As filed with the Securities and Exchange Commission on September 15, 2004

Registration Statement No. 333-117022

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	**84-1318182**
(State or other jurisdication of incorporation or organization	(I.R.S. Employer Identification No.)

6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(858) 552-0866
Fax : (858) 552-0876
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Steven M. Plumb, CPA
Chief Financial Officer
ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(858) 552-0866
Fax : (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
(415) 393-2503
Fax: (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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box: [X]

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, 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, 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 securities to be registered (1)	Amount to be registered	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
common stock, par value $0.001 per share	20,179,697 shares	$1.45	$29,260,560.65	$3,707.31(3)

(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.

(2) Estimated solely for purposes of calculating the amount of the registration fee. The estimate is made pursuant to Rule 457(a) of the Securities Act of 1933, as amended.

(3) Previously paid.

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: September 15, 2004

PROSPECTUS

20,179,697 Shares

Common Stock

ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego, California 92121
(858) 552-0866
Fax : (858) 552-0876

The security holders of ADVENTRX Pharmaceuticals, Inc. (the “Company”) listed in this prospectus are offering an aggregate of 20,179,697 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).

Each of 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. Each of 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 September 13, 2004, the last reported sale price of our common stock on the American Stock Exchange LLC was $1.46 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 ____ __, 2004

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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.

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 Room 1024, Judiciary Plaza , 450 Fifth Street, N.W. , 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 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

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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:

- the description of our common stock contained in the Registration Statement on Form 8-A filed with the Commission on April 27, 2004;
- our Annual Report on Form 10-KSB for the fiscal year ended December 31, 2003 filed with the Commission on March 26, 2004;
- our Quarterly Report on Form 10-QSB for the quarter ended March 31, 2004 filed with the Commission on May 12, 2004;
- our Current Report on Form 8-K filed with the Commission on April 5, 2004 , as amended on April 13, 2004;
- our Quarterly Report on Form 10-QSB for the quarter ended June 30, 2004 filed with the Commission on August 10, 2004;
- our Current Report on Form 8-K filed with the Commission on September 8, 2004; and
- any future filings we make with the Commission under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), until the selling security holders sell all of the common stock offered by them pursuant to 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:

Steven M. Plumb, CPA
Chief Financial Officer
ADVENTRX Pharmaceuticals, Inc.
6725 Mesa Ridge Road, Suite 100
San Diego , California 92121
(858) 552-0866

Our Company

We were initially organized as a corporation under the Delaware General Corporation Law in December 1995. In October 2000, we closed the merger of our wholly-owned subsidiary, Biokeys Acquisition Corp., with and into Biokeys, Inc. In consideration of the merger, we issued an aggregate of 6,999,990 shares of common stock to the holders of capital stock of Biokeys, Inc.

On May 30, 2003 , our then wholly-owned subsidiary, Biokeys, Inc., merged into us and we changed our name from Biokeys Pharmaceuticals, Inc. to ADVENTRX Pharmaceuticals, Inc. The merger had no effect on our financial statements.

We are a biomedical research and development business focused on treatments for viral infections and cancer. Our business is in the development stage; we have not generated any significant revenues or any operating revenues and we have not yet commercialized or marketed any products. Pursuant to license agreements with the University of Texas M.D. Anderson Cancer Center, the National Institutes of Health and the University of Southern California , we have been granted development, commercialization, manufacturing and marketing rights to a number of drug candidates in the fields of antiviral and anticancer therapy, which are in varying stages of development. Our goal is to become a leading developer of drug therapies for the treatment of the Human Immunodeficiency Virus, Acquired Immune Deficiency Syndrome and cancer.

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 $28,481,146 as of December 31, 2003 and $30,700,863 as of June 30, 2004. 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 Food and Drug Administration and successfully marketed. In addition, we funded 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 Food and Drug Administration 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 or government grants.

It is not expected that we will generate positive cash flow from operations for at least the next several years. As a result, substantial aditional equity or debt financing or the receipt of one or more government grants for research and development or clinical development will be required to fund our activities. We cannot be certain that we will be able to consummate any such financing on favorable terms, if at all, or receive any such goverment grants or that such financing or geovernment grants will be adequate to meet our capital requirements. Any additional equity financing could result in substantial dilution to stockholders, and debt financing, if available, will most likely involve restrictive covenants which 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

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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, or (vi) be affected by third parties holding proprietary rights that will preclude us from marketing a drug product. 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 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.

Positive results in preclinical and early 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 early 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.

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. In addition, other companies are pursuing the development of 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 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 Food and Drug Administration and other 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. Accordingly, competitors may succeed in commercializing products more rapidly or effectively than us, which would have a material adverse effect 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 its investments in developing new therapies. 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 Food and Drug Administration. 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 a number of federal and state proposals during the last few years to subject the pricing of health care goods and services, including prescription drugs, to government control and to make other changes to U.S. health care system. It is uncertain which legislative proposals will be adopted or what actions federal, state, or private payors for health care treatment and services may take in response to any health care reform proposals or legislation. We cannot predict the effect health care reforms may have on our business, and there is no guarantee that any such reforms will not have a material adverse effect on us.

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

The Food and Drug Administration 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.

The effect of government regulation and the need for Food and Drug Administration 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 Food and Drug Administration 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 the company's ability to utilize any of its 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 Food and Drug Administration 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 Food and Drug Administration 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 Food and Drug Administration approval of a drug may extend for years beyond that which is originally estimated. In addition, the Food and Drug Administration 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 Food and Drug Administration policy and the establishment of additional regulations during the period of product development and Food and Drug Administration 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 (iv) 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 M.D. Anderson, University of Southern California and the National Institutes of Health.

The patent positions of pharmaceutical companies, including those of the company, 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 the 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 M.D. Anderson, National Institutes of Health and University of Southern California, to terminate the agreements 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. The termination of any license agreement would 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. 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.

Our success is dependent on our key personnel.

We depend on a small management group and scientific/clinical team and on independent researchers, some of whom are inventors of the patents licensed to us for core technologies and drugs developed at M.D. Anderson and University of Southern California . Scientific personnel may from time to time serve as consultants to the company and may devote a portion of their time to our business, as well as continue to devote substantial time to the furtherance of our sponsored research at M.D. Anderson, University of Southern California and other affiliated institutions as may be agreed to in the future, but such personnel are not our employees and are not bound under written employment agreements. The services of such persons are important to us, and the loss of any of these services may adversely affect us.

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. There can be no assurance that we will be able to attract and retain such individuals on commercially acceptable terms or at all, and the failure to do so would have a material adverse effect on us.

We currently have no sales or marketing capability.

We currently do not have marketing or sales 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 the products of the company 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 Merck Eprova AG, Multiple Peptide Systems, Inc., Peptisyntha, Inc., deCode genetics, Inc., and MediChem Research, Inc. 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 Food and Drug Administration.

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 CRO (contract research organization) partners, when they begin in the U.S. and to expand its 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 us.

Insurance coverage is increasingly more difficult to obtain or maintain.

Obtaining insurance for our business, property and products is increasingly more costly and narrower in scope, and we may be required to assume more risk in the future. If we are subject to third-party claims or suffer a loss or damage in excess of our insurance coverage, we may be required to share that risk in excess of our insurance limits. Furthermore, any first- or third-party claims made on any of our insurance policies may impact our ability to obtain or maintain insurance coverage at reasonable costs or at all in the future.

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 our common stock.

We are not paying dividends on our common stock.

We have never paid cash dividends on our common stock, and do not intend to do so in the foreseeable future.

The issuance of shares of our preferred stock may adversely affect our common stock.

Our Board of Directors is authorized to designate one or more series of preferred stock and to fix the rights, preferences, privileges and restrictions thereof, without any action by the stockholders. The designation and issuance of such shares of our preferred stock may adversely affect the common stock, if the rights, preferences and privileges of such preferred stock (i) restrict the declaration or payment of dividends on common stock, (ii) dilute the voting power of common stock, (iii) impair the liquidation rights of the common stock or (iv) delay or prevent a change in control of the company from occurring, among other possibilities.

Under provisions of our certificate of incorporation, bylaws and Delaware law, our management may be able to block or impede a change in control.

The issuance of preferred stock may make it more difficult for a third party to acquire, or may discourage a third party from acquiring, a majority of the voting stock. These and other provisions of our certificate of incorporation and our by-laws, as well as certain provisions of Delaware law, could delay or impede the removal of incumbent directors and could make more difficult a merger, tender offer or proxy contest involving a change of control of the company, even if such events could be beneficial to the interest of the stockholders as a whole. Such provisions could limit the price that certain investors might be willing to pay in the future for our common stock.

Officers' and directors' liabilities are limited under Delaware law.

Pursuant to our certificate of incorporation and by-laws, as authorized under applicable Delaware law, directors are not liable for monetary damages for breach of fiduciary duty, except in connection with a breach of the duty of loyalty, for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, for dividend payments or stock repurchases illegal under Delaware law or for any transaction in which a director has derived an improper personal benefit. Our certificate of incorporation and by-laws provide that we must indemnify our officers and directors to the fullest extent permitted by Delaware law for all expenses incurred in the settlement of any actions against such persons in connection with their having served as officers or directors.

Use Of Proceeds

All of the shares of common stock 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 7,162,894 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 our common stock and shares of our common stock issuable upon exercise of warrants registered for sale under this prospectus (the "Registered Shares") are owned, as of the date of this prospectus, by 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 separate private placements or in consideration of services rendered to us. 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 undertanding with any selling security holder to distribute any of our securities.

The following table sets forth information as of August 31, 2004 with respect to the selling security holders and the respective number of shares of common stock beneficially owned by each selling security holder. For purposes of computing the number and percentage of shares beneficially owned by a selling security holder on August 31, 2004, 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:

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered(2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering(1)
Alan Sheinwald	19,500 (3)	*	19,500	0	0
Anasazi Partners II LLC	130,000 (4)	*	130,000	0	0
Anasazi Partners III LLC	337,498 (5)	*	337,498	0	0
Anasazi Partners III Offshore Ltd	337,498 (6)	*	337,498	0	0
Balkrishna E. Shagrithaya	162,500 (7)	*	37,500	125,000	*
Ball Family Trust (Edward D. Ball and Susan E. Ball, Trustees)	630,000 (8)	1.2	130,000	500,000	*
Benjamin Partners Savings Plan FBO Jeffrey Benison	65,000 (9)	*	65,000	0	0
Bristol Investment Fund, Ltd	399,998 (10)	*	399,998	0	0
BSI New BioMedical Frontier (SICAV)	1,134,500 (11)	2.1	800,000	334,500	*
BSI SA	149,250 (12)	*	149,250	0	0
Capital Ventures International	999,998 (13)	1.8	999,998	0	0
Castle Creek Healthcare Partners LLC	500,000 (14)	*	500,000	0	0
CD Investment Partners, Ltd.	375,000 (15)	*	375,000	0	0

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered (2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering (1)
Chicago Private Investments	65,000 (16)	*	65,000	0	0
Christopher Baker	546,000 (17)	1.0	475,000	71,000	*
Crescent International Ltd	270,000 (18)	*	270,000	0	0
Dannie King	32,500 (19)	*	32,500	0	0
David and Jennifer Brown	650 (20)	*	650	0	0
David W. Penney & Sarah B. McAllister	20,000 (21)	*	13,000	7,000	*
David Wiener Revocable Trust – 96	1,195,000 (22)	2.2	145,000	1,050,000	2.0

Deborah Melnick	13,000 (23)	*	13,000	0	0
Deborah Young, M.D. APC Employees Retirement Trust Y/A DTD 4/2/91	45,500 (24)	*	20,500	25,000	*
E. Todd Tracy	150,000 (25)	*	150,000	0	0
Enable Growth Partners	300,000 (26)	*	300,000	0	0
Gamma Opportunity Capital Partners, LP	399,998 (28)	*	399,998	0	0

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered (2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering (1)
Gene Salkind, M.D.	155,000 (29)	*	155,000	0	0
Gilad Ottensoser	7,000 (30)	*	7,000	0	0
Hans Gaverstrom	44,708 (31)	*	24,708	20,000	*
Haywood Securities Inc in Trust for Bridge Finance Ltd.	65,000 (32)	*	65,000	0	0
HSB Capital	32,500 (33)	*	32,500	0	0
James Ladner	75,452 (34)	*	50,485	24,967	*
Jay S. and Gabrielle Kunin	19,500 (35)	*	19,500	0	0
Jeff Hermanson	95,000 (36)	*	32,500	62,500	*
JIBS Equities	199,998 (37)	*	199,998	0	0
Jillian E. and Robert J. Boldway	20,750 (38)	*	7,500	13,250	*
John R. and Marjorie B. Brown	2,600 (39)	*	2,600	0	0
Jonathan Balk	173,750 (40)	*	32,250	141,500	*
Joseph Reynolds	65,000 (41)	*	65,000	0	0
Julie A. Gegner	3,250 (42)	*	750	2,500	*
Kanter Family Foundation	65,000 (43)	*	65,000	0	0

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered (2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering (1)
Kenneth Cerruto	15,000 (44)	*	15,000	0	0
Kenneth Greif	499,998 (45)	*	499,998	0	0
Laddcap Value Partners LP	150,000 (46)	*	150,000	0	0
Larry Rice	65,000 (47)	*	65,000	0	0
Lilienthal Investment Foundation	51,000 (49)	*	51,000	0	0
Lisa Rachlin	650 (50)	*	650	0	0
Longview Fund, LP	249,998 (51)	*	249,998	0	0
Marital Trust GST Subject U/T/W of Leopold Salkind DTD 10/29/02 , Marilyn Salkind, Gene Salkind, Trustees	32,500 (52)	*	32,500	0	0
Mark Collins	47,750 (53)	*	18,750	29,000	*
Mark A. Ford	13,000 (54)	*	13,000	0	0
Mark Eugene Reaman	32,500 (55)	*	32,500	0	0
Michael Elconin	13,000 (56)	*	13,000	0	0
Michael M. Goldberg	451,000 (57)	*	26,000	425,000	*
Michael Loew	212,498 (59)	*	87,498	125,000	*

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered (2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering (1)
OTAPE Investments LLC	99,998 (60)	*	99,998	0	0
Paul H. Robbins	162,500 (61)	*	37,500	125,000	*
Paul Scharfer	202,500 (62)	*	202,500	0	0
Peter Levitch	187,000 (63)	*	140,000	47,000	*
ProMed Offshore Fund, Ltd.	109,500 (64)	*	109,500	0	0
ProMed Partners II, L.P.	167,500 (65)	*	146,700	20,800	0
ProMed Partners, L.P.	676,500 (66)	1.3	676,500	0	0
RHP Master Fund, Ltd.	300,000 (67)	*	300,000	0	0
Richard & Carolyn Burgoon	6,500 (68)	*	1,500	5,000	*
Richard L. Hoffman and Ricki Hoffman	65,000 (69)	*	15,000	50,000	*
Richard Reiss	62,500 (71)	*	37,500	25,000	*
Ritchie Long/Short Trading Ltd.	750,000 (72)	1.4	750,000	0	0
Robert J. and Sandra S. Neborsky JTWROS	80,254 (73)	*	80,254	0	0

Name	Shares Owned Before Offering	Percent Owned Before Offering (1)	Shares Being Offered (2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering (1)
Robert J. Neborsky, MD, Inc. Combination Retirement Trust U/T/A 11/30/82	1,295,283 (74)	2.7	672,500	622,783	1.2
Robert Melnick	168,900 (75)	*	168,900	0	0
Robert Nathan	61,499 (76)	*	42,829	18,670	*
Sabbatical Ventures, LLC	30,000 (77)	*	30,000	0	0
Sandi Yurichuk	32,500 (78)	*	32,500	0	0
SF Capital Partners Ltd.	750,000 (80)	1.4	750,000	0	0
Sunrise Overseas, Ltd.	249,000 (81)	*	249,000	0	0
TCMP3 Partners	150,000 (82)	*	150,000	0	0
TEK Investments Inc.	1,375,000 (83)	2.5	375,000	1,000,000	1.9
Wayne Saker	60,000 (84)	*	60,000	0	0
Whalehaven Fund Limited	124,998 (85)	*	124,998	0	0
William Newman	116,000 (86)	*	116,000	0	0
Xmark Fund, L.P.	572,500 (87)	1.1	322,500	250,000	*
Xmark Fund, LTD	897,500 (88)	1.7	397,500	500,000	*

Name	Shares Owned Before Offering	Percent Owned Before Offering(1)	Shares Being Offered(2)	Shares Owned Upon Completion Of Offering	Percent Owned After Offering(1)
Stonestreet LP	349,998(89)	*	349,998	0	0
Sean Quinn	105,000(90)	*	105,000	0	0
Brian M. Herman	32,500(91)	*	32,500	0	0
Alpha Capital AG	499,998(92)	*	499,998	0	0
Katherine A. Wiener	65,000(93)	*	15,000	50,000	*
Sean M. Callahan	19,500(94)	*	19,500	0	0
Roland Hartmann	63,500(96)	*	63,500	0	0
Clariden Investments Ltd.	148,000(97)	*	148,000	0	0
SDS Merchant Fund, LP	1,137,500(98)	2.1	512,500	625,000	1.2
SDS Capital Group SPC, Ltd.	999,998(99)	1.8	999,998	0	0
BayStar Capital II, L.P.	300,000(100)	*	300,000	0	0
North Sound Legacy International Ltd.	384,000(101)	*	384,000	0	0

North Sound Legacy Institutional Fund LLC	198,000(102)	*	198,000	0	0
North Sound Legacy Fund LLC	18,000(103)	*	18,000	0	0
Bullbear Capital Partners, LLC	544,000(104)	*	544,000	0	0
Robert Wexler	47,500(107)	*	22,500	25,000	*
Crestview Capital Master, L.L.C.	999,998(108)	1.8	999,998	0	0
Jurg Fluck	11,700(109)	*	9,000	2,700	*
Greenwich Growth Fund Limited	99,998(110)	*	99,998	0	0
Bank Sal. Oppenheim jr. & Cie (Switzerland) AG	27,500(111)	*	7,500	20,000	*
Peter J. and Elaine Chortek Family Trust, dated January 24, 1994 as amended and restated	65,000(112)	*	65,000	0	0
Botka-Liu Family Revocable Trust, dated 8/10/2000	26,000(113)	*	26,000	0	0
Franklin M. Berger	254,998(114)	*	249,998	5,000	*
Scott Weisman	25,911(115)	*	15,455	10,456	*
Saad Investments Company Limited	225,000(116)	*	225,000	0	0

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* Less than 1.0%.

(1) The percentage of ownership of common stock is based on 53,811,072 shares of common stock outstanding as of August 31, 2004 and excludes all shares of common stock issuable upon the exercise of outstanding options or warrants to purchase common stock or conversion of any of our outstanding preferred 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 31, 2004.

(2) Options and warrants to purchase our common stock that are presently exercisable or exercisable within 60 days of August 31, 2004 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.

(3) Includes a warrant to purchase 4,500 shares of our common stock, all of which will be offered.

(4) Includes a warrant to purchase 30,000 shares of our common stock, all of which will be offered.

(5) Includes warrants to purchase 95,832 shares of our common stock, all of which will be offered.

(6) Includes warrants to purchase 95,832 shares of our common stock., all of which will be offered.

(7) Includes a warrant to purchase 37,500 shares of our common stock, all of which will be offered.

(8) Includes a warrant to purchase 30,000 shares of our common stock, all of which will be offered. Since February 2004, Edward D. Ball has been a member of our Scientific Advisory Board.

(9) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(10) Includes warrants to purchase 133,332 shares of our common stock, all of which will be offered.

(11) Includes warrants to purchase 200,000 shares of our common stock, all of which will be offered.

(12) Includes warrants to purchase 49,750 shares of our common stock, all of which will be offered.

(13) Includes warrants to purchase 333,332 shares of our common stock, all of which will be offered.

(14) Includes warrants to purchase 166,666 shares of our common stock, all of which will be offered.

(15) Includes warrants to purchase 125,000 shares of our common stock, all of which will be offered.

(16) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(17) Includes warrants to purchase 125,000 shares of our common stock, all of which will be offered.

(18) Includes warrants to purchase 90,000 shares of our common stock, all of which will be offered.

(19) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(20) Includes a warrant to purchase 150 shares of our common stock, all of which will be offered.

(21) Includes warrants to purchase 10,000 shares of our common stock, 3,000 of which will be offered.

(22) Includes warrants to purchase 45,000 shares of our common stock, all of which will be offered.

(23) Includes a warrant to purchase 3,000 shares of our common stock, all of which will be offered.

(24) Includes warrants to purchase 10,500 shares of our common stock, all of which will be offered.

(25) Includes warrants to purchase 50,000 shares of our common stock, all of which will be offered.

(26) Includes warrants to purchase 100,000 shares of our common stock, all of which will be offered.

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(27) Not used.

(28) Includes warrants to purchase 133,332 shares of our common stock, all of which will be offered.

(29) Includes warrants to purchase 45,000 shares of our common stock, all of which will be offered.

(30) Includes a warrant to purchase 7,000 shares of our common stock, all of which will be offered.

(31) Includes warrants to purchase 24,708 shares of our common stock, all of which will be offered.

(32) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(33) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(34) Includes warrants to purchase 20,495 shares of our common stock, all of which will be offered.

(35) Includes a warrant to purchase 4,500 shares of our common stock, all of which will be offered.

(36) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(37) Includes warrants to purchase 66,665 shares of our common stock, all of which will be offered.

(38) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(39) Includes a warrant to purchase 600 shares of our common stock, all of which will be offered.

(40) Includes warrants to purchase 32,250 shares of our common stock, all of which will be offered.

(41) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(42) Includes a warrant to purchase 750 shares of our common stock, all of which will be offered.

(43) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(44) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(45) Includes warrants to purchase 166,665 shares of our common stock, all of which will be offered.

(46) Includes warrants to purchase 50,000 shares of our common stock, all of which will be offered.

(47) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(48) Not used.

(49) Includes warrants to purchase 17,000 shares of our common stock, all of which will be offered.

(50) Includes a warrant to purchase 150 shares of our common stock, all of which will be offered.

(51) Includes a warrant to purchase 83,332 shares of our common stock, all of which will be offered.

(52) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(53) Includes a warrant to purchase 18,750 shares of our common stock, all of which will be offered.

(54) Includes a warrant to purchase 3,000 shares of our common stock, all of which will be offered.

(55) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(56) Includes a warrant to purchase 3,000 shares of our common stock, all of which will be offered.

(57) Includes a warrant to purchase 6,000 shares of our common stock, all of which will be offered, and 400,000 shares of common stock held by Emisphere Technologies, Inc., of which Mr. Goldberg is the Chief Executive Officer. Mr. Goldberg disclaims beneficial ownership of all shares of common stock held by Emisphere Technologies, Inc. Since January 2004, Mr. Goldberg has been a member of our Board of Directors.

(58) Not used.

(59) Includes warrants to purchase 54,165 shares of our common stock, all of which will be offered.

(60) Includes warrants to purchase 33,332 shares of our common stock, all of which will be offered.

(61) Includes a warrant to purchase 37,500 shares of our common stock, all of which will be offered.

(62) Includes warrants to purchase 67,500 shares of our common stock, all of which will be offered.

(63) Includes warrants to purchase 49,000 shares of our common stock, 40,000 of which will be offered.

(64) Includes warrants to purchase 36,500 shares of our common stock, all of which will be offered.

(65) Includes warrants to purchase 48,900 shares of our common stock, all of which will be offered.

(66) Includes warrants to purchase 225,500 shares of our common stock, all of which will be offered.

(67) Includes warrants to purchase 100,000 shares of our common stock, all of which will be offered. RHP Master Fund, Ltd. is a party to an investment management agreement with Rock Hill Investment Management, L.P., a limited partnership of which the general partner is RHP General Partner, LLC. Pursuant to such agreement, Rock Hill Investment Management directs the voting and disposition of shares owned by RHP Master Fund, Ltd. Messrs. Wayne Bloch, Gary Kaminsky and Peter Lockhart own all of the interests in RHP General Partner, LLC. The aforementioned entities and individuals disclaim beneficial ownership of shares of our common stock owned by RHP Master Fund, Ltd.

(68) Includes a warrant to purchase 1,500 shares of our common stock, all of which will be offered.

(69) Includes a warrant to purchase 15,000 shares of our common stock, all of which will be offered.

(70) Not used.

(71) Includes warrants to purchase 12,500 shares of our common stock, all of which will be offered.

(72) Includes warrants to purchase 250,000 shares of our common stock, all of which will be offered.

(73) Includes warrants to purchase 60,254 shares of our common stock, all of which will be offered.

(74) Includes warrants to purchase 287,500 shares of our common stock, all of which will be offered.

(75) Includes warrants to purchase 52,500 shares of our common stock, all of which will be offered.

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(76) Includes a warrant to purchase 42,829 shares of our common stock, all of which will be offered.

(77) Includes a warrant to purchase 30,000 shares of our common stock, all of which will be offered.

(78) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(79) Not used.

(80) Includes warrants to purchase 250,000 shares of our common stock, all of which will be offered.

(81) Includes warrants to purchase 83,000 shares of our common stock, all of which will be offered.

(82) Includes warrants to purchase 50,000 shares of our common stock, all of which will be offered.

(83) Includes a warrant to purchase 375,000 shares of our common stock, all of which will be offered.

(84) Includes warrants to purchase 20,000 shares of our common stock, all of which will be offered.

(85) Includes warrants to purchase 41,665 shares of our common stock, all of which will be offered.

(86) Includes warrants to purchase 32,000 shares of our common stock, all of which will be offered.

(87) Includes warrants to purchase 157,500 shares of our common stock, all of which will be offered.

(88) Includes warrants to purchase 232,500 shares of our common stock, all of which will be offered.

(89) Includes warrants to purchase 116,665 shares of our common stock, all of which will be offered.

(90) Includes warrants to purchase 35,000 shares of our common stock, all of which will be offered.

(91) Includes a warrant to purchase 7,500 shares of our common stock, all of which will be offered.

(92) Includes warrants to purchase 166,665 shares of our common stock, all of which will be offered.

(93) Includes warrants to purchase 15,000 shares of our common stock, all of which will be offered.

(94) Includes warrants to purchase 4,500 shares of our common stock, all of which will be offered.

(95) Not used.

(96) Includes warrants to purchase 18,500 shares of our common stock, all of which will be offered.

(97) Includes warrants to purchase 51,000 shares of our common stock, all of which will be offered.

(98) Includes warrants to purchase 262,500 shares of our common stock, all of which will be offered.

(99) Includes warrants to purchase 333,332 shares of our common stock, all of which will be offered. We have been advised by SDS Capital Group SPC, Ltd. that it is also the beneficial owner of the 1,137,500 shares of our common stock beneficially owned by SDS Merchant Fund, LP.

(100) Includes warrants to purchase 100,000 shares of our common stock, all of which will be offered.

(101) Includes warrants to purchase 128,000 shares of our common stock, all of which will be offered.

(102) Includes warrants to purchase 66,000 shares of our common stock, all of which will be offered.

(103) Includes warrants to purchase 6,000 shares of our common stock, all of which will be offered.

(104) Includes a warrant to purchase 75,000 shares of our common stock, all of which will be offered.

(105) Not used.

(106) Not used.

(107) Includes warrants to purchase 12,500 shares of our common stock, all of which will be offered.

(108) Includes warrants to purchase 333,332 shares of our common stock, all of which will be offered.

(109) Includes a warrant to purchase 2,700 shares of our common stock, none of which will be offered.

(110) Includes warrants to purchase 33,332 shares of our common stock, all of which will be offered.

(111) Includes warrants to purchase 2,500 shares of our common stock, all of which will be offered.

(112) Includes warrants to purchase 15,000 shares of our common stock, all of which will be offered.

(113) Includes a warrant to purchase 6,000 shares of our common stock, all of which will be offered.

(114) Includes warrants to purchase 83,332 shares of our common stock, all of which will be offered.

(115) Includes warrants to purchase 10,000 shares of our common stock, all of which will be offered.

(116) Includes warrants to purchase 75,000 shares of our common stock, all of which will be offered.

Within the past three years, other than as noted in footnotes 8 and 57, none of the selling security holders had any position, office or other material relationship with us or any of our predecessors or affiliates.

PLAN OF DISTRIBUTION

We are registering the shares of common stock on behalf of the selling security holders. Sales of shares may be made by selling security holders, including their respective donees, transferees, pledgees 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 and/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.

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 or pledgee 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 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, 2003 and 2002, and the related consolidated statements of operations, stockholders' equity (deficit) and cash flows for the years then ended and for the period from June 12, 1996 (date of inception) through December 31, 2003, 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 indicated 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 the other auditors.

20,179,697 SHARES

ADVENTRX PHARMACEUTICALS, INC.

COMMON STOCK

_____

PROSPECTUS

_____

_____, 2004

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	$3,707.31
Legal Fees and Expenses	$70,000.00
Accounting Fees and Expenses	$25,000.00
Miscellaneous Fees and Expenses	$500.00
Total	**$99,207.31**

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 may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

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

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

a) The undersigned registrant hereby undertakes:

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

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

(b) To reflect in this prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement;

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

provided, however, that paragraphs (1)(a) and (1)(b) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the registration statement.

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

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

b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described under,Item 15, Indemnification of Directors and Officers' 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 to 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 is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

c) The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus 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 15, 2004.

ADVENTRX Pharmaceuticals, Inc.

By: /s/ Steven M. Plumb

Name: Steven M. Plumb, CPA

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.

Signature	Title	Date
/s/ M. Ross Johnson*	Director, Chairman of the Board	September 15, 2004
M. Ross Johnson, Ph.D		
/s/ Evan M. Levine	Chief Executive Officer and President (Principal Executive Officer), Vice-Chairman of the Board and Secretary	September 15, 2004
Evan M. Levine		
/s/ Steven M. Plumb	Chief Financial Officer (Principal Financial and Accounting Officer)	September 15, 2004
Steven M. Plumb, CPA		
/s/ Michael M. Goldberg*	Director	September 15, 2004
Michael M. Goldberg, M.D.		
/s/ Mark J. Pykett*	Director	September 15, 2004
Mark J. Pykett, V.M.D., Ph.D.		
/s/ Mark Bagnall*	Director	September 15, 2004

Mark Bagnall

*By: /s/ Steven M. Plumb — September 15, 2004

Steven M. Plumb,
Attorney-in-fact

Exhibit Index

Exhibit Number	Description
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*	Common Stock and Warrant Purchase Agreement, dated as of April 5, 2004 , among the Registrant and the Investors named therein
4.2*	A-1 Warrant to Purchase Common Stock issued to Investors pursuant to the Common Stock and Warrant Purchase Agreement with the Investors
4.3*	A-2 Warrant to Purchase Common Stock issued to Investors pursuant to the Common Stock and Warrant Purchase Agreement with the Investors
4.4 (3)	Common Stock and Warrant Purchase Agreement, dated April 8, 2004 , between the Registrant and CD Investment Partners, Ltd.
4.5 (3)	A-1 Warrant to Purchase Common Stock issued to CD Investment Partners, Ltd.
4.6 (3)	A-2 Warrant to Purchase Common Stock issued to CD Investment Partners, Ltd.
4.7 (3)	Warrant to Purchase Common Stock issued on April 8, 2004 to Burnham Hill Partners
4.8 (3)	Warrant to Purchase Common Stock issued on April 8, 2004 to Ernest Pernet
4.9 (3)	Warrant to Purchase Common Stock issued on April 8, 2004 to W.R. Hambrecht + Co. , LLC
4.10*	Registration Rights Agreement, dated as of April 5, 2004 , among the Registrant and the Investors named therein
4.11 (3)	Registration Rights Agreement, dated as of April 8, 2004 , between the Registrant and CD Investment Partners, Ltd.
4.12	Not used
4.13	Not used
4.14 (4)	Common Stock and Warrant Purchase Agreement, dated April 19, 2004 , between the Registrant and Franklin Berger
4.15 (4)	A-1 Warrant to Purchase Common Stock issued to Franklin Berger
4.16 (4)	A-2 Warrant to Purchase Common Stock issued to Franklin Berger
4.17 (4)	Registration Rights Agreement, dated as of April 8, 2004 , between the Registrant and Franklin Berger
4.18	Registration Rights Agreement, dated _____, 2001, between the Registrant and certain stockholders
4.19*	Warrant to Purchase Common Stock issued by the Registrant
4.20*	Stock Subscription Agreement
4.21*	Warrant to Purchase Common Stock issued by the Registrant
4.22*	Warrant for the Purchase of Shares of Common Stock No. WA-2A issued June 14, 2001 to Robert J. Neborsky and Sandra S. Neborsky, JTWROS
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)

* Previously filed.

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

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

(3) Incorporated by reference to the same-numbered exhibit to the Company's Current Report on Form 8-K, as amended, dated April 5, 2004.

(4) Incorporated by reference to the same-numbered exhibit to the Company's Quarterly Report on Form 10-QSB filed May 12, 2004.

EXHIBIT 4.18

REGISTRATION RIGHTS AGREEMENT

THIS REGISTRATION RIGHTS AGREEMENT, dated as of [see attached schedule], 2001, by and between Biokeys Pharmaceuticals, Inc, a Delaware corporation (the "Company"), and the undersigned holder (the "Holder") of the Company's Promissory Notes (the "Notes") and warrants ("Warrants").

RECITALS

A. The Holder is purchasing from the Company, and the Company desires to issue and sell to the Holder, (i) Notes, on which the Holder will be receiving interest in the form of shares of the Company's Common Stock, $.001 par value ("Common Stock") Common Stock, and (ii) Warrants entitling the Holder to purchase Common Stock upon the exercise thereof as set forth in Agreement (the "Subscription Agreement") between the Company and the Holder (collectively, with any other holders purchasing Notes and Warrants under a similar Subscription Agreement, "Holders").

B. As partial inducement for the Holder to purchase the Notes and Warrants, the Company hereby grants the Holder the registration rights set forth herein, upon the terms and subject to the conditions set forth herein.

The Company and the Holder hereby agree as follows:

1. DEFINITIONS. For the purposes of this Agreement:

(a) The terms "register," "registered" and "registration" refer to a registration effected by preparing and filing a registration statement or statements or similar documents in compliance with the Securities Act of 1933, as amended ("Securities Act"), the Securities Exchange Act of 1934, as amended ("Exchange Act") and pursuant to Rule 415 under the Securities Act or any successor rule providing for offering securities on a continuous basis ("Rule 415"), and the declaration or ordering of effectiveness of such registration statement or document by the Securities and Exchange Commission (the "SEC").

(b) The term "Registerable Securities" means (i) shares of Common Stock issued in payment interest on the Notes, (ii) shares of Common Stock issued upon the exercise of the Warrants, and (iii) any Common Stock issued in replacement of any Notes or Warrants, including any Registerable Securities sold by a holder of such Registerable Securities in a transaction in which Registrable Securities and registration rights under this Agreement are permitted to be assigned.

2. PIGGYBACK REGISTRATION.

(a) Notice. If, beginning at anytime from the earlier of (i) one year after issuance of the Notes by the Company and (ii) four months after the next public offering of securities by the Company, and continuing until December 31, 2006, the Company proposes to file a registration statement under the Securities Act (a "Registration Statement"), other than a registration on Form S-8 or Form S-4 with respect to an offering for its own account or for the account of others of any class of securities of the Company, then, at each such time, the Company shall give written notice of such intention to file a Registration Statement (a "Piggyback Notice") to each Holder at least twenty (20) days before the anticipated filing date of the Registration Statement. The Piggyback Notice shall describe the intended method of distribution, and shall offer each Holder the opportunity to register pursuant to such Registration Statement such Registrable Securities as the Holder may request in writing to the Company within twenty (20) days after the date the Holder first received the Piggyback Notice (a "Piggyback Registration"). After receipt of such request from the Holder, the Company shall take all necessary steps, subject to the provisions of the following paragraph (b), to include in the Registration Statement all Registrable Securities which the Company has been so requested to register by the Holder and to keep such Registration Statement effective until the later of (i) the sale of all such Registrable Securities and (ii) the date all such Registrable Securities may be sold without restrictions or limitations pursuant to Rule 144(k) of the Securities Act. The Company shall be entitled to withdraw a Registration Statement (not filed pursuant to Section 3 hereof) prior to its becoming effective, but such withdrawal shall not affect subsequent rights of Holder.

(b) Underwritten Registrations. In a registration pursuant to this Section 2 involving an underwritten offering, whether or not for sale for

the account of the Company, any request pursuant to this Section 2 may require that all Registrable Securities be included in such offering on identical terms and conditions. If the offering is a public offering of the Company's securities, and if the managing underwriter with respect to such an offering advises the Company in writing that the inclusion of all the Registrable Securities which the Holder requested to be included in the Registration Statement would materially jeopardize the success of the offering, then the Company shall be required to include in the underwriting only that number, if any, of Registrable Securities which the underwriter advises the Company in writing may be sold without materially jeopardizing the offering. Any reduction to be made by such managing underwriter in the amount of Registrable Securities to be included in such underwriting shall be made pro rata among each Holder. Any Holder disapproving of the terms of any such underwriting may elect to withdraw such Holder's Registrable Securities from registration by written notice to the Company and the underwriter not later than 15 days prior to the effective date of any registration.

3. LIMITATIONS ON THE COMPANY'S OBLIGATIONS. The obligations of the Company to cause Registrable Securities to be registered under the Securities Act as provided in this Agreement are subject to each of the following limitations, conditions and qualifications:

(a) The Company shall be entitled, for a period of time not to exceed 45 consecutive days, to postpone the filing of any registration statement otherwise required to be prepared and filed by it pursuant to Section 2 or 3 above and/or to request that the Holders refrain from effecting any public sales or distributions of their Registrable Securities if the Board of Directors of the Company in good faith determines in its reasonable business judgment that such registration and/or such public sales or distributions would interfere in any material respect with any financing (other than an underwritten secondary offering of any securities of the Company), acquisition, corporate reorganization or other transaction or development involving the Company or any subsidiary of the Company that in the reasonable good faith business judgment of such Board is a transaction or development that is or would be material to the Company (a "Material Development Election"). The Board of Directors of the Company shall, as promptly as practicable, give the Holders written notice of any such Material Development Election. In the event of a determination by the Board of Directors to postpone the filing of a registration statement required to be filed under Section 2 or 3 hereof, the Company shall be required, if Holders of at least 50% of the outstanding Notes so request, to file such registration statement as soon as reasonably practicable after the Board of Directors of the Company shall determine, in its reasonable business judgment, that the filing of such registration statement and the offering thereunder shall not interfere with the aforesaid material transaction or development, but in any event no later than the end of such 45-day period. In addition, if the Board of Directors of the Company has requested that the Holders refrain from making public sales or distributions of their Registrable Securities, such Board shall, immediately following its determination that the Holders may recommence such public sales and distributions, notify such Holders in writing of such determination (but in any event no later than the end of such 45-day period).

4. REGISTRATION EXPENSES. All expenses incident to a Piggyback Registration, including, without limitation, all registration and filing fees, fees and expenses of compliance with securities or blue sky laws, printing expenses, messenger, telephone and delivery expenses, and fees and, disbursements of counsel for the Company and counsel for the Holders (but not more than one counsel for the Holders per registration) and of all independent public accountants of the Company (including the expenses of any special audit and "comfort" letters required by or incident to the performance of such services), underwriting expenses (excluding (a) discounts, commissions or fees of underwriters, selling brokers, dealer managers or similar securities industry professionals relating to the distribution of the Registrable Securities which shall be paid by the selling Holders on a pro rata basis based on the number of Registrable Securities being sold by them and (b) any stock transfer taxes incurred with respect to the distribution of the Registrable Securities), securities acts liability insurance and fees and expenses of other persons or entities retained by the Company, will be borne by the Company whether or not any Registration Statement become effective.

5. HOLDBACK AGREEMENTS. In connection with any underwritten public offering for the Company's account, each Holder of Registrable Securities agrees not to effect any public sale or distribution of Common Stock, including a sale pursuant to Rule 144 or in reliance on any other exemption from registration under the Securities Act, during the 120 day period beginning on the effective date of any Registration Statement (except as a participant in such registration), but only if and to the extent requested in writing (with reasonable prior written notice) by an underwriter(s) and only if and to the extent (i) that all executive officers and directors of the Company holding five (5%) percent or more of the Company's securities, and (ii) all holders of ten (10%) percent or more of the Company's securities, enter into identical agreements. Any such agreement shall be in writing in a form satisfactory to a majority in interest of the Holders.

6. REGISTRATION PROCEDURES.

(a) In connection with any registration required or permitted under this Agreement, the Company covenants and agrees that it will promptly:

(i) prepare and file with the Commission a Registration Statement with respect to the Registrable Securities and use its continuing best efforts to cause such Registration Statement to become and remain effective;

(ii) notify each Holder of Registrable Securities included in such registration promptly after it shall receive notice thereof, of the time such Registration Statement has become effective or any supplement to any prospectus forming a part of such Registration Statement has been filed;

(iii) notify each Holder of Registrable Securities included in such registration promptly of any request by the Commission for the amendment or supplement of such Registration Statement or prospectus or of a request for additional information;

(iv) prepare and file with the Commission such amendments and supplements to such Registration Statement and the prospectus used in connection therewith and such other documents necessary to comply with the Securities Act, the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations promulgated under the Securities Act and the Exchange Act, as may be necessary to keep such Registration Statement filed pursuant to this Agreement effective for a period of not less than twelve months and comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such Registration Statement during such period in accordance with the intended methods of disposition by the sellers thereof set forth in such Registration Statement;

(v) furnish to each Holder of Registrable Securities included in such registration such number of copies of such Registration Statement, each amendment and supplement thereto, the prospectus included in such Registration Statement (including each preliminary prospectus) and such other documents, including correspondence with the Commission, as such Holder may reasonably request in order to facilitate the disposition of the Registrable Securities owned by such Holder;

(vi) concurrently with the effectiveness of the Registration Statement under the Securities Act, qualify the Registrable Securities under such other securities or "blue sky" laws of such jurisdictions as each Holder reasonably may request, and do any and all other acts and things necessary to enable each Holder to consummate the sale of the Registrable Securities owned by such Holder; provided that the Company shall not be required in connection with this paragraph (vi) to qualify as a foreign corporation or execute a general consent to service of process in any jurisdiction where the Company is not then so qualified or subject to service of process or to subject the Company to income taxation in any jurisdiction where it is not then so subject;

(vii) notify each Holder of Registrable Securities included in such registration, at any time when a prospectus relating thereto, is required to be delivered under the Securities Act, of the happening of any event as a result of which the prospectus included in such Registration Statement contains an untrue statement of a material fact or omits any fact necessary to make any statement therein not misleading in light of the circumstances in which such statement is made, and prepare and furnish to such Holder a reasonable number of copies of a supplement to or amendment of such prospectus so that, as thereafter delivered to the purchasers of such Registrable Securities, such prospectus will not contain an untrue statement of a material fact or omit to state any fact necessary to make the statements therein not misleading in light of the circumstances in which they are made;

(viii) advise each Holder of Registrable Securities included in such registration promptly after it shall receive notice or obtain knowledge of the issuance of any stop order by the Commission suspending the effectiveness of any such Registration Statement or the initiation or threat of any proceeding for that purpose and promptly use its reasonable best efforts to prevent the issuance of any stop order or to obtain its withdrawal if such stop order should be issued;

(ix) use its reasonable best efforts to cause all such Registrable Securities to be listed on each securities exchange or reported on each consolidated reporting system on which similar securities issued by the Company are then listed or reported, as the case may be;

(x) provide a transfer agent and registrar for all such Registrable Securities not later than the effective date of such Registration Statement;

(xi) allow each Holder of Registrable Securities included in such registration to participate in the preparation of the Registration Statement, each prospectus included therein or filed with the Commission and each amendment or supplement thereto and make available for inspection by each Holder, any underwriter participating in any disposition pursuant to such Registration Statement, and any attorney, accountant or other agent retained by such Holder or such underwriter, all financial and other records, pertinent corporate documents and properties of the Company and cause the Company's officers, directors, employees and independent accountants to supply all information reasonably requested by such Holder, underwriter, attorney, accountant or agent in connection with such Registration Statement, subject to the right of the Company to require confidentiality agreements in a form reasonably acceptable to the Company and such Holder; and

(xii) furnish, at the request of any Holder or Holders requesting registration of Registrable Securities pursuant to this Agreement, on the date that such Registrable Securities are delivered to the underwriters for the sale pursuant to such registration or, if such Registrable Securities are not being sold through underwriters, on the date that the registration statement with respect to such Registrable Securities becomes effective, an opinion, dated such date, of the independent counsel representing the Company for the purposes of such registration, addressed to the underwriters, if any, and to the Holder or Holders making such request, covering such legal matters with respect to the registration in respect of which such opinion is being given as the Holder requesting such opinion may reasonably request; provided such matters are of a nature that legal counsel are normally required to opine upon in connection with such a registration or offering, and a letter dated such date, from the independent certified public accountants of the Company, addressed to the underwriters, if any, and to the Holder or Holder making such request, stating that they are independent certified public accountants within the meaning of the Securities Act and that in the opinion of such accountants, the financial statements and other financial data of the Company included in the registration statement or prospectus, or any amendment or supplement thereto, comply as to form in all material respects with the applicable accounting requirements of the Securities Act. Such letter from the independent certified public accountants shall additionally cover such other financial matters with respect to the registration in respect of which such letter is being given as the Holder requesting such letter may reasonably request; provided such matters are of a nature that accountants are normally required to opine upon in connection with such registration.

(b) The Company may require each Holder participating in a registration hereunder to furnish the Company such information regarding such Holder and the distribution of such Registrable Securities as the Company may from time to time reasonably request in writing and as shall be required by law to effect such registration. Each holder, as a condition of participating in such registration, shall furnish such information, which shall be complete, correct and not misleading.

(c) The Holder or Holders who include Registrable Securities in any registration under this Agreement shall distribute those Registrable Securities in a manner consistent with the distribution described in the relevant registration statement.

7. RULE 144. After a Public Offering, the Company shall take all actions reasonably necessary to enable the Holder to sell Registrable Securities without registration under the Securities Act within the limitation of the exemptions provided by (a) Rule 144 under the Securities Act, as such Rule may be amended from time to time, or (b) any similar rule or regulation hereafter adopted by the Commission, including, without limiting the generality of the foregoing, filing on a timely basis all reports required to be filed under the Exchange Act, but shall not be liable for any damages resulting from an inability of a Holder to rely on Rule 144 if the Company was not timely in its filings because of circumstances beyond its reasonable control. Upon the request of any Holder, the Company will deliver to such Holder a written statement as to whether it has complied with such requirements and shall provide such Holder with such publicly filed documents of the Company as are reasonably requested by such Holder in connection with such sale.

8. INDEMNIFICATION.

(a) Indemnification by the Company. In the event of any registration of any of the Registrable Securities under the Securities Act pursuant to this Agreement, the Company will indemnify and hold harmless each Holder participating in the registration, its directors, officers and partners and each underwriter involved in such registration and each other person, if any, who controls each selling Holder or underwriter within the meaning of the Securities Act or the Exchange Act against any losses, claims, damages or liabilities, joint or several, to which each selling Holder or its officers, directors, or partners or underwriter may become subject insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of any material fact contained in any Registration Statement under which such Registrable Securities were registered under the Securities Act, any preliminary prospectus or final prospectus contained in such Registration Statement, or any amendment or supplement to such Registration Statement, or arise out of or are based upon the omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading in light of the circumstances in which they are made, and will reimburse such selling Holder, its officers, directors, and partners and such underwriter and each such controlling person for any legal or any other expenses reasonably incurred by any of them as they are incurred in connection with investigating or defending any such loss, claim, damage, liability or action; provided, however, that the Company will not be liable to any selling Holder or its officers, directors, or partners, or underwriter and controlling persons in any such case to the extent

that any such loss, claim, damage or liability arises out of or is based upon any untrue statement or omission made in such Registration Statement, preliminary prospectus or final prospectus, or any such amendment or supplement thereto, (i) in reliance upon and in conformity with information furnished to the Company, in writing, by or on behalf of such selling Holder or its officers, directors, or partners, or underwriter and controlling persons, specifically for use in the preparation of such Registration Statement, preliminary prospectus or final prospectus or amendment or supplement thereto, or (ii) where such untrue statement or omission or alleged untrue statement or omission (A) was corrected in a subsequent final prospectus delivered in sufficient number to the selling Holder and with sufficient time to permit distribution by such selling Holder, (B) such selling Holder failed to so distribute such subsequent final prospectus, and (C) to the extent such distribution would have avoided the applicable loss, claim, damage, liability or action.

(b) Indemnification by the Holder. In the event of any registration of any of the Registrable Securities under the Securities Act pursuant to this Agreement, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, each of its directors, and officers, each underwriter involved in such registration, each other selling Holder and their respective officers, directors, and partners and each person, if any, who controls the Company or any such underwriter or selling Holder within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages or liabilities (or actions in respect thereof), to which the Company, such directors and officers, such underwriter or selling Holder or its respective officers, directors, stockholders or partners or controlling person may become subject, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in any Registration Statement under which such Registrable Securities were registered under the Securities Act, any preliminary prospectus or final prospectus contained in such Registration Statement, or any amendment or supplement to such Registration Statement, or arise out of or are based upon any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading in light of the circumstances in which they are made, and will reimburse the Company, the underwriters, each other selling Holder and their respective officers, directors, stockholders, partners and controlling person for any legal or any other expenses reasonably incurred by any of them in connection with investigating or defending any such loss, claim, damage, liability or action, if the statement or omission was made in reliance upon and in conformity with information furnished in writing to the Company by or on behalf of such selling Holder or its officers, directors, stockholders or partners or controlling persons, specifically for use in connection with the preparation of such Registration Statement, preliminary prospectus or final prospectus or amendment or supplement thereto; provided, however, that the maximum obligation of each selling Holder for indemnification shall be limited to the net proceeds received by it from the sale of Registrable Securities pursuant to such Registration Statement.

(c) Required Notices. Each party entitled to indemnification under this Section 8 (the "Indemnified Party") shall give notice to the party required to provide indemnification (the "Indemnifying Party") promptly after the Indemnified Party has actual knowledge of any claim as to which indemnity may be sought and, with respect to third party claims, shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting from it, provided that counsel for the Indemnifying Party who shall conduct the defense of such claim or litigation must be approved by the Indemnified Party (whose approval shall not unreasonably be withheld), and provided further that the failure of any Indemnified Party to give notice as provided in this Section 8(c) shall not relieve the Indemnifying Party of its obligations under Sections 8(a) or (b), as the case maybe except to the extent such Indemnifying Party was actually prejudiced thereby. The Indemnified Party shall have the right to employ its own counsel in any claim or litigation, but, with respect to third party claims or litigation, the fees and expenses of counsel shall be at the expense of such Indemnified Party, when and as incurred, unless the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defense of such claim or litigation (in which case the Indemnifying Party shall not have the right to direct the defense of such claim or litigation on behalf of the Indemnified Party), or the Indemnifying Party shall fail, within a reasonable time after notice of the claim, to have given written notice of its intention to assume such defense, and to have employed counsel to assume the defense of such claim or litigation, or the Indemnifying Party fails timely and actively to assume or to continue the defense of such claim. No Indemnifying Party, in the defense of any claim or litigation, shall, without the consent of the Indemnified Party, consent to entry of any judgment or enter into any settlement that does not include as an unconditional term the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect of such third party claim or litigation. In no event shall an Indemnified Party consent to any entry of any judgment in a third party claim or litigation, or settle a third party claim or litigation without the prior written consent of the Indemnifying Party unless the Indemnifying Party fails to timely give notice of its intention to assume defense or timely and actively to assume and continue such defense.

9. ASSIGNABILITY. The rights granted in this Agreement may be assigned in whole or in part by a Holder, but only along with a permitted assignment of Registrable Securities by such Holder. Nothing contained herein shall be deemed to permit an assignment, transfer or other disposition of Notes or Warrants in violation of the terms and conditions of the Subscription Agreement.

10. NOTICES.

(a) All notices, consents, requests, demands and other communications required or permitted to be given under this Agreement shall be in writing and delivered personally, receipt acknowledged, or mailed by registered or certified mail, postage prepaid, return receipt requested, or sent by overnight express delivery service, or given by telecopier transmission and confirmed by one of the preceding notice delivery methods, addressed to the parties hereto as follows (or to such other addresses as any of the parties hereto shall specify by notice given in accordance with this provision):

If to the Company to:

Biokeys Pharmaceuticals, Inc.
333 N. Sam Houston Parkway
Suite 1035
Houston, Texas 77060

or at such other address as it may have furnished in writing to the Holder of Registrable Securities at the time outstanding, or

If to the Holder of any Registrable Securities:

To the address of such Holder as recorded in the stockholder records of the Company.

(b) All such notices, consents, requests, demands and other communications shall be deemed given when personally delivered as aforesaid, or, if mailed or sent by overnight service as aforesaid, on the third business day after the mailing thereof or on the day actually received, if earlier, except for a notice of a change of address which shall be effective only upon receipt.

11. AMENDMENT, WAIVER AND TERMINATION. This Agreement maybe amended, and the observance of any term of this Agreement may be waived, but only with the written consent of the Company and the Holder. No delay on the part of any party in the exercise of any right, power or remedy shall operate as a waiver thereof, nor shall any single or partial exercise by any party of any right, power or remedy preclude any other or further exercise thereof, or the exercise of any other right, power or remedy.

12. COUNTERPARTS. One or more counterparts of this Agreement may be signed by the parties, each of which shall be an original but all of which together shall constitute one and the same instrument.

13. BINDING EFFECT. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors, heirs, personal representatives, administrators, executors and permitted assigns. Nothing contained in this Agreement is intended to confer upon any person or entity, other than the parties hereto or their respective successors, heirs, personal representatives, administrators, executors or permitted assigns, any rights, benefits, obligations remedies or liabilities under or by reason of this Agreement.

14. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of New York with respect to contracts made and to be fully performed therein, without regard to the conflicts of laws principles thereof. The parties hereto hereby agree that any suit or proceeding arising under this Agreement, or in connection with the consummation of the transactions contemplated hereby, shall be brought solely in a federal or state court located in the City, County and State of New York. By its execution hereof, the Company hereby consents and irrevocably submits to the in personam jurisdiction of the federal and state courts located in the City, County and State of New York and agrees that any process in any suit or proceeding commenced in such courts under this Agreement may be served upon it personally or by certified or registered mail, return receipt requested, or by Federal Express or other courier service, with the same force and effect as if personally served upon it in New York City (or in the city or county in which such other court is located). The parties hereto each waive any claim that any such jurisdiction is not a convenient forum for any such suit or proceeding and any defense of lack of in personam jurisdiction with respect thereto.

15. INVALIDITY OF PROVISIONS. If any provision of this Agreement is or becomes invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not be affected thereby.

16. HEADINGS. The headings in this Agreement are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

IN WITNESS WHEREOF, the undersigned has executed this Agreement as of the date first set forth above.

BIOKEYS PHARMACEUTICALS, INC.

By: /s/ Warren Lau

President

HOLDER:

(see schedule on next page)

Print Name

Position (if applicable):

SCHEDULE OF HOLDERS

Each of the persons listed below executed this form of Registration Rights Agreement as a "Holder" effective as of the date set forth opposite such persons name below:

HOLDER	EFFECTIVE DATE
Ernst Pernet	November 14, 2001
Robert J. Neborsky, MD, Inc. Combination Retirement Trust U/T/A 11/30/82	October 29, 2001
Scott Weisman	October 30, 2001

Exhibit 5.1

September 15, 2004

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

Attention: Steven M. Plumb, CPA
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, pursuant to a Registration Statement on Form S-3 (Registration No. 333-117022) (the "Registration Statement") to be filed by the Company with the Securities and Exchange Commission on or about the date of this opinion, on behalf of selling securityholders.
The Shares were issued, or are issuable pursuant to warrants which were issued, by the Company in transactions which occurred between September 15, 1998, and June 3, 2004.

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 September 15, 2004.

B. The Certificate of Good Standing of the Company, issued by the Delaware Secretary of State on September 15, 2004.

C. The By-Laws of the Company, certified by the Secretary of the Company on September 15, 2004.

D. Records of proceedings and actions of the Board of Directors of the Company.

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.

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

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Amendment No. 1 to the Registration Statement on Form S-3/A of our report dated February 13, 2004, on our audit of the consolidated financial statements of ADVENTRX Pharmaceuticals, Inc. as of and for the years ended December 31, 2003 and 2002, and for the period from June 12, 1996 (date of inception) through December 31, 2003, which report appears in the Annual Report on Form 10-KSB for the year ended December 31, 2003 previously filed by ADVENTRX Pharmaceuticals, Inc. with the Securities and Exchange Commission. We also consent to the related reference to our Firm under the caption "Experts".

/s/J.H. COHN LLP

San Diego, California
September 15, 2004