stock dividends and the like, and subject to adjustment in proportion to any adjustment pursuant to Section 3(c)).

4. TRANSFER OF WARRANT. This Warrant may only be transferred in compliance with federal and state securities laws; provided, however, that the Company may withhold its consent to transfer or assignment of this Warrant to any person or entity who is deemed to be a competitor or prospective competitor of the Company, such determination to be made in the reasonable judgment of the Board. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant or the resale of the Warrant Stock, this Warrant or the Warrant Stock, as applicable, shall not be registered under the Securities Act, the Company may require, as a condition of allowing such transfer (i) that the Holder or transferee of this Warrant or the Warrant Stock as the case may be, furnish to the Company a written opinion of counsel that is reasonably acceptable to the Company to the effect that such transfer may be made without registration under the Securities Act, (ii) that the Holder or transferee execute and deliver to the Company an investment letter in form and substance acceptable to the Company and substantially in the form attached as Exhibit B hereto and (iii) that the transferee be an "accredited investor" as defined in Rule 501(a) promulgated under the Securities Act. Transfer of this Warrant and all rights hereunder, in whole or in part, in accordance with the foregoing provisions, shall be registered on the books of the Company to be maintained for such purpose, upon surrender of this Warrant at the principal office of the Company or the office or agency designated by the Company, together with a written assignment of this Warrant substantially in the form of Exhibit C hereto duly executed by the Holder or its attorney-in-fact and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees and in the denomination specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Following a transfer that complies with the requirements of this Section 4, the Warrant may be exercised by a new Holder for the purchase of shares of Common Stock regardless of whether the Company issued or registered a new Warrant on the books of the Company. This Section 4 shall survive the exercise or expiration of the Warrant.

5. CONDITIONS TO EXERCISE OF WARRANT.

(A) Each certificate evidencing the Warrant Shares issued upon exercise of this Warrant shall be stamped or imprinted with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED

UNDER THE ACT OR, IN THE OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS IN COMPLIANCE THEREWITH.

(B) REMOVAL OF LEGEND AND TRANSFER RESTRICTIONS. Any legend endorsed on a certificate pursuant to this Section 5 shall be removed, and the Company shall issue a certificate without such legend to the holder of such Warrant Shares if (i) such Warrant Shares are resold pursuant to a registration statement under the Securities Act of 1933, as amended, and a prospectus meeting the requirements of Section 10 of the Securities Act is delivered or deemed delivered to the purchaser of such Warrant Shares, (ii) if such holder satisfies the requirements of Rule 144(k) or (iii) if such holder provides the Company with an opinion of counsel for such holder of the Warrant Shares, reasonably satisfactory to the Company, to the effect that a sale, transfer or assignment of such Warrant Shares may be made without registration. This paragraph shall survive any exercise of this Warrant.

(C) RESTRICTIONS ON EXERCISE AMOUNT. Unless a Holder delivers to the Company irrevocable written notice (x) prior to the date of issuance hereof or 61 days prior to the effective date of such notice that this Section 5(c) shall not apply to such Holder or (y) prior to a Change of Control, the Holder may not acquire a number of Warrant Shares to the extent that, upon such exercise, the number of shares of Common Stock then beneficially owned by such Holder and its affiliates and any other persons or entities whose beneficial ownership of Common Stock would be aggregated with the Holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT"), (including shares held by any "group" of which the Holder is a member, but excluding shares beneficially owned by virtue of the ownership of securities or rights to acquire securities that have limitations on the right to convert, exercise or purchase similar to the limitation set forth herein) exceeds 9.99% of the total number of shares of Common Stock of the Company then issued and outstanding. For purposes hereof, "group" has the meaning set forth in Section 13(d) of the Exchange Act and applicable regulations of the Securities Exchange Commission (the "COMMISSION"), and the percentage held by the holder shall be determined in a manner consistent with the provisions of Section 13(d) of the Exchange Act. Each delivery of a notice of exercise by a Holder will constitute a representation by such Holder that it has evaluated the limitation set forth in this paragraph and determined, based on the most recent public filings by the Company with the Commission, that the issuance of the full number of Warrant Shares requested in such notice of exercise is permitted under this paragraph.

6. FRACTIONAL SHARES. No fractional Warrant Shares will be issued in connection with any exercise hereunder, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the Exercise Price then in effect.

7. REGISTRATION RIGHTS. The Holder shall have the registration rights described in the Registration Rights Agreement.

8. RIGHTS OF STOCKHOLDERS. No Holder shall be entitled, as a Warrant holder, to vote or receive dividends or be deemed the holder of Warrant Shares or any other securities of the Company which may at any time be issuable on the exercise hereof for any purpose, nor shall

anything contained herein be construed to confer upon the Holder any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action (whether upon any recapitalization, issuance of stock, reclassification of stock, change of par value, consolidation, merger, conveyance, or otherwise) or to receive dividends or subscription rights or otherwise with respect to the Warrant Shares until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise hereof shall have become deliverable, as provided herein.

9. TERM OF WARRANT. This Warrant shall become exercisable on the Warrant Date and shall no longer be exercisable as of the earlier of (i) 5:00 p.m., San Diego, California local time, on the date that is the five-year anniversary of the Warrant Date; and (ii) upon consummation of a Change of Control.

10. REDEMPTION AT COMPANY'S ELECTION. The Company may at the option of the Board, by at least seven-days' prior written notice to the Holder (the "REDEMPTION NOTICE"), redeem this Warrant, in whole or in part, at any time after June 30, 2004, provided that (i) the Daily Market Price for twenty consecutive trading days is equal to or greater than the product of (x) 2 multiplied by (y) the Exercise Price, (ii) either (A) all of the Warrant Shares underlying this Warrant to be redeemed are then registered under an effective registration statement or (B) may be sold pursuant to Rule 144 during a three-month period without registration under the Securities Act, (iii) sufficient shares of Common Stock of the Company are authorized and reserved for issuance upon the full exercise of this Warrant, (iv) all of the Warrant Shares issuable upon exercise of this Warrant are then listed on every stock exchange, market or bulletin board on which any Common Stock of the Company is then listed and (v) the Company is not in default of any material provision of any Transaction Agreement (as defined in the Purchase Agreement). The Redemption Notice shall set forth a date, not less than seven days after the date of the Redemption Notice, on which the redemption of this Warrant shall occur (the "REDEMPTION DATE"). On the Redemption Date, (i) the Company shall pay the Holder by certified check an amount equal to the product of (x) \$0.01 (as adjusted in proportion to any adjustment to the Exercise Price pursuant to Section 3 hereof) multiplied by (y) the number of Warrant Shares so redeemed; and (ii) the Holder shall deliver the original copy of this Warrant marked "REDEEMED" to the Company. If the Company shall redeem this Warrant in part, the Company shall, at the Redemption Date, provided that the Holder shall have delivered the original copy of this Warrant marked "REDEEMED" to the Company, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unredeemed shares of Common Stock called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant. Nothing in this Section 10 shall prevent the exercise of the Warrants at any time prior to the Redemption Date.

11. MISCELLANEOUS.

(A) This Warrant is being delivered in the State of California and shall be construed and enforced in accordance with and governed by the laws of the State of California, without giving effect to principles of conflicts of laws.

(B) The headings in this Warrant are for purposes of reference only, and shall not limit or otherwise affect any of the terms hereof.

(C) The terms of this Warrant shall be binding upon and shall inure to the benefit of any successors or assigns of the Company and of the Holder and of the Warrant Shares issued or issuable upon the exercise hereof.

(D) Any notice provided for or permitted under this Warrant shall be treated as having been given (a) upon receipt, when delivered personally or sent by confirmed facsimile or telecopy, (b) one day after sending, when sent by commercial overnight courier with written verification of receipt, or (c) three business days after deposit with the United States Postal Service, when mailed postage prepaid by certified or registered mail, return receipt requested, addressed (a) if to the Company, at 9948 Hibert Street, Suite 100, San Diego, CA 92131, facsimile: (858) 271-9678, Attention: Nicholas J. Virca, or, if to the Holder, at such address or facsimile number as the Holder shall have furnished to the Company in writing, or at such other place of which the other party has been notified in accordance with the provisions of this Section 11(d).

(E) This Warrant constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof.

(F) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Company at the Holder's expense will execute and deliver to the holder of record, in lieu thereof, a new Warrant of like date and tenor.

(G) This Warrant and any provision hereof may be amended, waived or terminated only by an instrument in writing signed by the Company and the Holder.

(H) Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to the foregoing terms and conditions.

[Signature page follows.]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued: April 8, 2004

ADVENTRX PHARMACEUTICALS, INC.

By: /s/ Nicholas J. Virca

Nicholas J. Virca
President & CEO

SIGNATURE PAGE TO THE A-1 WARRANT TO PURCHASE COMMON STOCK

EXHIBIT A

NOTICE OF EXERCISE

TO: ADVENTRX Pharmaceuticals, Inc.
9948 Hibert Street, Suite 100
San Diego, CA 92131

1. The undersigned hereby elects to purchase _____ shares of Common Stock, par value \$0.001 per share, of the Company ("COMMON STOCK") pursuant to the terms of Section 1(b) of the A-1 Warrant to Purchase Common Stock dated _____ 2004 (the "WARRANT"), and tenders herewith payment of the purchase price of such shares in full.

2. The undersigned hereby elects to convert the attached Warrant into Common Stock of Adventrx Pharmaceuticals, Inc. through "cashless exercise" in the manner specified in the Warrant. This conversion is exercised with respect to _____ of the Shares covered by the Warrant.

Please issue a certificate or certificates representing said _____ shares of Common Stock in the name of the undersigned or in such other name as is specified below:

Name: _____

Address: _____

The undersigned hereby represents and warrants that the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale, in connection with the distribution thereof, and that the undersigned has no present intention of distributing or reselling such shares, and that all representations and warranties of the undersigned with respect to the Warrant and Warrant Shares (as defined in the Warrant) set forth in Section 4 of the Purchase Agreement (as defined in the Warrant) were true and correct as of the Warrant Date (as defined in the Warrant) and are true and correct as of the date hereof.

By: _____

Name: _____

Title: _____

Date: _____

EXHIBIT B

FORM OF INVESTMENT REPRESENTATION LETTER

In connection with the acquisition of [warrants (the "Warrants") to purchase _____ shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. (the "Company"), par value \$0.001 per share (the "Common Stock")][_____ shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. (the "Company"), par value \$0.001 per share (the "Common Stock")], by _____ (the "Holder") from _____, the Holder hereby represents and warrants to the Company as follows:

The Holder (i) is an "Accredited Investor" as that term is defined in Rule 501 of Regulation D promulgated under the Securities Act of 1933, as amended (the "Act"); and (ii) has the ability to bear the economic risks of such Holder's prospective investment, including a complete loss of Holder's investment in the Warrants and the shares of Common Stock issuable upon the exercise thereof (collectively, the "Securities").

The Holder, by acceptance of the Warrants, represents and warrants to the Company that the Warrants and all securities acquired upon any and all exercises of the Warrants are purchased for the Holder's own account, and not with view to distribution of either the Warrants or any securities purchasable upon exercise thereof in violation of applicable securities laws.

The Holder acknowledges that (i) the Securities have not been registered under the Act, (ii) the Securities are "restricted securities" and the certificate(s) representing the Securities shall bear the following legend, or a similar legend to the same effect, until (i) in the case of the shares of Common Stock underlying the Warrants, such shares shall have been registered for resale by the Holder under the Act and effectively been disposed of in accordance with a registration statement that has been declared effective; or (ii) in the opinion of counsel for the Company such Securities may be sold without registration under the Act:

"[NEITHER] THE SECURITIES REPRESENTED BY THIS CERTIFICATE [NOR THE SECURITIES INTO WHICH THEY ARE EXERCISABLE] HAVE [NOT] BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND ALL SUCH SECURITIES ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AS SET FORTH IN THIS CERTIFICATE. [NEITHER] THE SECURITIES REPRESENTED HEREBY [NOR THE SECURITIES INTO WHICH THEY ARE EXERCISABLE] MAY [NOT] BE SOLD, TRANSFERRED, OR OTHERWISE DISPOSED OF IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR AN OPINION OF COUNSEL, REASONABLY ACCEPTABLE TO COUNSEL FOR THE COMPANY, TO THE EFFECT THAT THE PROPOSED SALE, TRANSFER, OR DISPOSITION MAY BE EFFECTUATED WITHOUT REGISTRATION UNDER THE ACT."

IN WITNESS WHEREOF, the Holder has caused this Investment Representation Letter to be executed in its corporate name by its duly authorized officer this __ day of _____ 200_.

[Name]

By: _____

Name: _____

Title: _____

EXHIBIT C

ASSIGNMENT FORM

FOR VALUE RECEIVED the undersigned registered owner of this Warrant for the purchase of shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. hereby sells, assigns and transfers unto the Assignee named below all of the rights of the undersigned under this Warrant, with respect to the number of shares of common stock set forth below:

- - - - -

- - - - -

- - - - -

(Name and Address of Assignee)

- - - - -

(Number of Shares of Common Stock)

and does hereby irrevocably constitute and appoint _____ attorney-in-fact to register such transfer on the books of the Company, maintained for the purpose, with full power of substitution in the premises.

Dated: _____

- - - - -

(Print Name and Title)

- - - - -

(Signature)

- - - - -

(Witness)

NOTICE: The signature on this assignment must correspond with the name as written upon the face of the Warrant in every particular, without alteration or enlargement or any change whatsoever.

SCHEDULE OF WARRANTHOLDERS

ADVENTRX Pharmaceuticals, Inc. issued this form of A-1 Warrant to Purchase Common Stock to each of the persons listed below for the purchase of up to the number of shares of Common Stock listed opposite such person's name below.

HOLDER -----	WARRANT NO. -----	SHARES -----
Andrew J. Maffey	WA1-86	5,100
Centrum Bank AG	WA1-57	9,000
North Sound Legacy Institutional Fund LLC	WA1-92	3,600
North Sound Legacy Institutional Fund LLC	WA1-85	18,600
North Sound Legacy International Ltd	WA1-83	40,200
Legend Merchant Group, Inc.	WA1-67	1,500
Robert J. Neborsky MD Inc Combination Retirement Trust	WA1-89	49,500
Robert J. Neborsky MD Inc Combination Retirement Trust	WA1-90	49,500
North Sound Legacy Institutional Fund LLC	WA1-93	1,200

THIS WARRANT HAS BEEN, AND THE SHARES OF COMMON STOCK WHICH MAY BE RECEIVED PURSUANT TO THE EXERCISE OF THIS WARRANT WILL BE, ACQUIRED SOLELY FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF. NEITHER THIS WARRANT NOR SUCH SHARES (TOGETHER, THE "SECURITIES") HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO THE COMPANY THAT SUCH DISPOSITION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF THE ACT AND OF ANY APPLICABLE STATE SECURITIES LAWS.

NO. [SEE ATTACHED SCHEDULE]

ISSUED: APRIL 8, 2004

A-2 WARRANT TO PURCHASE COMMON STOCK

THIS CERTIFIES THAT, for good and valuable consideration, [SEE ATTACHED SCHEDULE] (the "HOLDER") is entitled to purchase from ADVENTRX Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), [SEE ATTACHED SCHEDULE] fully paid and nonassessable shares of Common Stock, par value \$0.001 per share ("COMMON STOCK"), of the Company (as adjusted pursuant to Section 3 hereof) (the "WARRANT SHARES") at a price per share equal to Two Dollars and Fifty Cents (\$2.50) (as adjusted pursuant to Section 3 hereof) (the "EXERCISE PRICE"), subject to the provisions and upon the terms and conditions hereinafter set forth.

1. METHOD OF EXERCISE; PAYMENT.

(A) Exercise Period. The purchase right represented by this Warrant may be exercised in whole or part by the Holder during the term of this Warrant (as set forth in Section 9 hereof) at any time after the Commencement Date, as defined below, by the surrender of this Warrant (with the notice of exercise form attached hereto as Exhibit A (the "NOTICE OF EXERCISE") duly executed) at the principal office of the Company. If this Warrant shall have been exercised in part, the Company shall, at the time of delivery of the certificate or certificates representing Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased shares of Common Stock called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant, or at the request of the Holder, appropriate notation may be made on this Warrant and the same returned to the Holder.

(B) Exercise. Upon exercise of this Warrant, the Holder shall pay the Company an amount equal to the product of (x) the Exercise Price multiplied by (y) the total number of Warrant Shares purchased pursuant to this Warrant, by wire transfer or certified check payable to the order of the Company or, at any time following the first anniversary of the Warrant Date, if there is not an effective Registration Statement (as defined in the

Registration Rights Agreement, dated as of the Warrant Date, among the Company and the persons and entities listed on Schedule 1 thereto (the "REGISTRATION RIGHTS AGREEMENT") with respect to all of the Warrant Shares, then at the option of the Holder, such amount may be paid by the surrender of a portion of shares of Common Stock then held by the Holder or issuable upon such exercise of this Warrant, which shall be valued and credited toward such amount due to the Company for the exercise of the Warrant based upon the Current Market Price of the Common Stock. The person or persons in whose name(s) any certificate(s) representing the Warrant Shares shall be issuable upon exercise of this Warrant shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date upon which this Warrant is exercised.

"CURRENT MARKET PRICE" means, in respect of any share of Common Stock on any date herein specified,

(1) if there shall not then be a public market for the Common Stock, the higher of

(a) the book value per share of Common Stock at such date, and

(b) the value per share of Common Stock at such date as determined in good faith by the Board,

or

(2) if there shall then be a public market for the Common Stock, the higher of (x) the book value per share of Common Stock at such date, and (y) the average of the daily market prices for the 10 consecutive trading days immediately before such date. The daily market price (the "DAILY MARKET PRICE") for each such trading day shall be (i) the closing price on such day on the principal stock exchange (including Nasdaq) on which such Common Stock is then listed or admitted to trading, or quoted, as applicable, (ii) if no sale takes place on such day on any such exchange, the last reported closing price on such day as officially quoted on any such exchange (including Nasdaq), (iii) if the Common Stock is not then listed or admitted to trading on any stock exchange, the last reported closing bid price on such day in the over-the-counter market, as furnished by the National Association of Securities Dealers Automatic Quotation System or the National Quotation Bureau, Inc., (iv) if neither such corporation at the time is engaged in the business of reporting such prices, as furnished by any similar firm then engaged in such business, or (v) if there is no such firm, as furnished by any member of the National Association of Securities Dealers, Inc. (the "NASD") selected mutually by the holder of this Warrant and the Company or, if they cannot agree upon such selection, as selected by two such members of the NASD, one of which shall be selected by holder of this Warrant and one of which shall be selected by the Company.

(C) Stock Certificates. In the event of the exercise of this Warrant, certificates for the Warrant Shares so purchased shall be delivered to the Holder within a reasonable time after

exercise, but in no case later than the date that is three business days following receipt by the Company of a Notice of Exercise duly completed and executed.

2. STOCK FULLY PAID; RESERVATION OF SHARES. All of the Warrant Shares issuable upon the exercise of the rights represented by this Warrant will, upon issuance and receipt of the Exercise Price therefor, be fully paid and nonassessable, and free from all preemptive rights, rights of first refusal or first offer, taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved for issuance a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

3. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF SHARES. The number and kind of Warrant Shares purchasable upon the exercise of this Warrant and the Exercise Price therefor shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(A) Reclassification, Consolidation or Reorganization. In case of any reclassification of the Common Stock (other than a change in par value, or as a result of a subdivision or combination), or in case of any consolidation or merger of the Company with or into another corporation (other than a Change of Control, as defined below) (any of which is a "REORGANIZATION TRANSACTION"), the Company, or such successor corporation as the case may be, shall execute a new warrant, providing that the Holder shall have the right to exercise such new warrant, and procure upon such exercise and payment of the same aggregate Exercise Price, in lieu of the Warrant Shares theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property as would be payable for the Warrant Shares issuable upon exercise of this Warrant as if such Warrant Shares were outstanding on the consummation of the Reorganization Transaction. For purposes of this Warrant, the term "CHANGE OF CONTROL" shall mean (i) any acquisition of the Company by means of merger, acquisition, or other form of corporate reorganization in which outstanding shares of the Company are exchanged for securities or other consideration issued, or caused to be issued, by the acquiring corporation or its subsidiary or parent (other than a reincorporation transaction or change of domicile) and pursuant to which the holders of the outstanding voting securities of the Company immediately prior to such consolidation, merger or other transaction fail to hold equity securities representing a majority of the voting power of the Company or surviving entity immediately following such consolidation, merger or other transaction (excluding voting securities of the acquiring corporation held by such holders prior to such transaction) or (ii) a sale of all or substantially all of the assets of the Company.

(B) Stock Splits, Dividends and Combinations. In the event that the Company shall at any time subdivide the outstanding shares of Common Stock, or shall issue a stock dividend on its outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such subdivision or to the issuance of such stock dividend shall be proportionately increased, and the Exercise Price shall be proportionately decreased, and in the event that the Company shall at any time combine the outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such combination shall be proportionately decreased,

and the Exercise Price shall be proportionately increased, effective at the close of business on the date of such subdivision, stock dividend or combination, as the case may be.

(C) Issuance of Additional Shares.

(I) If at any time while this Warrant is outstanding and after June 30, 2004, the Company shall issue or sell any shares of its Common Stock, other than Excluded Shares (as that term is defined below) ("ADDITIONAL SHARES"), in exchange for consideration in an amount per Additional Share less than the Exercise Price at the time the Additional Shares are issued or sold, then the Exercise Price immediately prior to such issue or sale shall be reduced to a price determined by dividing:

(1) an amount equal to the sum of (a) the number of shares of Common Stock outstanding immediately prior to such issue or sale multiplied by the then existing Exercise Price, plus (b) the consideration, if any, received by the Company upon such issue or sale, by

(2) the total number of shares of Common Stock outstanding immediately after such issue or sale.

(II) The provisions of Section 3(c)(i) shall not apply to any deemed issuance of Additional Shares for which an adjustment is provided under Section 3(a) or 3(b). No adjustment of the number of shares of Common Stock acquirable upon exercise of this Warrant shall be made under Section 3(c) upon the issuance of any shares of Common Stock which are issued pursuant to the exercise of any warrants or other subscription or purchase rights or pursuant to the exercise of any conversion or exchange rights in any convertible securities, if any such adjustment shall previously have been made upon the issuance of such warrants or other rights or upon the issuance of such convertible securities (or upon the issuance of any warrant or other rights therefor) pursuant to Section 3(d).

For purposes of this Warrant the term "EXCLUDED SHARES" means: (i) shares of Common Stock issuable or issued after the Closing Date to officers, employees, consultants or directors of the Company directly or pursuant to a stock purchase, stock option, restricted stock or other written compensation plan or agreement approved by the Board of Directors of the Company (the "BOARD"); (ii) shares of Common Stock issued or issuable after the Closing Date, primarily for non-equity financing purposes and as approved by the Board, to financial institutions or lessors in connection with commercial credit arrangements, equipment financings or similar transactions or to vendors of goods or services or customers; (iii) shares of Common Stock issuable upon (a) exercise of warrants, options, notes or other rights to acquire securities of the Company, in each case, outstanding on the issuance date of this Warrant (the "WARRANT DATE"), (b) conversion of shares of the Company's Preferred Stock, par value \$0.01 per share, outstanding on the Warrant Date, (c) exchange of promissory notes issued by the Company outstanding on the Warrant Date, (iv) the Shares (as such term is defined in the Common Stock and Warrant Purchase Agreement, dated as of the Warrant Date, among the Company and the persons and entities listed on Schedule 1

thereto (the "PURCHASE AGREEMENT")); (v) the Warrants (as such term is defined in the Purchase Agreement); (vi) capital stock or warrants or options to purchase capital stock issued in connection with bona fide acquisitions, mergers or similar transactions, the terms of which are approved by the Board; (vii) shares of Common Stock issued or issuable to licensors of technology of the Company to pay expenses, royalties or milestone payments for which the Company is obligated under any licensing or related agreement; (viii) shares of Common Stock issuable or issued pursuant to stock splits, stock dividends and the like, or (ix) shares of Common Stock issued or issuable by way of dividend or other distribution on Excluded Shares.

(D) Issuance of Common Stock Equivalents.

(I) If at any time while this Warrant is outstanding the Company shall issue or sell any warrants or other rights to subscribe for or purchase any additional shares of Common Stock or any securities convertible into shares of Common Stock (other than the Additional Shares) (collectively, "COMMON STOCK EQUIVALENTS"), whether or not the rights to exchange or convert thereunder are immediately exercisable, and the effective price per share for which Common Stock is issuable upon the exercise, exchange or conversion of such Common Stock Equivalents shall be less than the Exercise Price in effect immediately prior to the time of such issue or sale, then the Exercise Price shall be adjusted as provided in Section 3(c) on the basis that the maximum number of additional shares of Common Stock issuable pursuant to all such Common Stock Equivalents shall be deemed to have been issued and outstanding and the Company shall have received all of the consideration payable therefor, if any, as of the date of the actual issuance of such Common Stock Equivalents. No further adjustments to the current Warrant Price shall be made under this Section 3(d) upon the actual issue of such Common Stock upon the exercise, conversion or exchange of such Common Stock Equivalents.

(II) Upon the expiration or termination of any such Common Stock Equivalents, the Exercise Price, to the extent in any way affected by or computed using such Common Stock Equivalents, shall be recomputed to reflect the issuance of the total number of shares of Common Stock (and convertible or exchangeable securities which remain in effect) actually issued upon the exercise, exchange or conversion of such Common Stock Equivalents to the extent that this Warrant is then outstanding.

(E) Other Action Affecting Common Stock. In case at any time or from time to time the Company shall take any action in respect of its Common Stock, other than the payment of dividends permitted by Section 3 or any other action described in Section 3, then, unless such action will not have a materially adverse effect upon the rights of the Holder, the number of shares of Common Stock or other stock into which this Warrant is exercisable and/or the purchase price thereof shall be adjusted in such manner as may be equitable in the circumstances.

(F) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Exercise Price, the Company, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to the Holder of this Warrant a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Company shall, upon the written request at any time of the Holder of this Warrant, furnish or cause to be furnished to such Holder a like certificate setting forth (i) such adjustments and readjustments, (ii) the Exercise Price at the time in effect and (iii) the number of shares of Common Stock and the amount, if any, or other property which at the time would be received upon the exercise of Warrants owned by such Holder.

(G) Notice of Corporate Action. If at any time:

(i) the Company shall take a record of the holders of its Common Stock for the purpose of entitling them to receive a dividend (other than a cash dividend payable out of earnings or earned surplus legally available for the payment of dividends under the laws of the jurisdiction of incorporation of the Company) or other distribution, or any right to subscribe for or purchase any evidences of its indebtedness, any shares of stock of any class or any other securities or property, or to receive any other right, or

(ii) there shall be any capital reorganization of the Company, any reclassification or recapitalization of the capital stock of the Company or any consolidation or merger of the Company with, or any sale, transfer or other disposition of all or substantially all the property, assets or business of the Company to, another corporation, or

(iii) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Company;

then, in any one or more of such cases, the Company shall give to the Holder (i) at least 10-days' prior written notice of the date on which a record date shall be selected for such dividend, distribution or right or for determining rights to vote in respect of any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up, and (ii) in the case of any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up, at least 10-days' prior written notice of the date when the same shall take place. Such notice in accordance with the foregoing clause also shall specify (i) the date on which any such record is to be taken for the purpose of such dividend, distribution or right, the date on which the holders of Common Stock shall be entitled to any such dividend, distribution or right, and the amount and character thereof, and (ii) the date on which any such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up is to take place and the time, if any such time is to be fixed, as of which the holders of Common Stock shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such reorganization, reclassification, merger, consolidation, sale, transfer, disposition, dissolution, liquidation or winding up. Each such written notice shall be sufficiently given if addressed to the Holder at the last address of the Holder appearing on the books of the Company and delivered in accordance with Section 11(d).

4. TRANSFER OF WARRANT. This Warrant may only be transferred in compliance with federal and state securities laws; provided, however, that the Company may withhold its consent to transfer or assignment of this Warrant to any person or entity who is deemed to be a competitor or prospective competitor of the Company, such determination to be made in the reasonable judgment of the Board. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant or the resale of the Warrant Stock, this Warrant or the Warrant Stock, as applicable, shall not be registered under the Securities Act, the Company may require, as a condition of allowing such transfer (i) that the Holder or transferee of this Warrant or the Warrant Stock as the case may be, furnish to the Company a written opinion of counsel that is reasonably acceptable to the Company to the effect that such transfer may be made without registration under the Securities Act, (ii) that the Holder or transferee execute and deliver to the Company an investment letter in form and substance acceptable to the Company and substantially in the form attached as Exhibit B hereto and (iii) that the transferee be an "accredited investor" as defined in Rule 501(a) promulgated under the Securities Act. Transfer of this Warrant and all rights hereunder, in whole or in part, in accordance with the foregoing provisions, shall be registered on the books of the Company to be maintained for such purpose, upon surrender of this Warrant at the principal office of the Company or the office or agency designated by the Company, together with a written assignment of this Warrant substantially in the form of Exhibit C hereto duly executed by the Holder or its attorney-in-fact and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees and in the denomination specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Following a transfer that complies with the requirements of this Section 4, the Warrant may be exercised by a new Holder for the purchase of shares of Common Stock regardless of whether the Company issued or registered a new Warrant on the books of the Company. This Section 4 shall survive the exercise or expiration of the Warrant.

5. CONDITIONS TO EXERCISE OF WARRANT.

(A) Each certificate evidencing the Warrant Shares issued upon exercise of this Warrant shall be stamped or imprinted with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER THE ACT OR, IN THE OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS IN COMPLIANCE THEREWITH.

(B) REMOVAL OF LEGEND AND TRANSFER RESTRICTIONS. Any legend endorsed on a certificate pursuant to this Section 5 shall be removed, and the Company shall issue a certificate without such legend to the holder of such Warrant Shares if (i) such Warrant Shares are resold pursuant to a registration statement under the Securities Act of 1933, as amended, and a prospectus meeting the requirements of Section 10 of the Securities Act is delivered or deemed delivered to the purchaser of such Warrant Shares, (ii) if such holder satisfies the requirements of Rule 144(k) or (iii) if such holder provides the Company with an opinion of counsel for such holder of the Warrant Shares, reasonably satisfactory to the Company, to the effect that a sale, transfer or assignment of such Warrant Shares may be made without registration. This paragraph shall survive any exercise of this Warrant.

(C) RESTRICTIONS ON EXERCISE AMOUNT. Unless a Holder delivers to the Company irrevocable written notice (x) prior to the date of issuance hereof or 61 days prior to the effective date of such notice that this Section 5(c) shall not apply to such Holder or (y) prior to a Change of Control, the Holder may not acquire a number of Warrant Shares to the extent that, upon such exercise, the number of shares of Common Stock then beneficially owned by such Holder and its affiliates and any other persons or entities whose beneficial ownership of Common Stock would be aggregated with the Holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT"), (including shares held by any "group" of which the Holder is a member, but excluding shares beneficially owned by virtue of the ownership of securities or rights to acquire securities that have limitations on the right to convert, exercise or purchase similar to the limitation set forth herein) exceeds 9.99% of the total number of shares of Common Stock of the Company then issued and outstanding. For purposes hereof, "group" has the meaning set forth in Section 13(d) of the Exchange Act and applicable regulations of the Commission, and the percentage held by the holder shall be determined in a manner consistent with the provisions of Section 13(d) of the Exchange Act. Each delivery of a notice of exercise by a Holder will constitute a representation by such Holder that it has evaluated the limitation set forth in this paragraph and determined, based on the most recent public filings by the Company with the Commission, that the issuance of the full number of Warrant Shares requested in such notice of exercise is permitted under this paragraph.

6. FRACTIONAL SHARES. No fractional Warrant Shares will be issued in connection with any exercise hereunder, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the Exercise Price then in effect.

7. REGISTRATION RIGHTS. The Holder shall have the registration rights described in the Registration Rights Agreement.

8. RIGHTS OF STOCKHOLDERS. No Holder shall be entitled, as a Warrant holder, to vote or receive dividends or be deemed the holder of Warrant Shares or any other securities of the Company which may at any time be issuable on the exercise hereof for any purpose, nor shall anything contained herein be construed to confer upon the Holder any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action (whether upon any recapitalization, issuance of stock, reclassification of stock, change of par value, consolidation, merger, conveyance, or otherwise) or to receive dividends or

subscription rights or otherwise with respect to the Warrant Shares until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise hereof shall have become deliverable, as provided herein.

9. TERM OF WARRANT. This Warrant shall become exercisable on the Warrant Date and shall no longer be exercisable as of the earlier of (i) 5:00 p.m., San Diego, California local time, on the date that is the five-year anniversary of the Warrant Date; and (ii) upon consummation of a Change of Control.

10. REDEMPTION AT COMPANY'S ELECTION. The Company may at the option of the Board, by at least seven-days' prior written notice to the Holder (the "REDEMPTION NOTICE"), redeem this Warrant, in whole or in part, at any time, provided that (i) the Daily Market Price for twenty consecutive trading days is equal to or greater than the product of (x) 2 multiplied by (y) the Exercise Price, (ii) either (A) all of the Warrant Shares underlying this Warrant to be redeemed are then registered under an effective registration statement or (B) may be sold pursuant to Rule 144 during a three-month period without registration under the Securities Act, (iii) sufficient shares of Common Stock of the Company are authorized and reserved for issuance upon the full exercise of this Warrant, (iv) all of the Warrant Shares issuable upon exercise of this Warrant are then listed on every stock exchange, market or bulletin board on which any Common Stock of the Company is then listed and (v) the Company is not in default of any material provision of any Transaction Agreement (as defined in the Purchase Agreement). The Redemption Notice shall set forth a date, not less than seven days after the date of the Redemption Notice, on which the redemption of this Warrant shall occur (the "REDEMPTION DATE"). On the Redemption Date, (i) the Company shall pay the Holder by certified check an amount equal to the product of (x) \$0.001 (as adjusted in proportion to any adjustment to the Exercise Price pursuant to Section 3 hereof) multiplied by (y) the number of Warrant Shares so redeemed; and (ii) the Holder shall deliver the original copy of this Warrant marked "REDEEMED" to the Company. If the Company shall redeem this Warrant in part, the Company shall, at the Redemption Date, provided that the Holder shall have delivered the original copy of this Warrant marked "REDEEMED" to the Company, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unredeemed shares of Common Stock called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant. Nothing in this Section 10 shall prevent the exercise of the Warrants at any time prior to the Redemption Date.

11. MISCELLANEOUS.

(A) This Warrant is being delivered in the State of California and shall be construed and enforced in accordance with and governed by the laws of the State of California, without giving effect to principles of conflicts of laws.

(B) The headings in this Warrant are for purposes of reference only, and shall not limit or otherwise affect any of the terms hereof.

(C) The terms of this Warrant shall be binding upon and shall inure to the benefit of any successors or assigns of the Company and of the Holder and of the Warrant Shares issued or issuable upon the exercise hereof.

(D) Any notice provided for or permitted under this Warrant shall be treated as having been given (a) upon receipt, when delivered personally or sent by confirmed facsimile or telecopy, (b) one day after sending, when sent by commercial overnight courier with written verification of receipt, or (c) three business days after deposit with the United States Postal Service, when mailed postage prepaid by certified or registered mail, return receipt requested, addressed (a) if to the Company, at 9948 Hibert Street, Suite 100, San Diego, CA 92131, facsimile: (858) 271-9678, Attention: Nicholas J. Virca, or, if to the Holder, at such address or facsimile number as the Holder shall have furnished to the Company in writing, or at such other place of which the other party has been notified in accordance with the provisions of this Section 11(d).

(E) This Warrant constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof.

(F) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Company at the Holder's expense will execute and deliver to the holder of record, in lieu thereof, a new Warrant of like date and tenor.

(G) This Warrant and any provision hereof may be amended, waived or terminated only by an instrument in writing signed by the Company and the Holder.

(H) Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to the foregoing terms and conditions.

[Signature page follows.]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued: April 8, 2004

ADVENTRX PHARMACEUTICALS, INC.

By: /s/ Nicholas J. Virca

Nicholas J. Virca
President & CEO

SIGNATURE PAGE TO THE A-2 WARRANT TO PURCHASE COMMON STOCK

EXHIBIT A

NOTICE OF EXERCISE

TO: ADVENTRX Pharmaceuticals, Inc.
9948 Hibert Street, Suite 100
San Diego, CA 92131

1. The undersigned hereby elects to purchase _____ shares of Common Stock, par value \$0.001 per share, of the Company ("COMMON STOCK") pursuant to the terms of Section 1(b) of the A-2 Warrant to Purchase Common Stock dated _____ 2004 (the "WARRANT"), and tenders herewith payment of the purchase price of such shares in full.

2. The undersigned hereby elects to convert the attached Warrant into Common Stock of Adventrx Pharmaceuticals, Inc. through "cashless exercise" in the manner specified in the Warrant. This conversion is exercised with respect to _____ of the Shares covered by the Warrant.

Please issue a certificate or certificates representing said _____ shares of Common Stock in the name of the undersigned or in such other name as is specified below:

Name: _____

Address: _____

The undersigned hereby represents and warrants that the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale, in connection with the distribution thereof, and that the undersigned has no present intention of distributing or reselling such shares, and that all representations and warranties of the undersigned with respect to the Warrants and Warrant Shares (as defined in the Warrant) set forth in Section 4 of the Purchase Agreement (as defined in the Warrant) were true and correct as of the Warrant Date (as defined in the Warrant) and are true and correct as of the date hereof.

By: _____

Name: _____

Title: _____

Date: _____

EXHIBIT B

FORM OF INVESTMENT REPRESENTATION LETTER

In connection with the acquisition of [warrants (the "Warrants") to purchase _____ shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. (the "Company"), par value \$0.001 per share (the "Common Stock")][_____ shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. (the "Company"), par value \$0.001 per share (the "Common Stock")], by _____ (the "Holder") from _____, the Holder hereby represents and warrants to the Company as follows:

The Holder (i) is an "Accredited Investor" as that term is defined in Rule 501 of Regulation D promulgated under the Securities Act of 1933, as amended (the "Act"); and (ii) has the ability to bear the economic risks of such Holder's prospective investment, including a complete loss of Holder's investment in the Warrants and the shares of Common Stock issuable upon the exercise thereof (collectively, the "Securities").

The Holder, by acceptance of the Warrants, represents and warrants to the Company that the Warrants and all securities acquired upon any and all exercises of the Warrants are purchased for the Holder's own account, and not with view to distribution of either the Warrants or any securities purchasable upon exercise thereof in violation of applicable securities laws.

The Holder acknowledges that (i) the Securities have not been registered under the Act, (ii) the Securities are "restricted securities" and the certificate(s) representing the Securities shall bear the following legend, or a similar legend to the same effect, until (i) in the case of the shares of Common Stock underlying the Warrants, such shares shall have been registered for resale by the Holder under the Act and effectively been disposed of in accordance with a registration statement that has been declared effective; or (ii) in the opinion of counsel for the Company such Securities may be sold without registration under the Act:

"[NEITHER] THE SECURITIES REPRESENTED BY THIS CERTIFICATE [NOR THE SECURITIES INTO WHICH THEY ARE EXERCISABLE] HAVE [NOT] BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND ALL SUCH SECURITIES ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AS SET FORTH IN THIS CERTIFICATE. [NEITHER] THE SECURITIES REPRESENTED HEREBY [NOR THE SECURITIES INTO WHICH THEY ARE EXERCISABLE] MAY [NOT] BE SOLD, TRANSFERRED, OR OTHERWISE DISPOSED OF IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR AN OPINION OF COUNSEL, REASONABLY ACCEPTABLE TO COUNSEL FOR THE COMPANY, TO THE EFFECT THAT THE PROPOSED SALE, TRANSFER, OR DISPOSITION MAY BE EFFECTUATED WITHOUT REGISTRATION UNDER THE ACT."

IN WITNESS WHEREOF, the Holder has caused this Investment Representation Letter to be executed in its corporate name by its duly authorized officer this __ day of _____ 200_.

[Name]

By: _____
Name: _____
Title: _____

EXHIBIT C

ASSIGNMENT FORM

FOR VALUE RECEIVED the undersigned registered owner of this Warrant for the purchase of shares of Common Stock of ADVENTRX Pharmaceuticals, Inc. hereby sells, assigns and transfers unto the Assignee named below all of the rights of the undersigned under this Warrant, with respect to the number of shares of common stock set forth below:

- - - - -

- - - - -

- - - - -

(Name and Address of Assignee)

- - - - -

(Number of Shares of Common Stock)

and does hereby irrevocably constitute and appoint _____ attorney-in-fact to register such transfer on the books of the Company, maintained for the purpose, with full power of substitution in the premises.

Dated: _____

- - - - -

(Print Name and Title)

- - - - -

(Signature)

- - - - -

(Witness)

NOTICE: The signature on this assignment must correspond with the name as written upon the face of the Warrant in every particular, without alteration or enlargement or any change whatsoever.

SCHEDULE OF WARRANTHOLDERS

ADVENTRX Pharmaceuticals, Inc. issued this form of A-2 Warrant to Purchase Common Stock to each of the persons listed below for the purchase of up to the number of shares of Common Stock listed opposite such person's name below.

HOLDER - - - - -	WARRANT NO. - - - - -	SHARES - - - - -
Andrew J. Maffey	WA2-65	3,400
Centrum Bank AG	WA2-57	6,000
North Sound Legacy Institutional Fund LLC	WA2-70	2,400
North Sound Legacy Institutional Fund LLC	WA2-62	12,400
North Sound Legacy International Ltd.	WA2-64	23,800
Robert J. Neborsky MD Inc Combination Retirement Trust	WA2-67	33,000
Robert J. Neborsky MD Inc Combination Retirement Trust	WA2-68	33,333
North Sound Legacy Institutional Fund LLC	WA2-71	800

THIS WARRANT HAS BEEN, AND THE SHARES OF COMMON STOCK WHICH MAY BE RECEIVED PURSUANT TO THE EXERCISE OF THIS WARRANT WILL BE, ACQUIRED SOLELY FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF. NEITHER THIS WARRANT NOR SUCH SHARES (TOGETHER, THE "SECURITIES") HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO THE COMPANY AND ITS COUNSEL THAT SUCH DISPOSITION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF THE ACT AND OF ANY APPLICABLE STATE SECURITIES LAWS.

NO. [SEE ATTACHED SCHEDULE]

WARRANT TO PURCHASE COMMON STOCK

THIS CERTIFIES THAT, for good and valuable consideration, [SEE ATTACHED SCHEDULE FOR NAMES OF HOLDERS] (the "HOLDER") is entitled to subscribe for and purchase from Biokeys Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), [SEE ATTACHED SCHEDULE FOR NUMBER OF SHARES] fully paid and nonassessable shares of Common Stock, par value \$0.001 per share ("COMMON STOCK"), of the Company (as adjusted pursuant to Section 3 hereof) (the "WARRANT SHARES") at a price per share equal to Sixty Cents (\$0.60) (as adjusted pursuant to Section 3 hereof) (the "EXERCISE PRICE"), subject to the provisions and upon the terms and conditions hereinafter set forth.

1. METHOD OF EXERCISE; PAYMENT.

(A) Exercise Period. The purchase rights represented by this Warrant may be exercised by the Holder during the term of this Warrant (as set forth in Section 9 hereof) in whole or in part, at any time after the Commencement Date, as defined below, by the surrender of this Warrant (with the notice of exercise form attached hereto as Exhibit A (the "NOTICE OF EXERCISE") duly executed) at the principal office of the Company.

(B) Cash Exercise. Upon exercise of this Warrant, the Holder shall pay the Company an amount equal to the Exercise Price multiplied by the number of Warrant Shares being purchased, by wire transfer or certified check payable to the order of the Company. The person or persons in whose name(s) any certificate(s) representing the Warrant Shares shall be issuable upon exercise of this Warrant shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

(C) Stock Certificates. In the event of any exercise of the rights represented by this Warrant, certificates for the Warrant Shares so purchased shall be delivered to the Holder within a reasonable time after exercise and, unless this Warrant has been fully exercised or has expired, a new Warrant representing the shares with respect to which this Warrant shall not have been exercised shall also be issued to the Holder within such time.

2. STOCK FULLY PAID; RESERVATION OF SHARES. All of the Warrant Shares issuable upon the exercise of the rights represented by this Warrant will, upon issuance and receipt of the Exercise Price therefor, be fully paid and nonassessable, and free from all preemptive rights, rights of first refusal or first offer, taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved for issuance a sufficient number of Warrant Shares to provide for the exercise of the rights represented by this Warrant.

3. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF SHARES. The number and kind of Warrant Shares purchasable upon the exercise of this Warrant and the Exercise Price therefor shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(A) Reclassification, Consolidation or Reorganization. In case of any reclassification of the Common Stock (other than a change in par value, or as a result of a subdivision or combination), or in case of any consolidation or merger of the Company with or into another corporation (other than a Change of Control, as defined below) (any of which is a "REORGANIZATION TRANSACTION"), the Company, or such successor corporation as the case may be, shall execute a new warrant, providing that the holder of this Warrant shall have the right to exercise such new warrant, and procure upon such exercise and payment of the same aggregate Exercise Price, in lieu of the Warrant Shares theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property as would be payable for the Warrant Shares issuable upon exercise of this Warrant as if such Warrant Shares were outstanding on the consummation of the Reorganization Transaction. For purposes of this Warrant, the term "CHANGE OF CONTROL" shall mean (i) any acquisition of the Company by means of merger, acquisition, or other form of corporate reorganization in which outstanding shares of the Company are exchanged for securities or other consideration issued, or caused to be issued, by the acquiring corporation or its subsidiary or parent (other than a reincorporation transaction or change of domicile) and pursuant to which the holders of the outstanding voting securities of the Company immediately prior to such consolidation, merger or other transaction fail to hold equity securities representing a majority of the voting power of the Company or surviving entity immediately following such consolidation, merger or other transaction (excluding voting securities of the acquiring corporation held by such holders prior to such transaction) or (ii) a sale of all or substantially all of the assets of the Company.

(B) Stock Splits, Dividends and Combinations. In the event that the Company shall at any time subdivide the outstanding shares of Common Stock, or shall issue a stock dividend on its outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such subdivision or to the issuance of such stock dividend shall be proportionately increased, and the Exercise Price shall be

proportionately decreased, and in the event that the Company shall at any time combine the outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such combination shall be proportionately decreased, and the Exercise Price shall be proportionately increased, effective at the close of business on the date of such subdivision, stock dividend or combination, as the case may be.

4. TRANSFER OF WARRANT. This Warrant may only be transferred in compliance with federal and state securities laws and, except as provided below, may not be transferred except with the prior written consent of the Company, which shall not be unreasonably withheld or delayed, and any purported transfer without such prior written consent shall be null and void; provided, however, that the Company may withhold its consent to transfer or assignment of this Warrant to any person or entity who is deemed to be a competitor or prospective competitor of the Company, such determination to be made in the reasonable judgment of the Board.

5. CONDITION TO EXERCISE OF WARRANT. Each certificate evidencing the Warrant Shares issued upon exercise of this Warrant shall be stamped or imprinted with a legend substantially in the following form:

THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF, AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY AND ITS COUNSEL THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT OR UNLESS SOLD PURSUANT TO RULE 144 OF SUCH ACT.

6. FRACTIONAL SHARES. No fractional Warrant Shares will be issued in connection with any exercise hereunder, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the Exercise Price then in effect.

7. REPRESENTATIONS AND WARRANTIES BY THE HOLDER. The Holder represents and warrants to the Company as follows:

(A) This Warrant is being acquired for the Holder's own account, for investment and not with a view to, or for resale in connection with, any distribution or public offering thereof within the meaning of the Securities Act of 1933, as amended (the "SECURITIES ACT"). Upon exercise of this Warrant, the Holder shall, if so requested by the Company, confirm in writing, in a form reasonably satisfactory to the Company, that the Warrant Shares issuable upon exercise of this Warrant are being acquired for investment and not with a view toward distribution or resale. The Holder is an "accredited investor" within the meaning of the Securities Act.

(B) The Holder understands that this Warrant and the Warrant Shares have not been registered under the Securities Act by reason of their issuance in a transaction exempt from

the registration and prospectus delivery requirements of the Securities Act pursuant to Section 4(2) thereof and that the Company's reliance upon such exemption is predicated, in part, upon the Holder's representations and warranties set forth in this Agreement. The Holder understands that this Warrant and the Warrant Shares must be held by the Holder indefinitely, and that the Holder must therefore bear the economic risk of such investment indefinitely, unless a subsequent disposition thereof is registered under the Securities Act or is exempted from such registration. The Holder further understands that this Warrant and the Warrant Shares have not been registered under the securities laws of any state.

(C) The Holder acknowledges that it is acquiring this Warrant without being offered or furnished any offering literature or prospectus. The Holder understands that neither the United States Securities and Exchange Commission, nor any governmental agency charged with the administration of the securities laws of any state nor any other governmental agency has passed upon or reviewed the merits or qualifications of, or recommended or approved the issuance of this Warrant or the Warrant Shares.

(D) The Holder understands that, except as provided in Section 10 of this Warrant, the Company is under no obligation to register this Warrant or the Warrant Shares.

(E) The Holder is a bona fide resident and domiciliary (not a temporary or transient resident) of the state indicated in the signature page hereto and the Holder has no present intention of becoming a resident of any other state or jurisdiction.

(F) The Holder has such knowledge and experience in financial and business matters that it is capable of evaluating the merits and risks of the purchase of this Warrant and the Warrant Shares purchasable pursuant to the terms of this Warrant and of protecting its interests in connection therewith. The Holder is able to bear the economic risk of the purchase of the Warrant Shares pursuant to the terms of this Warrant.

8. RIGHTS OF STOCKHOLDERS. No holder of this Warrant shall be entitled, as a Warrant holder, to vote or receive dividends or be deemed the holder of Warrant Shares or any other securities of the Company which may at any time be issuable on the exercise hereof for any purpose, nor shall anything contained herein be construed to confer upon the Holder any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action (whether upon any recapitalization, issuance of stock, reclassification of stock, change of par value, consolidation, merger, conveyance, or otherwise) or to receive notice of meetings, or to receive dividends or subscription rights or otherwise with respect to the Warrant Shares until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise hereof shall have become deliverable, as provided herein.

9. TERM OF WARRANT.

(A) This Warrant shall become exercisable on the date of issuance set forth below (the "COMMENCEMENT DATE") and shall no longer be exercisable as of the earlier of (i) 5:00 p.m., San Diego, California local time, on the date that is the three-year anniversary of the Commencement Date; (ii) immediately prior to a Change of Control and (iii) 5:00 p.m., San Diego, California local time, on the Call Termination Date (as defined below).

(B) Notwithstanding anything herein to the contrary, at any time after the Commencement Date, if the closing price of one share of Common Stock quoted in the over-the-counter market summary, the Bulletin Board Exchange, the Nasdaq National Market or the closing price quoted on a national securities exchange, whichever is applicable, is greater than 200% of the Exercise Price for a period of 20 consecutive trading days, then thereafter the Company shall have the right (the "COMPANY TERMINATION RIGHT"), exercisable at the Company's sole discretion, to terminate this Warrant with at least 10-days' prior written notice (the "TERMINATION NOTICE") which Termination Notice shall state the date this Warrant shall terminate (the "CALL TERMINATION DATE"); provided, however, that the Company may not exercise the Company Termination Right unless a registration statement registering the Warrant Stock has been declared effective and is effective from the date of delivery of the Termination Notice until the Call Termination Date, provided, further, that if this Warrant is terminated pursuant to this Section 9(b), then the Company shall use commercially reasonable efforts to maintain the effectiveness of a registration statement registering the Warrant Stock until the date that is 15 days after the Call Termination Date or, if earlier, the date the Holder shall have sold all its Warrant Shares covered by such registration statement.

10. REGISTRATION RIGHTS.

(A) Piggy-back Rights. If (but without any obligation to do so) the Company proposes to register any shares of Common Stock solely for cash pursuant to a registration statement under the Securities Act, other than a registration solely in connection with a transaction under Rule 145 promulgated under the Securities Act (a "PUBLIC OFFERING"), the Company shall promptly give the Holder written notice of such Public Offering, at least 10 business days prior to the filing of the registration statement under the Securities Act regarding such Public Offering. Upon the written request of the Holder given within 5 business days after delivery of such written notice by the Company, the Company shall, subject to the provisions of Section 10(b) below, use its best efforts to cause to be registered under the Securities Act all of the Warrant Shares that the Holder has requested to be registered.

(B) Underwriting. If the registration statement under which the Company gives notice under this Section 10 is for an underwritten Public Offering, the Company shall so advise the Holder. The right of the Holder to registration pursuant to Section 10(a) above shall be conditioned upon the Holder's participation in such underwriting and the inclusion of the Warrant Shares in the underwriting to the extent provided herein. The Holder shall (together with the Company and any other holders of Company securities distributing their securities through such underwriting) enter into an underwriting agreement in customary form with the underwriter or underwriters selected for underwriting by the Company. Notwithstanding any other provision of this Section 10, if the underwriter determines that

marketing factors require a limitation of the number of shares to be underwritten, the underwriter may exclude some or all of the Warrant Shares from such registration and underwriting.

(C) **Furnish Information.** It shall be a condition to the Company's obligations to take any action under this Section 10 that the Holder shall furnish to the Company such information regarding itself, the Warrant Shares, and the intended method of disposition of such Warrant Shares as shall be required to effect the registration of any Warrant Shares. In that connection, the Holder shall be required to represent to the Company that all such information which is given is both complete and accurate in all material respects when made.

(D) **Delay of Registration.** The Holder shall have no right to obtain or seek an injunction restraining or otherwise delaying any such registration as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 10.

(E) **Termination of Registration Rights.** The Company shall have no obligation to register Warrant Shares pursuant to this Section 10 with respect to any request or requests made by any Holder on or after that date which is one year after the date such Warrant Shares were deemed to be acquired for purposes of determining the holding period of such Warrant Shares under Rule 144 of the Act.

11. MISCELLANEOUS.

(A) This Warrant is being delivered in the state of California and shall be construed and enforced in accordance with and governed by the laws of the state of California, without giving effect to principles of conflicts of laws.

(B) The headings in this Warrant are for purposes of reference only, and shall not limit or otherwise affect any of the terms hereof.

(C) The terms of this Warrant shall be binding upon and shall inure to the benefit of any successors or assigns of the Company and of the Holder and of the Warrant Shares issued or issuable upon the exercise hereof.

(D) Any notice provided for or permitted under this Warrant shall be treated as having been given (a) upon receipt, when delivered personally, (b) upon receipt, when sent by confirmed facsimile or telecopy, (c) one day after sending, when sent by commercial overnight courier with written verification of receipt, or (d) three business days after deposit with the United States Postal Service, when mailed postage prepaid by certified or registered mail, return receipt requested, addressed (a) if to the Company, at 9948 Hibert Street, Suite 100, San Diego, CA 92131, facsimile: (858) 271-9678, Attention: Nicholas J. Virca, or (b) if to the Holder, at such address or facsimile number as the Holder shall have furnished to the Company in writing, or at such other place of which the other party has been notified in accordance with the provisions of this Section 11(d).

(E) This Warrant constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof.

(F) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Company at the Holder's expense will execute and deliver to the holder of record, in lieu thereof, a new Warrant of like date and tenor.

(G) This Warrant and any provision hereof may be amended, waived or terminated only by an instrument in writing signed by the Company and the Holder.

(H) Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to the foregoing terms and conditions.

[Signature page follows.]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed
by its duly authorized officer.

Issued May 28, 2003

BIOKEYS PHARMACEUTICALS, INC.

By: /s/ Nicholas J. Virca

Name: Nicholas J. Virca
Title: President and Chief Executive
Officer

[SEE ATTACHED SCHEDULE]

By:

Name:

Title:

Address:

Facsimile:

EXHIBIT A

NOTICE OF EXERCISE

TO: Biokeys Pharmaceuticals, Inc.
9948 Hibert Street, Suite 100
San Diego, CA 92131

The undersigned hereby elects to purchase _____ shares of Common Stock, par value \$0.001 per share, of the Company ("COMMON STOCK") pursuant to the terms of Section 1(b) of the Warrant to Purchase Common Stock dated May __, 2003 (the "WARRANT"), and tenders herewith payment of the purchase price of such shares in full.

Please issue a certificate or certificates representing said _____ shares of Common Stock in the name of the undersigned or in such other name as is specified below:

Name: _____
Address: _____

The undersigned hereby represents and warrants that the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale, in connection with the distribution thereof, and that the undersigned has no present intention of distributing or reselling such shares, and that all representations and warranties of the undersigned set forth in Section 7 of the Warrant are true and correct as of the date hereof.

[NAME OF WARRANT HOLDER]

By: _____
Name: _____
Title: _____
Date: _____

SCHEDULE OF WARRANTHOLDERS

ADVENTRX Pharmaceuticals, Inc. issued this form of Warrant to Purchase Common Stock to each of the persons listed below for the purchase of up to the number of shares of Common Stock listed opposite such person's name below.

HOLDER -----	WARRANT NO. -----	SHARES -----
Centrum Bank AG	WC-108	1,500
The Prudent Bear Fund	WC-113	375,000
Delaware Charter Guarantee and Trust Co. FBO Micahel Kooper Investor Rights Agreement	WC-136	17,969
Andrew J. Maffey	WC-139	30,000
Clifford Ross	WC-140	15,000
James Simpson	WC-148	7,500
Franco Merlo	WC-114	2,989
Michael Kooper	WC-129	56,250
Richard Melnick	WC-134	56,250
Richard Melnick	WC-142	45,000
Caroline A. Levine	WC-143	11,250
Richard Melnick	WC-150	33,750
Richard Melnick	WC-151	50,000
Michael Kooper	WC-136	17,969
EFG Private Bank S.A.	WC-109	750

THIS WARRANT HAS BEEN, AND THE SHARES OF COMMON STOCK WHICH MAY BE RECEIVED PURSUANT TO THE EXERCISE OF THIS WARRANT WILL BE, ACQUIRED SOLELY FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF. NEITHER THIS WARRANT NOR SUCH SHARES (TOGETHER, THE "SECURITIES") HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO THE COMPANY AND ITS COUNSEL THAT SUCH DISPOSITION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF THE ACT AND OF ANY APPLICABLE STATE SECURITIES LAWS.

NO. [SEE ATTACHED SCHEDULE]

ISSUED [SEE ATTACHED SCHEDULE]

WARRANT TO PURCHASE COMMON STOCK

THIS CERTIFIES THAT, for good and valuable consideration, [SEE ATTACHED SCHEDULE FOR NAMES OF HOLDERS] (the "HOLDER") is entitled to subscribe for and purchase from Adventrx Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), [SEE ATTACHED SCHEDULE FOR NUMBER OF SHARES] fully paid and nonassessable shares of Common Stock, par value \$0.001 per share ("COMMON STOCK"), of the Company (as adjusted pursuant to Section 3 hereof) (the "WARRANT SHARES") at a price per share equal to One Dollar and Twenty Five Cents (\$1.25) (as adjusted pursuant to Section 3 hereof) (the "EXERCISE PRICE"), subject to the provisions and upon the terms and conditions hereinafter set forth.

1. METHOD OF EXERCISE; PAYMENT.

(A) Exercise Period. The purchase rights represented by this Warrant may be exercised by the Holder during the term of this Warrant (as set forth in Section 9 hereof) in whole or in part, at any time after the Commencement Date, as defined below, by the surrender of this Warrant (with the notice of exercise form attached hereto as Exhibit A (the "NOTICE OF EXERCISE") duly executed) at the principal office of the Company.

(B) Cash Exercise. Upon exercise of this Warrant, the Holder shall pay the Company an amount equal to the Exercise Price multiplied by the number of Warrant Shares being purchased, by wire transfer or certified check payable to the order of the Company. The person or persons in whose name(s) any certificate(s) representing the Warrant Shares shall be issuable upon exercise of this Warrant shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

(C) Stock Certificates. In the event of any exercise of the rights represented by this Warrant, certificates for the Warrant Shares so purchased shall be delivered to the Holder within a reasonable time after exercise and, unless this Warrant has been fully exercised or has expired, a new Warrant representing the shares with respect to which this Warrant shall not have been exercised shall also be issued to the Holder within such time.

2. STOCK FULLY PAID; RESERVATION OF SHARES. All of the Warrant Shares issuable upon the exercise of the rights represented by this Warrant will, upon issuance and receipt of the Exercise Price therefor, be fully paid and nonassessable, and free from all preemptive rights, rights of first refusal or first offer, taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved for issuance a sufficient number of Warrant Shares to provide for the exercise of the rights represented by this Warrant.

3. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF SHARES. The number and kind of Warrant Shares purchasable upon the exercise of this Warrant and the Exercise Price therefor shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(A) Reclassification, Consolidation or Reorganization. In case of any reclassification of the Common Stock (other than a change in par value, or as a result of a subdivision or combination), or in case of any consolidation or merger of the Company with or into another corporation (other than a Change of Control, as defined below) (any of which is a "REORGANIZATION TRANSACTION"), the Company, or such successor corporation as the case may be, shall execute a new warrant, providing that the holder of this Warrant shall have the right to exercise such new warrant, and procure upon such exercise and payment of the same aggregate Exercise Price, in lieu of the Warrant Shares theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property as would be payable for the Warrant Shares issuable upon exercise of this Warrant as if such Warrant Shares were outstanding on the consummation of the Reorganization Transaction. For purposes of this Warrant, the term "CHANGE OF CONTROL" shall mean (i) any acquisition of the Company by means of merger, acquisition, or other form of corporate reorganization in which outstanding shares of the Company are exchanged for securities or other consideration issued, or caused to be issued, by the acquiring corporation or its subsidiary or parent (other than a reincorporation transaction or change of domicile) and pursuant to which the holders of the outstanding voting securities of the Company immediately prior to such consolidation, merger or other transaction fail to hold equity securities representing a majority of the voting power of the Company or surviving entity immediately following such consolidation, merger or other transaction (excluding voting securities of the acquiring corporation held by such holders prior to such transaction) or (ii) a sale of all or substantially all of the assets of the Company.

(B) Stock Splits, Dividends and Combinations. In the event that the Company shall at any time subdivide the outstanding shares of Common Stock, or shall issue a stock dividend on its outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such subdivision or to the issuance of such stock dividend shall be proportionately increased, and the Exercise Price shall be

proportionately decreased, and in the event that the Company shall at any time combine the outstanding shares of Common Stock, the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such combination shall be proportionately decreased, and the Exercise Price shall be proportionately increased, effective at the close of business on the date of such subdivision, stock dividend or combination, as the case may be.

4. TRANSFER OF WARRANT. This Warrant may only be transferred in compliance with federal and state securities laws and, except as provided below, may not be transferred except with the prior written consent of the Company, which shall not be unreasonably withheld or delayed, and any purported transfer without such prior written consent shall be null and void; provided, however, that the Company may withhold its consent to transfer or assignment of this Warrant to any person or entity who is deemed to be a competitor or prospective competitor of the Company, such determination to be made in the reasonable judgment of the Board.

5. CONDITION TO EXERCISE OF WARRANT. Each certificate evidencing the Warrant Shares issued upon exercise of this Warrant shall be stamped or imprinted with a legend substantially in the following form:

THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO, OR FOR RESALE IN CONNECTION WITH, ANY DISTRIBUTION THEREOF, AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF SUCH REGISTRATION OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY AND ITS COUNSEL THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT OR UNLESS SOLD PURSUANT TO RULE 144 OF SUCH ACT.

6. FRACTIONAL SHARES. No fractional Warrant Shares will be issued in connection with any exercise hereunder, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the Exercise Price then in effect.

7. REPRESENTATIONS AND WARRANTIES BY THE HOLDER. The Holder represents and warrants to the Company as follows:

(A) This Warrant is being acquired for the Holder's own account, for investment and not with a view to, or for resale in connection with, any distribution or public offering thereof within the meaning of the Securities Act of 1933, as amended (the "SECURITIES ACT"). Upon exercise of this Warrant, the Holder shall, if so requested by the Company, confirm in writing, in a form reasonably satisfactory to the Company, that the Warrant Shares issuable upon exercise of this Warrant are being acquired for investment and not with a view toward distribution or resale. The Holder is an "accredited investor" within the meaning of the Securities Act.

(B) The Holder understands that this Warrant and the Warrant Shares have not been registered under the Securities Act by reason of their issuance in a transaction exempt from

the registration and prospectus delivery requirements of the Securities Act pursuant to Section 4(2) thereof and that the Company's reliance upon such exemption is predicated, in part, upon the Holder's representations and warranties set forth in this Agreement. The Holder understands that this Warrant and the Warrant Shares must be held by the Holder indefinitely, and that the Holder must therefore bear the economic risk of such investment indefinitely, unless a subsequent disposition thereof is registered under the Securities Act or is exempted from such registration. The Holder further understands that this Warrant and the Warrant Shares have not been registered under the securities laws of any state.

(C) The Holder acknowledges that it is acquiring this Warrant without being offered or furnished any offering literature or prospectus. The Holder understands that neither the United States Securities and Exchange Commission, nor any governmental agency charged with the administration of the securities laws of any state nor any other governmental agency has passed upon or reviewed the merits or qualifications of, or recommended or approved the issuance of this Warrant or the Warrant Shares.

(D) The Holder understands that, except as provided in Section 10 of this Warrant, the Company is under no obligation to register this Warrant or the Warrant Shares.

(E) The Holder is a bona fide resident and domiciliary (not a temporary or transient resident) of the state indicated in the signature page hereto and the Holder has no present intention of becoming a resident of any other state or jurisdiction.

(F) The Holder has such knowledge and experience in financial and business matters that it is capable of evaluating the merits and risks of the purchase of this Warrant and the Warrant Shares purchasable pursuant to the terms of this Warrant and of protecting its interests in connection therewith. The Holder is able to bear the economic risk of the purchase of the Warrant Shares pursuant to the terms of this Warrant.

(G) The Holder of this Warrant agrees not to undertake any short position with respect to the underlying common stock while this warrant remains outstanding.

8. RIGHTS OF STOCKHOLDERS. No holder of this Warrant shall be entitled, as a Warrant holder, to vote or receive dividends or be deemed the holder of Warrant Shares or any other securities of the Company which may at any time be issuable on the exercise hereof for any purpose, nor shall anything contained herein be construed to confer upon the Holder any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any corporate action (whether upon any recapitalization, issuance of stock, reclassification of stock, change of par value, consolidation, merger, conveyance, or otherwise) or to receive notice of meetings, or to receive dividends or subscription rights or otherwise with respect to the Warrant Shares until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise hereof shall have become deliverable, as provided herein.

9. TERM OF WARRANT.

(A) This Warrant shall become exercisable on the date of issuance set forth below (the "COMMENCEMENT DATE") and shall no longer be exercisable as of the earlier of (i) 5:00 p.m., San Diego, California local time, on the date that is the three-year anniversary of the Commencement Date; (ii) immediately prior to a Change of Control and (iii) 5:00 p.m., San Diego, California local time, on the Call Termination Date (as defined below).

(B) Notwithstanding anything herein to the contrary, at any time after the Commencement Date, if the closing price of one share of Common Stock quoted in the over-the-counter market summary, the Bulletin Board Exchange, the Nasdaq National Market or the closing price quoted on a national securities exchange, whichever is applicable, is greater than 200% of the Exercise Price for a period of 20 consecutive trading days, then thereafter the Company shall have the right (the "COMPANY TERMINATION RIGHT"), exercisable at the Company's sole discretion, to terminate this Warrant with at least 10-days' prior written notice (the "TERMINATION NOTICE") which Termination Notice shall state the date this Warrant shall terminate (the "CALL TERMINATION DATE"); provided, however, that the Company may not exercise the Company Termination Right unless a registration statement registering the Warrant Stock has been declared effective and is effective from the date of delivery of the Termination Notice until the Call Termination Date, provided, further, that if this Warrant is terminated pursuant to this Section 9(b), then the Company shall use commercially reasonable efforts to maintain the effectiveness of a registration statement registering the Warrant Stock until the date that is 15 days after the Call Termination Date or, if earlier, the date the Holder shall have sold all its Warrant Shares covered by such registration statement.

10. REGISTRATION RIGHTS.

(A) Piggy-back Rights. If (but without any obligation to do so) the Company proposes to register any shares of Common Stock solely for cash pursuant to a registration statement under the Securities Act, other than a registration solely in connection with a transaction under Rule 145 promulgated under the Securities Act (a "PUBLIC OFFERING"), the Company shall promptly give the Holder written notice of such Public Offering, at least 10 business days prior to the filing of the registration statement under the Securities Act regarding such Public Offering. Upon the written request of the Holder given within 5 business days after delivery of such written notice by the Company, the Company shall, subject to the provisions of Section 10(b) below, use its best efforts to cause to be registered under the Securities Act all of the Warrant Shares that the Holder has requested to be registered.

(B) Underwriting. If the registration statement under which the Company gives notice under this Section 10 is for an underwritten Public Offering, the Company shall so advise the Holder. The right of the Holder to registration pursuant to Section 10(a) above shall be conditioned upon the Holder's participation in such underwriting and the inclusion of the Warrant Shares in the underwriting to the extent provided herein. The Holder shall (together with the Company and any other holders of Company securities distributing their securities through such underwriting) enter into an underwriting agreement in customary form with the underwriter or underwriters selected for underwriting by the Company. Notwithstanding any other provision of this Section 10, if the underwriter determines that

marketing factors require a limitation of the number of shares to be underwritten, the underwriter may exclude some or all of the Warrant Shares from such registration and underwriting.

(C) **Furnish Information.** It shall be a condition to the Company's obligations to take any action under this Section 10 that the Holder shall furnish to the Company such information regarding itself, the Warrant Shares, and the intended method of disposition of such Warrant Shares as shall be required to effect the registration of any Warrant Shares. In that connection, the Holder shall be required to represent to the Company that all such information which is given is both complete and accurate in all material respects when made.

(D) **Delay of Registration.** The Holder shall have no right to obtain or seek an injunction restraining or otherwise delaying any such registration as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 10.

(E) **Termination of Registration Rights.** The Company shall have no obligation to register Warrant Shares pursuant to this Section 10 with respect to any request or requests made by any Holder on or after that date which is one year after the date such Warrant Shares were deemed to be acquired for purposes of determining the holding period of such Warrant Shares under Rule 144 of the Act.

11. MISCELLANEOUS.

(A) This Warrant is being delivered in the state of California and shall be construed and enforced in accordance with and governed by the laws of the state of California, without giving effect to principles of conflicts of laws.

(B) The headings in this Warrant are for purposes of reference only, and shall not limit or otherwise affect any of the terms hereof.

(C) The terms of this Warrant shall be binding upon and shall inure to the benefit of any successors or assigns of the Company and of the Holder and of the Warrant Shares issued or issuable upon the exercise hereof.

(D) Any notice provided for or permitted under this Warrant shall be treated as having been given (a) upon receipt, when delivered personally, (b) upon receipt, when sent by confirmed facsimile or telecopy, (c) one day after sending, when sent by commercial overnight courier with written verification of receipt, or (d) three business days after deposit with the United States Postal Service, when mailed postage prepaid by certified or registered mail, return receipt requested, addressed (a) if to the Company, at 9948 Hibert Street, Suite 100, San Diego, CA 92131, facsimile: (858) 271-9678, Attention: Nicholas J. Virca, or (b) if to the Holder, at such address or facsimile number as the Holder shall have furnished to the Company in writing, or at such other place of which the other party has been notified in accordance with the provisions of this Section 11(d).

(E) This Warrant constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof.

(F) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Company at the Holder's expense will execute and deliver to the holder of record, in lieu thereof, a new Warrant of like date and tenor.

(G) This Warrant and any provision hereof may be amended, waived or terminated only by an instrument in writing signed by the Company and the Holder.

(H) Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to the foregoing terms and conditions.

[Signature page follows.]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued: [SEE ATTACHED SCHEDULE]

ADVENTRX PHARMACEUTICALS, INC.

By: /s/ Nicholas J. Virca

Name: Nicholas J. Virca
Title: President and Chief Executive
Officer

[SEE ATTACHED SCHEDULE]

By:

Name:

Title:

Address:

Facsimile:

EXHIBIT A

NOTICE OF EXERCISE

TO: Adventrx Pharmaceuticals, Inc.
9948 Hibert Street, Suite 100
San Diego, CA 92131

The undersigned hereby elects to purchase _____ shares of Common Stock, par value \$0.001 per share, of the Company ("COMMON STOCK") pursuant to the terms of Section 1(b) of the Warrant to Purchase Common Stock dated _____ 2003 (the "WARRANT"), and tenders herewith payment of the purchase price of such shares in full.

Please issue a certificate or certificates representing said _____ shares of Common Stock in the name of the undersigned or in such other name as is specified below:

Name: _____
Address: _____

The undersigned hereby represents and warrants that the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale, in connection with the distribution thereof, and that the undersigned has no present intention of distributing or reselling such shares, and that all representations and warranties of the undersigned set forth in Section 7 of the Warrant are true and correct as of the date hereof.

By: _____
Name: _____
Title: _____
Date: _____

SCHEDULE OF WARRANTHOLDERS

ADVENTRX Pharmaceuticals, Inc. issued this form of Warrant to Purchase Common Stock to each of the persons listed below on the dates set forth below for the purchase of up to the number of shares of Common Stock listed opposite such person's name below.

HOLDER	WARRANT NO.	ISSUE DATE	SHARES
Charles and Leslie Close	WC-210	10/15/2003	15,000
Elaine Dines	WC-214	10/15/2003	15,000
Paul Mezei	WC-236	10/15/2003	600
Steve Salovitch	WC-245	10/15/2003	3,000
Schenk Family Trust/Carl Schenk Trustee	WC-246	10/15/2003	7,500
Jay Silberman	WC-251	10/15/2003	22,500
Andrew J. Maffey	WC-256	10/15/2003	7,500
Richard Melnick	WC-260	10/15/2003	16,000
Michael Kooper	WC-227	10/15/2003	15,000

September 1, 2005

ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego, California 92121

Attention: Carrie Carlander
Chief Financial Officer

RESALE REGISTRATION STATEMENT ON FORM S-3 OF
ADVENTRX PHARMACEUTICALS, INC. ON BEHALF OF SELLING SECURITYHOLDERS

Ladies and Gentlemen:

We have acted as counsel to ADVENTRX Pharmaceuticals, Inc., a Delaware corporation (the "Company"), in connection with the registration under the Securities Act of 1933, as amended (the "Act"), of shares (the "Shares") of the Company's Common Stock, par value \$0.001 per share ("Common Stock"), pursuant to a Registration Statement on Form S-3 (Registration No. 333-127857) (the "Registration Statement") filed by the Company with the Securities and Exchange Commission, as amended by Amendment No. 1 to the Registration Statement on or about the date of this opinion, on behalf of selling securityholders.

The Shares were issued, or are issuable pursuant to (a) that certain Securities Purchase Agreement, dated July 21, 2005 (the "Purchase Agreement"), among the Company and the persons listed on Appendix A thereto (the "Purchasers"); (b) warrants to purchase Common Stock that were issued by the Company to the Purchasers under the terms of the Purchase Agreement; (c) warrants to purchase Common Stock that were issued by the Company to certain persons pursuant to a Common Stock and Warrant Purchase Agreement, dated April 5, 2004, among the Company and the persons listed on Schedule 1 thereto; and (d) warrants to purchase Common Stock issued by the Company in transactions that were effected between May 28, 2003 and December 15, 2003.

As counsel to the Company, we have reviewed the corporate proceedings taken by the Company with respect to the authorization of the issuance of the Shares. We have also examined and relied upon originals or copies, certified or otherwise authenticated to our satisfaction, of such corporate records, documents,

agreements or other instruments of the Company as we have deemed necessary or advisable for purposes of this opinion. As to all matters of fact (including factual conclusions and characterizations and descriptions of purpose, intention or other state of mind) we have entirely relied upon certificates of officers of the Company, and have assumed, without independent inquiry, the accuracy of those certificates.

In rendering the opinions hereinafter expressed, we have examined and relied upon originals or copies of such documents and instruments as we have deemed appropriate, including the following documents and instruments:

A. The Certificate of Incorporation of the Company, as amended, certified by the Delaware Secretary of State on August 31, 2005;

B. The Certificate of Good Standing of the Company, issued by the Delaware Secretary of State on August 31, 2005;

C. The By-Laws of the Company, certified by the Secretary of the Company on September 1, 2005; and

D. Records of proceedings and actions of the Board of Directors of the Company, certified by the Secretary of the Company on September 1, 2005.

We have assumed the genuineness of all signatures, the conformity to the originals of all documents reviewed by us as copies, the authenticity and completeness of all original documents reviewed by us in original or copy form and the legal competence of each individual executing a document. We have also assumed that the registration requirements of the Act and all applicable requirements of state laws regulating the sale of securities will have been duly satisfied. We have also assumed that with respect to any Shares to be issued upon the exercise of warrants, the Company will receive the specified consideration for the Shares as set forth in such warrants and any other agreements pursuant to which said warrants were issued.

This opinion is limited solely to the Delaware General Corporation Law, which term as used herein means the statutory provisions thereof, all applicable provisions of the Delaware Constitution and the reported judicial decisions interpreting those laws.

ADVENTRX Pharmaceuticals, Inc.

September 1, 2005

Page 3

Subject to the foregoing, it is our opinion that such of the Shares as have been issued have been duly authorized and are validly issued, fully paid and nonassessable, and such of the Shares as are issuable in the future have been duly authorized and will be validly issued, fully paid and nonassessable when issued pursuant to the terms of the warrants and other agreements pursuant to which such Shares are issuable.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and as an exhibit to any further registration statement to be filed pursuant to Rule 462(b) under the Securities Act with respect to the Shares, and to the reference to this firm under the heading "Legal Matters" in the prospectus included in the Registration Statement. In giving our consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Securities and Exchange Commission thereunder.

Very truly yours,

/s/ Bingham McCutchen LLP

BINGHAM McCUTCHEN LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Amendment No.1 to Form S-3 of our report dated February 3, 2005, except for Note 9, which is as of March 28, 2005, related to the consolidated financial statements of ADVENTRX Pharmaceuticals, Inc. and Subsidiary as of and for the years ended December 31, 2004 and 2003, and for the period from June 12, 1996 (date of inception) to December 31, 2004, which report appears in the Annual Report on Form 10-KSB for the year ended December 31, 2004 previously filed by ADVENTRX Pharmaceuticals, Inc. with the Securities and Exchange Commission.

/s/ J.H. COHN LLP

San Diego, California
September 1, 2005