AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON AUGUST 10, 2001

REGISTRATION NO. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-3
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

LEXICON GENETICS INCORPORATED
(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE	76-0474169
(STATE OR OTHER JURISDICTION OF INCORPORATION OR ORGANIZATION)	(I.R.S. EMPLOYER IDENTIFICATION NUMBER)

4000 RESEARCH FOREST DRIVE
THE WOODLANDS, TEXAS 77381
(281) 364-0100

(ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF REGISTRANT'S PRINCIPAL EXECUTIVE OFFICES)

ARTHUR T. SANDS, M.D., PH.D.
PRESIDENT AND CHIEF EXECUTIVE OFFICER
4000 RESEARCH FOREST DRIVE
THE WOODLANDS, TEXAS 77381

(281) 364-0100

(NAME, ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF AGENT FOR SERVICE)

COPIES TO:

DAVID P. OELMAN	JEFFREY L. WADE
VINSON & ELKINS L.L.P.	EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL
1001 FANNIN, 2300 FIRST CITY TOWER	LEXICON GENETICS INCORPORATED
HOUSTON, TEXAS 77002-6760	4000 RESEARCH FOREST DRIVE
(713) 758-3708	THE WOODLANDS, TEXAS 77381
	(281) 364-0100

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:
As soon as practicable after this registration statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, 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	AMOUNT TO BE REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE PER SHARE (1)	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE (1)	AMOUNT OF REGISTRATION

				FEE
Common Stock, par value $0.001.....	3,527,991 shares	$8.925	$31,487,319	$7,872

(1) Estimated solely for the purpose of calculating the amount of the registration fee based on the high and low trading price for the common stock on August 6, 2001, in accordance with Rule 457(c) under the Securities Act.

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, AS AMENDED, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

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

SUBJECT TO COMPLETION, DATED AUGUST 10, 2001

3,527,991 SHARES

[LEXICON LOGO]

LEXICON GENETICS INCORPORATED

COMMON STOCK

This prospectus relates to the resale of previously issued shares of our common stock by selling stockholders. The selling stockholders are offering up to 3,527,991 shares of our common stock.

We will not receive any proceeds from the sale of the shares offered by the selling stockholders.

The selling stockholders may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices.

Our common stock is listed on The Nasdaq National Market under the symbol "LEXG". The last reported sale price on August ___, 2001 was $___ 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 commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2001.

TABLE OF CONTENTS

YOU SHOULD RELY ONLY ON THE INFORMATION CONTAINED IN THIS DOCUMENT OR TO WHICH WE HAVE REFERRED YOU. NEITHER WE NOR THE SELLING STOCKHOLDERS HAVE AUTHORIZED ANYONE TO PROVIDE YOU WITH INFORMATION THAT IS DIFFERENT. THIS DOCUMENT MAY ONLY BE USED WHERE IT IS LEGAL TO SELL THESE SECURITIES. THE INFORMATION IN THIS DOCUMENT MAY ONLY BE ACCURATE ON THE DATE OF THIS DOCUMENT.

In this prospectus, "Lexicon," "we," "us" and "our" refer to Lexicon Genetics Incorporated.

LEXICON GENETICS INCORPORATED

Lexicon Genetics Incorporated is a drug discovery company of the post-genome era, using gene knockout technology to define the functions of genes for the discovery of pharmaceutical products. We are using this technology to expand our LexVision program and fuel drug discovery programs in cancer, cardiovascular disease, immune disorders, neurological disease, diabetes and obesity. We have established drug discovery alliances and functional genomics collaborations with leading pharmaceutical and biotechnology companies, research institutions and academic institutions throughout the world to commercialize our technology and further develop our discoveries.

We generate our gene function discoveries using knockout mice - mice whose DNA has been altered to disrupt, or "knock out," the function of the altered gene. Our patented gene trapping and gene targeting technologies enable us to rapidly generate these knockout mice by altering the DNA of genes in a special variety of mouse cells, called embryonic stem (ES) cells, which can be cloned and used to generate mice with the altered gene. We employ an integrated platform of advanced medical technologies to systematically discover the functions and potential pharmaceutical uses of the genes we have knocked out. We believe that our LexVision database, which captures and catalogues the information resulting from this analysis, and our OmniBank library of more than 150,000 knockout mouse clones provide us and our collaborators significant opportunities to discover and develop pharmaceutical products based on genomics - - the study of genes and their function.

In July 2001, we acquired Coelacanth Corporation, a company that uses proprietary chemistry technologies to rapidly discover new chemical entities for drug development. Coelacanth forms the core of our new Lexicon Pharmaceuticals division, combining our novel, functionally defined targets from the human genome with high performance chemistry technologies to discover new drugs. We believe the combination of our industrialized in vivo gene function discovery platform with Coelacanth's established chemistry capability will place us in a superior position to form drug discovery alliances.

Lexicon Genetics was incorporated in Delaware in July 1995, and commenced operations in September 1995. Our corporate headquarters are located at 4000 Research Forest Drive, The Woodlands, Texas 77381, and our telephone number is (281) 364-0100. Our corporate website is located at www.lexicon-genetics.com. Information found on our website should not be considered part of this prospectus.

RISK FACTORS

You should carefully consider the following risk factors and all other information contained in this prospectus before purchasing our common stock. Investing in our common stock involves a high degree of risk. If any of the following risks actually occurs, we may not be able to conduct our business as currently planned and our financial condition and operating results could be seriously harmed. In addition, the trading price of our common stock could decline due to the occurrence of any of these risks, and you may lose all or part of your investment. See "Special Note Regarding Forward-Looking Statements."

RISKS RELATED TO OUR BUSINESS

WE HAVE A HISTORY OF NET LOSSES, AND WE EXPECT TO CONTINUE TO INCUR NET LOSSES AND MAY NOT ACHIEVE OR MAINTAIN PROFITABILITY

We have incurred net losses since our inception, including net losses of approximately $26.0 million for the year ended December 31, 2000 and $17.9 million for the six months ended June 30, 2001. As of June 30, 2001, we had an accumulated deficit of approximately $72.8 million. We are unsure when we will become profitable, if ever. The size of our net losses will depend, in part, on the rate of growth, if any, in our revenues and on the level of our expenses.

We derive substantially all of our revenues from subscriptions to our databases, functional genomics collaborations for the development and, in some cases, analysis of knockout mice, and technology licenses, and will continue to do so for the foreseeable future. Revenues from database subscriptions, collaborations and licenses are uncertain because our existing agreements have fixed terms or relate to specific projects of limited duration. Our ability to secure future agreements will depend upon our ability to address the needs of our potential future subscribers and collaborators.

A large portion of our expenses are fixed, including expenses related to facilities, equipment and personnel. In addition, we expect to spend significant amounts to fund research and development and to enhance our core technologies. As a result, we expect that our operating expenses will increase significantly in the near term and, consequently, we will need to generate significant additional revenues to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

OUR QUARTERLY OPERATING RESULTS HAVE BEEN AND LIKELY WILL CONTINUE TO FLUCTUATE, AND WE BELIEVE THAT QUARTER-TO-QUARTER COMPARISONS OF OUR OPERATING RESULTS ARE NOT A GOOD INDICATION OF OUR FUTURE PERFORMANCE

Our quarterly operating results have fluctuated in the past and are likely to do so in the future. In addition to the risks and uncertainties described in this section, some of the factors that could cause our operating results to fluctuate include:

- our ability to establish new database subscriptions or research contracts with collaborators and new technology licenses, and the timing of such arrangements;
- the expiration or other termination of database subscriptions or research contracts with our collaborators or technology licenses, which may not be renewed or replaced;
- the success rate of our discovery efforts leading to milestone payments and royalties;
- the timing and willingness of our collaborators to commercialize pharmaceutical products which would result in milestone payments and royalties; and
- general and industry-specific economic conditions, which may affect our and our collaborators' research and development expenditures.

Due to the likelihood of fluctuations in our revenues and expenses, we believe that quarter-to-quarter comparisons of our operating results are not a good indication of our future performance. Our operating results in

some quarters may not meet the expectations of stock market analysts and investors. In that case, our stock price would probably decline.

WE ARE AN EARLY-STAGE COMPANY WITH AN UNPROVEN BUSINESS STRATEGY

Our business strategy of using our gene sequence databases and knockout mice to select promising candidates for drug target development and commercializing our discoveries through collaborations and alliances is unproven. Our success will depend upon our ability to enter into additional collaboration and alliance agreements on favorable terms, determine which genes have potential value and select an appropriate commercialization strategy for each potential product we or our collaborators choose to pursue.

Biotechnology and pharmaceutical companies have successfully developed and commercialized only a limited number of gene-based pharmaceutical products to date. We have not proven our ability to identify gene-based drugs or drug targets with commercial potential, or to develop or commercialize drugs or drug targets that we do identify. It is difficult to successfully select those genes with the most potential for commercial development, and we do not know that any pharmaceutical products based on genes that we discover can be successfully commercialized. In addition, we may experience unforeseen technical complications in the processes we use to generate our gene sequence database and functional genomics resources. These complications could materially delay or limit the use of those databases and resources, substantially increase the anticipated cost of generating them or prevent us from implementing our processes at appropriate quality and throughput levels.

WE FACE SUBSTANTIAL COMPETITION IN THE DISCOVERY OF THE DNA SEQUENCES OF GENES AND THEIR FUNCTIONS AND IN OUR DRUG DISCOVERY AND PRODUCT DEVELOPMENT EFFORTS

There are a finite number of genes in the human genome, and we believe that the majority of such genes have been identified by us or others conducting genomic research and that virtually all will be identified within the next few years. We face significant competition in our efforts to discover and patent the sequence and other information derived from such genes from entities using alternative, and in some cases higher volume and larger scale, approaches for the same purpose.

We also face competition from entities using more traditional methods to discover genes related to particular diseases. Many of these entities have substantially greater financial, scientific and human resources than we do. A large number of universities and other not-for-profit institutions, many of which are funded by the U.S. and foreign governments, are also conducting research to discover genes. A substantial portion of this research has been conducted under the international Human Genome Project, a multi-billion dollar program funded by the U.S. government and The Wellcome Trust. One or more of these entities may discover and establish a patent position in one or more of the genes that we wish to study or use in the development of a pharmaceutical product.

We face significant competition in our drug discovery and product development efforts from entities using traditional knockout mouse technology and other functional genomics technologies, as well as from those using other traditional drug discovery techniques. These competitors may develop products earlier than we do, obtain regulatory approvals faster than we can and develop products that are more effective than ours. Our ability to use our patent rights to prevent competition in the creation and use of knockout mice is more limited outside of the United States. Competitors could discover and establish patents in genes or gene products that we or our collaborators identify as a drug target or therapeutic protein. Numerous companies, academic institutions and government consortia are engaged in efforts to determine the function of genes and gene products. Furthermore, other methods for conducting functional genomics research may ultimately prove superior, in some or all respects, to the use of knockout mice. In addition, technologies more advanced than or superior to our gene trapping technology may be developed, thereby rendering our gene trapping technology obsolete.

WE RELY HEAVILY ON COLLABORATORS TO DEVELOP AND COMMERCIALIZE PHARMACEUTICAL PRODUCTS BASED ON GENES THAT WE IDENTIFY AS PROMISING CANDIDATES FOR DEVELOPMENT AS DRUG TARGETS

Since we do not currently possess the resources necessary to develop, obtain approvals for or commercialize potential pharmaceutical products based on genes contained in our databases or genes that we identify as promising candidates for development as drug targets or therapeutic proteins, we must enter into

collaborative arrangements to develop and commercialize these products. We will have limited or no control over the resources that any collaborator may devote to this effort. Any of our present or future collaborators may not perform their obligations as expected. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct product discovery, development or commercialization activities successfully or in a timely manner. Further, our collaborators may elect not to develop pharmaceutical products arising out of our collaborative arrangements or may not devote sufficient resources to the development, approval, manufacture, marketing or sale of these products. If any of these events occurs, we may not be able to develop or commercialize potential pharmaceutical products.

Some of our agreements provide us with rights to participate in the commercial development of compounds or therapeutic approaches derived from our collaborations or access to our databases, technology or intellectual property. We may not be able to obtain such rights in future collaborations or agreements. Our ability to obtain such rights depends in part on the validity of our intellectual property, the advantages and novelty of our technologies and databases and our negotiating position relative to each potential collaborator or customer. Previous attempts by others in the industry to obtain these rights with respect to the development of knockout mice and related technologies have generated considerable controversy, especially in the academic community.

ANY CANCELLATION BY OR CONFLICTS WITH OUR COLLABORATORS COULD HARM OUR BUSINESS

Our collaboration agreements may not be renewed and may be terminated in the event either party fails to fulfill its obligations under these agreements. Any failure to renew or cancellation by a collaborator could mean a significant loss of revenues and volatility in our earnings.

In addition, we may pursue opportunities in fields that could conflict with those of our collaborators. Moreover, disagreements could arise with our collaborators over rights to our intellectual property or our rights to share in any of the future revenues of compounds or therapeutic approaches developed by our collaborators. These kinds of disagreements could result in costly and time-consuming litigation. Any conflict with our collaborators could reduce our ability to obtain future collaboration agreements and could have a negative impact on our relationship with existing collaborators, adversely affecting our business and revenues. Some of our collaborators could also become competitors in the future. Our collaborators could develop competing products, preclude us from entering into collaborations with their competitors or terminate their agreements with us prematurely. Any of these developments could harm our product development efforts.

WE HAVE NO EXPERIENCE IN DEVELOPING AND COMMERCIALIZING PHARMACEUTICAL PRODUCTS ON OUR OWN

Our ability to develop and commercialize pharmaceutical products on our own will depend on our ability to internally develop preclinical, clinical, regulatory and sales and marketing capabilities, or enter into arrangements with third parties to provide those functions. We may not be successful in developing these capabilities or entering into agreements with third parties on favorable terms, or at all. Further, our reliance upon third parties for these capabilities could reduce our control over such activities and could make us dependent upon these parties. Our inability to develop or contract for these capabilities would significantly impair our ability to develop and commercialize pharmaceutical products.

WE MAY ENGAGE IN FUTURE ACQUISITIONS, WHICH MAY BE EXPENSIVE AND TIME CONSUMING AND FROM WHICH WE MAY NOT REALIZE ANTICIPATED BENEFITS

We may acquire additional businesses, technologies and products, if we determine that these businesses, technologies and products complement our existing technology or otherwise serve our strategic goals. We currently have no commitments or agreements with respect to any acquisitions. If we do undertake any transactions of this sort, the process of integrating an acquired business, technology or product may result in operating difficulties and expenditures and may absorb significant management attention that would otherwise be available for ongoing development of our business. Moreover, we may never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of our equity securities, the incurrence of debt and contingent liabilities and amortization expenses related to goodwill and other intangible assets, which could adversely affect our results of operations and financial condition.

IF WE LOSE OUR KEY PERSONNEL OR ARE UNABLE TO ATTRACT AND RETAIN ADDITIONAL PERSONNEL, WE MAY BE UNABLE TO PURSUE COLLABORATIONS OR DEVELOP OUR OWN PRODUCTS

We are highly dependent on Arthur T. Sands, M.D., Ph.D., our president and chief executive officer, as well as other principal members of our management and scientific staff. The loss of any of these personnel would have a material adverse effect on our business, financial condition or results of operations and could inhibit our product development and commercialization efforts. Although we have entered into employment agreements with some of our key personnel, including Dr. Sands, these employment agreements are for a limited period of time and not all key personnel have employment agreements.

Recruiting and retaining qualified scientific personnel to perform future research and development work will be critical to our success. Competition for experienced scientists is high. Failure to recruit and retain scientific personnel on acceptable terms could prevent us from achieving our business objectives.

WE MAY ENCOUNTER DIFFICULTIES IN MANAGING OUR GROWTH, WHICH COULD INCREASE OUR LOSSES

We have experienced a period of rapid growth that has placed and, if this growth continues, will continue to place a strain on our human and capital resources. If we are unable to manage our growth effectively, our losses could increase. The number of our employees increased from 57 at December 31, 1997 to 93 at December 31, 1998, 122 at December 31, 1999, 287 at December 31, 2000 and 371 at June 30, 2001. We intend to increase the number of our employees significantly during the remainder of 2001. Our ability to manage our operations and growth effectively requires us to continue to expend funds to improve our operational, financial and management controls, reporting systems and procedures. If we are unable to successfully implement improvements to our management information and control systems in an efficient or timely manner, or if we encounter deficiencies in existing systems and controls, our management may not have adequate information to manage our day-to-day operations.

BECAUSE OUR ENTIRE OMNIBANK MOUSE CLONE LIBRARY IS LOCATED AT A SINGLE FACILITY, THE OCCURRENCE OF A DISASTER COULD SIGNIFICANTLY DISRUPT OUR BUSINESS

Our OmniBank mouse clone library and its back-up are stored in liquid nitrogen freezers located at our facility in The Woodlands, Texas. If a disaster such as a fire, flood, hurricane, tornado or similar event significantly damages or destroys the facility in which our mouse clone library and back-up are stored, our business could be disrupted until we could regenerate the library and, as a result, our stock price could decline. Our business interruption insurance may not be sufficient to compensate us in the event of a major interruption due to such a disaster.

WE MAY NEED ADDITIONAL CAPITAL IN THE FUTURE AND, IF IT IS NOT AVAILABLE, WE WILL HAVE TO CURTAIL OR CEASE OPERATIONS

Our future capital requirements will be substantial and will depend on many factors, including our ability to obtain database subscription and collaboration agreements and government grants, the amount and timing of payments under such agreements and grants, the level and timing of our research and development expenditures, market acceptance of our products, the resources we devote to developing and supporting our products and other factors. Our capital requirements will also be affected by any expenditures we make in connection with license agreements and acquisitions of and investments in complementary technologies and businesses.

We anticipate that our existing capital resources will enable us to maintain our currently planned operations for at least the next several years. However, changes may occur that would consume available capital resources significantly sooner than we expect. If our capital resources are insufficient to meet future capital requirements, we will have to raise additional funds to continue the development of our technologies and complete the commercialization of products, if any, resulting from our technologies. We may be unable to raise sufficient additional capital; if so, we will have to curtail or cease operations.

RISKS RELATED TO OUR INDUSTRY

OUR ABILITY TO PATENT OUR DISCOVERIES IS UNCERTAIN BECAUSE PATENT LAWS AND THEIR INTERPRETATION ARE HIGHLY UNCERTAIN AND SUBJECT TO CHANGE

The patent positions of biotechnology firms generally are highly uncertain and involve complex legal and factual questions that will determine who has the right to develop a particular product. No clear policy has emerged regarding the breadth of claims covered in biotechnology patents. The biotechnology patent situation outside the United States is even more uncertain and is currently undergoing review and revision in many countries. Changes in, or different interpretations of, patent laws in the United States and other countries might allow others to use our discoveries or to develop and commercialize our products without any compensation to us. We anticipate that these uncertainties will continue for a significant period of time.

OUR PATENT APPLICATIONS MAY NOT RESULT IN ENFORCEABLE PATENT RIGHTS

Our disclosures in our patent applications may not be sufficient to meet the statutory requirements for patentability. Additionally, our current patent applications cover many genes and we expect to file patent applications in the future covering many more genes. As a result, we cannot predict which of our patent applications will result in the granting of patents or the timing of the granting of our patents. Our ability to obtain patent protection based on genes or partial gene sequences will depend, in part, upon identification of a function for the gene or gene sequences sufficient to meet the statutory requirement that an invention have utility and that a patent application describe the invention with sufficient specificity. While the U.S. Patent and Trademark Office has issued guidelines for the examination of patent applications claiming gene sequences, their therapeutic uses and novel proteins coded by such genes, the impact of these guidelines is uncertain and may delay or negatively impact our patent position. Biologic data in addition to that obtained by our current technologies may be required for issuance of patents or human therapeutics. If required, obtaining such biologic data could delay, add substantial costs to, or affect our ability to obtain patent protection. There can be no assurance that the disclosures in our current or future patent applications, including those we may file with our collaborators, will be sufficient to meet these requirements. Alternatively, if the level of biologic or other experimental data required to obtain a patent is determined to be minimal, then other companies who emphasize determining the gene sequence without significant biologic function information will obtain a prior and superior patent position to us and our collaborators. Even if patents are issued, there may be current or future uncertainty as to the scope of the coverage or protection provided by any such patents. In addition, the Human Genome Project, as well as many companies and institutions, have identified genes and deposited partial gene sequences in public databases and are continuing to do so. These public disclosures might limit the scope of our claims or make unpatentable subsequent patent applications on full-length genes.

Other companies or institutions have filed and will file patent applications that attempt to patent genes or gene sequences that may be similar to our patent applications. The U.S. Patent and Trademark Office could decide competing patent claims in an interference proceeding. Any such proceeding would be costly, and we may not prevail. In addition, patent applications filed by third parties may have priority over patent applications we file. In this event, the prevailing party may require us or our collaborators to stop pursuing a potential product or to negotiate a license arrangement to pursue the potential product. We may not be able to obtain a license from the prevailing party on acceptable terms, or at all.

Some court decisions indicate that disclosure of a partial sequence may not be sufficient to support the patentability of a full-length sequence. These decisions have been confirmed by recent pronouncements of the U.S. Patent and Trademark Office. We believe that these court decisions and the uncertain position of the U.S. Patent and Trademark Office present a significant risk that the U.S. Patent and Trademark Office will not issue patents based on patent disclosures limited to partial gene sequences, like those represented in our human gene trap database. In addition, we are uncertain about the scope of the coverage, enforceability and commercial protection provided by any patents issued on the basis of partial gene sequences.

IF OTHER COMPANIES AND INSTITUTIONS OBTAIN PATENTS CLAIMING THE FUNCTIONAL USES OF GENES AND GENE PRODUCTS BASED UPON GENE SEQUENCE INFORMATION AND PREDICTIONS OF GENE FUNCTION, WE MAY BE UNABLE TO OBTAIN PATENTS FOR OUR DISCOVERIES OF BIOLOGICAL FUNCTIONS IN KNOCKOUT MICE

We intend to pursue patent protection covering the novel uses and functions of new and known genes and proteins in mammalian physiology and disease states. While an actual description of the biological function of a gene or protein should enhance a patent position, we cannot assure you that such information will increase the probability of issuance of any patents. Further, many other entities are currently filing patents on genes which are identical or similar to our filings. Many such applications seek to protect partial human gene sequences, full-length gene sequences and the deduced protein products encoded by the sequences while others use biological or other laboratory data. Some of these applications attempt to assign biologic function to the DNA sequences based on computer predictions. There is the significant possibility that patents claiming the functional uses of genes and gene products will be issued to our competitors based on such information.

WE ARE PRESENTLY INVOLVED IN PATENT LITIGATION AND MAY BE INVOLVED IN FUTURE PATENT LITIGATION AND OTHER DISPUTES REGARDING INTELLECTUAL PROPERTY RIGHTS, AND CAN GIVE NO ASSURANCES THAT WE WILL PREVAIL IN ANY SUCH LITIGATION OR OTHER DISPUTE

Our potential products and those of our collaborators may give rise to claims that they infringe the patents of others. This risk will increase as the biotechnology industry expands and as other companies obtain more patents and attempt to discover genes through the use of high-speed sequencers. In addition, many companies have well-established patent portfolios directed to common techniques, methods and means of developing, producing and manufacturing pharmaceutical products. Other companies or institutions could bring legal actions against us or our collaborators for damages or to stop us or our collaborators from manufacturing and marketing the affected products. If any of these actions are successful, in addition to our potential liability for damages, these entities may require us or our collaborators to obtain a license in order to continue to manufacture or market the affected products or may force us to terminate manufacturing or marketing efforts.

We may need to pursue litigation against others to enforce our patents and intellectual property rights. Patent litigation is expensive and requires substantial amounts of management attention. In addition, the eventual outcome of any such litigation is uncertain.

On May 24, 2000, we filed a complaint against Deltagen, Inc. in U.S. District Court for the District of Delaware alleging that Deltagen is willfully infringing the claims of United States Patent No. 5,789,215, under which we hold an exclusive license from GenPharm International, Inc. This patent covers methods of engineering the animal genome, including methods for the production of knockout mice by homologous recombination, using isogenic DNA technology. In the complaint, we are seeking unspecified damages from Deltagen, as well as injunctive relief. Deltagen has counterclaimed for a declaratory judgment that the patent is invalid and unenforceable and is not infringed by Deltagen. On November 14, 2000, Deltagen filed an amended counterclaim alleging antitrust claims against us and GenPharm, for which Deltagen is seeking unspecified damages.

On October 13, 2000, we filed a second complaint against Deltagen, Inc. in U.S. District Court for the Northern District of California alleging that Deltagen is willfully infringing the claims of United States Patents Nos. 5,464,764, 5,487,992, 5,627,059, and 5,631,153, under which also we hold exclusive licenses from GenPharm International. These patents cover methods and vectors for using positive-negative selection for producing gene targeted, or "knockout," cells and animals, including the production of knockout mice by homologous recombination. In the complaint, we are seeking unspecified damages from Deltagen, as well as injunctive relief. Deltagen has counterclaimed for a declaratory judgment that the patents are invalid and unenforceable and are not infringed by Deltagen.

While we believe that our complaints against Deltagen are meritorious and that Deltagen's counterclaims against us are without merit, we can provide no assurance that we will prevail in our litigation against Deltagen or that, if we prevail, any damages or equitable remedies awarded will be commercially valuable. If Deltagen prevails in declaring our patents invalid or on its antitrust claim against us, our business and financial position could be adversely affected. Furthermore, we are likely to incur substantial costs and expend substantial personnel time in pursuing our litigation against Deltagen.

We believe that there will continue to be significant litigation in our industry regarding patent and other intellectual property rights. We and many of our competitors have and are continuing to expend significant amounts of time, money and management resources on intellectual property litigation. If we become involved in additional litigation, it could consume a substantial portion of our resources and could negatively affect our results of operations.

Patent litigation involves substantial risks. Each time we sue for patent infringement we face the risk that the patent will be held invalid or unenforceable. Such a determination is binding on us for all future litigation involving that patent. Furthermore, in light of recent U.S. Supreme Court precedent, our ability to enforce our patents against state agencies, including state sponsored universities and research labs is limited by the Eleventh Amendment to the U.S. Constitution. Finally, opposition by academicians and the government may hamper our ability to enforce our patent against academic or government research laboratories. Enforcement of our patents may cause our reputation in the academic community to be injured.

ISSUED PATENTS MAY NOT FULLY PROTECT OUR DISCOVERIES, AND OUR COMPETITORS MAY BE ABLE TO COMMERCIALIZE PRODUCTS SIMILAR TO THOSE COVERED BY OUR ISSUED PATENTS

Issued patents may not provide commercially-meaningful protection against competitors. Other companies or institutions may challenge our or our collaborators' patents or independently develop similar products that could result in an interference proceeding in the Patent and Trademark Office or a legal action. In the event any single researcher or institution infringes upon our or our collaborators' patent rights, enforcing these rights may be difficult and time consuming. Others may be able to design around these patents or develop unique products providing effects similar to our products. We may be required to choose between pursuing litigation against infringers and being unable to recover damages or otherwise enforce our patent rights.

In addition, others may discover uses for genes or proteins other than those uses covered in our patents, and these other uses may be separately patentable. Even if we have a patent claim on a particular gene, the holder of a patent covering the use of that gene could exclude us from selling a product that is based on the same use of that gene. In addition, with respect to certain of our patentable inventions, we have decided not to pursue patent protection outside the United States, both because we do not believe it is cost effective and because of confidentiality concerns. Accordingly, our international competitors could develop, and receive foreign patent protection for gene sequences and functions for which we are seeking U.S. patent protection.

OUR RIGHTS TO THE USE OF TECHNOLOGIES LICENSED BY THIRD PARTIES ARE NOT WITHIN OUR CONTROL

We rely, in part, on licenses to use certain technologies that are material to our business. We do not own the patents that underlie these licenses. Our rights to use these technologies and practice the inventions claimed in the licensed patents are subject to our licensors abiding by the terms of those licenses and not terminating them. In many cases, we do not control the prosecution or filing of the patents to which we hold licenses. We rely upon our licensors to prevent infringement of those patents. The scope of our rights under our licenses may be subject to dispute by our licensors or third parties.

WE MAY BE UNABLE TO PROTECT OUR TRADE SECRETS

While we have entered into confidentiality agreements with employees and collaborators, we may not be able to prevent the disclosure of our trade secrets. In addition, other companies or institutions may independently develop substantially equivalent information and techniques.

WE MAY BECOME SUBJECT TO REGULATION UNDER THE ANIMAL WELFARE ACT, WHICH COULD SUBJECT US TO ADDITIONAL COSTS AND PERMIT REQUIREMENTS

The Animal Welfare Act, or AWA, is the federal law that currently covers animals in laboratories. It applies to institutions or facilities using any regulated live animals for research, testing, teaching or experimentation, including diagnostic laboratories and private companies in the pharmaceutical and biotechnology industries. The AWA currently does not cover rats or mice. However, the United States Department of Agriculture, which enforces

the AWA, has entered into a proposed settlement agreement under which it has agreed to commence the process of adopting regulations under the AWA to include mice within its coverage.

Currently, the AWA imposes a wide variety of specific regulations which govern the humane handling, care, treatment and transportation of certain animals by producers and users of research animals, most notably personnel, facilities, sanitation, cage size, feeding, watering and shipping conditions. If the USDA includes mice in its regulations, we will become subject to registration, inspections and reporting requirements. Compliance with the AWA could be expensive, and the regulations eventually adopted by the USDA could impair our research and production efforts.

WE AND OUR COLLABORATORS ARE SUBJECT TO EXTENSIVE AND UNCERTAIN GOVERNMENT REGULATORY REQUIREMENTS, WHICH COULD INCREASE OUR OPERATING COSTS OR ADVERSELY AFFECT OUR ABILITY TO OBTAIN GOVERNMENT APPROVAL OF PRODUCTS BASED ON GENES THAT WE IDENTIFY IN A TIMELY MANNER OR AT ALL

Since we develop animals containing changes in their genetic make-up, we may become subject to a variety of laws, guidelines, regulations and treaties specifically directed at genetically modified organisms, or GMOs. The area of environmental releases of GMOs is rapidly evolving and is currently subject to intense regulatory scrutiny, particularly internationally. If we become subject to these laws we could incur substantial compliance costs. For example, the Biosafety Protocol, or the BSP, a recently adopted treaty, is expected to cover certain shipments from the United States to countries abroad that have signed the BSP. The BSP is also expected to cover the importation of living modified organisms, a category that could include our animals. If our animals are not contained as described in the BSP, our animals could be subject to the potentially extensive import requirements of countries that are signatories to the BSP.

Drugs and diagnostic products are subject to an extensive and uncertain regulatory approval process by the FDA and comparable agencies in other countries. The regulation of new products is extensive, and the required process of laboratory testing and human studies is lengthy and expensive. The burden of these regulations will fall on us to the extent we develop proprietary products on our own. If the products are the result of a collaboration effort, these burdens may fall on our collaborating partner or may be shared with us. We may not be able to obtain FDA approvals for those products in a timely manner, or at all. We may encounter significant delays or excessive costs in our efforts to secure necessary approvals or licenses. Even if we obtain FDA regulatory approvals, the FDA extensively regulates manufacturing, labeling, distributing, marketing, promotion and advertising after product approval. Moreover, several of our product development areas may involve relatively new technology and have not been the subject of extensive product testing in humans. The regulatory requirements governing these products and related clinical procedures remain uncertain and the products themselves may be subject to substantial review by foreign governmental regulatory authorities that could prevent or delay approval in those countries. Regulatory requirements ultimately imposed on our products could limit our ability to test, manufacture and, ultimately, commercialize our products.

SECURITY RISKS IN ELECTRONIC COMMERCE OR UNFAVORABLE INTERNET REGULATION MAY DETER FUTURE USE OF OUR PRODUCTS AND SERVICES

We provide access to our databases and the opportunity to acquire our knockout mice on the Internet. A fundamental requirement to conduct Internet-based electronic commerce is the secure transmission of confidential information over public networks. Advances in computer capabilities, new discoveries in the field of cryptography or other developments may result in a compromise or breach of the algorithms we use to protect content and transactions on Lexgen.com or proprietary information in our OmniBank database. Anyone who is able to circumvent our security measures could misappropriate our proprietary information, confidential customer information or cause interruptions in our operations. We may be required to incur significant costs to protect against security breaches or to alleviate problems caused by breaches. Further, a well-publicized compromise of security could deter people from using the Internet to conduct transactions that involve transmitting confidential information.

Because of the growth in electronic commerce, Congress has held hearings on whether to regulate providers of services and transactions in the electronic commerce market, and federal or state authorities could enact laws, rules or regulations affecting our business or operations. If enacted and applied to our business, these laws, rules or regulations could render our business or operations more costly, burdensome, less efficient or impracticable.

WE USE HAZARDOUS CHEMICALS AND RADIOACTIVE AND BIOLOGICAL MATERIALS IN OUR BUSINESS; ANY DISPUTES RELATING TO IMPROPER HANDLING, STORAGE OR DISPOSAL OF THESE MATERIALS COULD BE TIME CONSUMING AND COSTLY

Our research and development processes involve the use of hazardous materials, including chemicals and radioactive and biological materials. Our operations also produce hazardous waste products. We cannot eliminate the risk of accidental contamination or discharge or any resultant injury from these materials. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of these materials. We could be subject to civil damages in the event of an improper or unauthorized release of, or exposure of individuals to, these hazardous materials. In addition, claimants may sue us for injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Compliance with environmental laws and regulations may be expensive, and current or future environmental regulations may impair our research, development or production efforts.

WE MAY BE SUED FOR PRODUCT LIABILITY

We or our collaborators may be held liable if any product we or our collaborators develop, or any product which is made with the use or incorporation of any of our technologies, causes injury or is found otherwise unsuitable during product testing, manufacturing, marketing or sale. Although we currently have and intend to maintain product liability insurance, this insurance may become prohibitively expensive, or may not fully cover our potential liabilities. Inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or inhibit the commercialization of products developed by us or our collaborators. If we are sued for any injury caused by our or our collaborators' products, our liability could exceed our total assets.

PUBLIC PERCEPTION OF ETHICAL AND SOCIAL ISSUES MAY LIMIT OR DISCOURAGE THE USE OF OUR TECHNOLOGIES, WHICH COULD REDUCE OUR REVENUES

Our success will depend in part upon our ability to develop products discovered through our gene trapping and knockout mouse technologies. Governmental authorities could, for ethical, social or other purposes, limit the use of genetic processes or prohibit the practice of our gene trapping and knockout mouse technologies. Claims that genetically engineered products are unsafe for consumption or pose a danger to the environment may influence public perceptions. The subject of genetically modified organisms, like knockout mice, has received negative publicity and aroused public debate in some countries. Ethical and other concerns about our technologies, particularly the use of genes from nature for commercial purposes and the products resulting from this use, could adversely affect the market acceptance of our technologies.

RISKS RELATED TO THIS OFFERING

OUR STOCK PRICE HAS BEEN AND LIKELY WILL CONTINUE TO BE VOLATILE, AND YOUR INVESTMENT MAY SUFFER A DECLINE IN VALUE

The stock market has experienced significant price and volume fluctuations, and the market prices of technology companies, particularly biotechnology companies such as ours, have been highly volatile. In addition, broad market and industry fluctuations that are not within our control may adversely affect the trading price of our common stock. You may not be able to sell your shares at or above your purchase price.

PROVISIONS OF OUR CHARTER DOCUMENTS AND DELAWARE LAW MAY INHIBIT A TAKEOVER, WHICH COULD NEGATIVELY AFFECT OUR STOCK PRICE

Provisions in our amended and restated charter and bylaws and applicable provisions of the Delaware General Corporation Law may make it more difficult for a third party to acquire control of us without the approval of our board of directors. These provisions may make it more difficult or expensive for a third party to acquire a majority of our outstanding voting common stock or delay, prevent or deter a merger, acquisition, tender offer or proxy contest, which may negatively affect our stock price.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. These statements relate to future events or our future financial performance. We have attempted to identify forward-looking statements by terminology including "anticipate," "believe," "can," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "should" or "will" or the negative of these terms or other comparable terminology. These statements are only predictions and involve known and unknown risks, uncertainties and other factors, including the risks outlined under "Risk 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 or activity, performance or achievements expressed or implied by these forward-looking statements.

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. We are not under any duty to update any of the forward-looking statements after the date of this prospectus to conform these statements to actual results, unless required by law.

USE OF PROCEEDS

All of the shares offered by this prospectus are being offered and sold by the selling stockholders. We will not receive any proceeds from the sale of the shares of common stock offered by the selling stockholders.

The selling stockholders will pay any underwriting discounts and commissions, brokerage fees and other expenses, including fees and expenses of counsel, which they incur in selling shares of our common stock. We will pay all expenses for the registration of the selling stockholders' offer and sale of the shares of common stock covered by this prospectus, including registration fees and the costs and expenses of our counsel and independent public accountants.

SELLING STOCKHOLDERS

We issued the shares of common stock covered by this prospectus:

- in connection with our acquisition of the outstanding securities of Coelacanth Corporation in a merger completed on July 12, 2001; and

- in private placements completed prior to our April 2000 initial public offering.

In connection with the Coelacanth merger, we agreed to register the resale of the shares of common stock received in the merger by Coelacanth's former stockholders and to use our commercially reasonable best efforts to keep the registration statement effective for 24 months or, if earlier, until all of the common stock received in the merger may be sold by the selling stockholders under Rule 144 under the Securities Act of 1933 in a 90-day period. The other selling stockholders requested that we register their resale of shares of common stock under a registration rights agreement in which we agreed to use commercially reasonable best efforts to include their shares in a registration in which they request to participate. All of the shares offered by the selling stockholders were issued in transactions exempt from the registration requirements of the Securities Act of 1933.

The selling stockholders, or their donees of 500 or fewer shares, may offer the shares of common stock covered by this prospectus from time to time. Our registration of the selling stockholders' resale of such shares does not necessarily mean that the selling stockholders will sell any or all of their shares. We do not know when or in what amounts a selling stockholder may offer shares for sale. Because the selling stockholder may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the selling stockholder after completion of the offering.

If a selling stockholder transfers more than 500 shares of common stock by gift, pledge or other non-sale transfer after the effective date of the registration statement of which this prospectus is a part, the donee, pledgee or

transferee may make no offer or sale under this prospectus unless and until a supplement to this prospectus has been filed or an amendment to the related registration statement has become effective.

The table below sets forth the beneficial ownership of all common stock of each selling stockholder as of July 31, 2001 as well as the number of such shares of common stock offered by this prospectus. For purposes of determining the number of shares beneficially owned by a person and the percentage ownership of that person in accordance with the rules of the SEC, shares of common stock underlying options held by that person that are currently exercisable or exercisable within 60 days of July 31, 2001 are considered outstanding. These shares, however, are not considered outstanding when computing the percentage ownership of each other person.

Except as indicated in the footnotes to this table and pursuant to state community property laws, to our knowledge, each selling stockholder named in the table has sole voting and investment power for the shares shown as beneficially owned by them. Percentage of ownership is based on 51,848,452 shares of common stock outstanding on July 31, 2001.

We prepared this table based on information supplied to us by the selling stockholders named in the table, and we have not sought to independently verify such information.

	BENEFICIAL OWNERSHIP PRIOR TO OFFERING			
NAME OF SELLING STOCKHOLDER	NUMBER OF SHARES BENEFICIALLY OWNED	SHARES ISSUABLE PURSUANT TO OPTIONS EXERCISABLE WITHIN 60 DAYS OF JULY 31, 2001	PERCENTAGE OWNERSHIP	SHARES OFFERED HEREBY
Former Coelacanth Stockholders (1)				
Brett R. Bosley	202	--	*	202
David Brook	202	--	*	202
Eran Broshy	7,577	--	*	7,577
California Institute of Technology	243	--	*	243
Cullen Cavallaro	128	--	*	128
Zheng ming Chen	131	--	*	131
Jay Chiang	1,429	--	*	1,429
Evangeline Priya Eddy	439	--	*	439
Keith Elliston	57	--	*	57
Yoany Gervacio	27	--	*	27
Seth L. Harrison (2)	35,538	--	*	35,538
Hartmuth Kolb (3)	810	25,906	*	810
Laxma Reddy Kolla	157	--	*	157
Amit Kumar	75	--	*	75
Hanghui Liu	273	--	*	273
Dat Nguyen	18	--	*	18
Denise Prince	30	--	*	30
Vasazi Reddy	60	--	*	60
Michael Richards	143	--	*	143
Janice Rothman	188	--	*	188
K. Barry and Janet Dueser Sharpless (4)	72,723	--	*	72,723
John A. Skolas	2,702	--	*	2,702
James Wan	37	--	*	37
Jeffrey Whitney	158	--	*	158
Barry Wolitzky	6,166	--	*	6,166
Daniel J. Bader	2,017	--	*	2,017

Alfred Bader	22,524	--	*	22,524
David Bader	2,017	--	*	2,017
Robert A. and Ellen F. Bildersee	10,420	--	*	10,420
Robert L. and Joyce Y. Blumberg	1,615	--	*	1,615
Robert L. Blumberg	402	--	*	402
David A. Boulton (5)	20,463	14,681	*	20,463
David Boulton as Custodian for Sarah Boulton (5)	428	--	*	428
Peter B. and Cynthia H. Ellis	15,700	--	*	15,700
Sally Elson	1,011	--	*	1,011
George Fesus	15,700	--	*	15,700
Juliet V. Gauchat	18,928	--	*	18,928
Edward M. Giles	4,046	--	*	4,046
Robert H. and Helen O. Grubbs	4,289	--	*	4,289
Laura Harrison	1,352	--	*	1,352
Alvan Harrison	933	--	*	933
Jeremy Harrison	1,866	--	*	1,866
Joan Harrison	933	--	*	933
Kerry N. Hite	947	--	*	947
Joel Hough	947	--	*	947
Todd M. Hough	947	--	*	947
Lawrence A. and Kathleen M. Hough (6)	16,891	--	*	16,891
JB Partners	5,244	--	*	5,244
Alan R. Katritzky	1,072	--	*	1,072
Klitsner Family & Co. No. A	4,035	--	*	4,035
Charlene Ledbetter	690	--	*	690
Davis U. Merwin	2,017	--	*	2,017
Joseph E. Padulo	632	--	*	632
Louis Padulo	2,781	--	*	2,781
Robert B. Padulo	632	--	*	632
George W. Parshall	464	--	*	464
Jon B. Platt	7,986	--	*	7,986
Rex James Bates Revocable Trust	2,017	--	*	2,017
John Semack	2,023	--	*	2,023
Al Simmons	107	--	*	107
Sondra Somer	107	--	*	107
Nancy Somer	85	--	*	85
Jon and Cathy Somer	214	--	*	214
Pike H. Sullivan	2,017	--	*	2,017
Richard and Caroline Swett	2,017	--	*	2,017
Ivar Ugi	214	--	*	214
Bert van Deun	8,070	--	*	8,070
Vertical Fund Associates LP	6,122	--	*	6,122
Peter Wipf	1,072	--	*	1,072
Chi-Huey Wong	1,340	--	*	1,340
Robert Zambias	2,144	--	*	2,144
Apple Tree Partners I, L.P. (2)	710,400	--	1.4%	710,400
Freya Fanning & Co.	27,366	--	*	27,366
Oxford Bioscience Partners (Bermuda) II L.P.	92,053	--	*	92,053
Oxford Bioscience Partners (GS-Adjunct) II L.P.	106,865	--	*	106,865
Oxford Bioscience Partners II L.P.	122,833	--	*	122,833
Jon B. Platt	13,683	--	*	13,683
Vertical Fund Associates LP	13,683	--	*	13,683

Alexandria Real Estate Equities, L.P.	75,187	--	*	75,187
Bank Julius Baer & Co. LTD	320,636	--	*	320,636
BB BioVentures L.P. (7)	963,052	--	1.9%	963,052
MPM Asset Management Investors 1999 LLC (7)	11,536	--	*	11,536
MPM BioVentures Parallel Fund, L.P. (7)	134,706	--	*	134,706
Other Selling Stockholders				
- --------------------------				
Joan M. Jordan	60,000	--	*	60,000
Pamela L. Henthorne	60,000	--	*	60,000
William Michael Miller	60,000	--	*	60,000
Eldon Dwayne Morris	60,000	--	*	60,000
Norma Jean Odum	60,000	--	*	60,000
Quentine M. Roberts	60,000	--	*	60,000
Winifried A. Wobbe	60,000	--	*	60,000
John M. Sullivan	174,000	--	*	174,000
Michael B. Sullivan	7,500	--	*	7,500
Carol T. Sullivan	7,500	--	*	7,500

- -----------------

* Represents beneficial ownership of less than 1 percent.

(1) The number of shares reflected in the table as being beneficially owned by each former Coelacanth stockholder includes shares, representing 10% of the shares reflected in the first column of this table as beneficially owned by such selling stockholder, that are held by an escrow agent and may be used to satisfy claims, if any, which we may have for breaches of representations, warranties or covenants made by Coelacanth in the merger agreement. The number of shares reflected in the first column of this table as beneficially owned by each former Coelacanth stockholder assumes that such stockholder validly tenders to us all certificates representing former shares of capital stock of Coelacanth and other required documents in accordance with the merger agreement.

(2) Mr. Harrison was a director of Coelacanth before the merger. Mr. Harrison is managing partner of Apple Tree Partners.

(3) Dr. Kolb was Vice President of Chemistry and Chief Operating Officer of Coelacanth before the merger, and presently serves as our Vice President of Chemistry.

(4) Dr. Sharpless was a director of Coelacanth before the merger.

(5) Mr. Boulton was Vice President of Technology Operations of Coelacanth before the merger, and presently serves as our Vice President of Technology Operations.

(6) Mr. Hough was a director of Coelacanth before the merger.

(7) Michael Steinmetz, Ph.D., a director of Coelacanth before the merger, is chairman of the board of MPM Asset Management, the general partner of BB BioVentures L.P., MPM Asset Management Investors 1999 LLC and MPM BioVentures Parallel Fund, L.P.

PLAN OF DISTRIBUTION

The shares covered by this prospectus may be offered and sold from time to time by the selling stockholders. The term "selling stockholder" includes donees selling 500 or fewer shares received from a selling stockholder as a gift after the effective date of the registration statement of which this prospectus is a part. The selling stockholders will act independently of us in making decisions with respect to the timing, manner and size of each sale. Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price or in negotiated transactions. The selling stockholders have advised us that they may offer and sell the shares of common stock offered by this prospectus in one or more of, or a combination of, the following methods:

- purchases by a broker-dealer as principal and resale by such broker-dealer for its own account pursuant to this prospectus;

- ordinary brokerage transactions and transactions in which the broker solicits purchasers;

- block trades 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;

- an over-the-counter distribution in accordance with the rules of the Nasdaq National Market;

- through the Nasdaq National Market or any other securities exchange or association that quotes the common stock;

- in privately negotiated transactions; and

- in options transactions.

In addition, the selling stockholders have advised us that they may sell shares of common stock in compliance with Rule 144, if available, or pursuant to other available exemptions from the registration requirements under the Securities Act, rather than pursuant to this prospectus.

To the extent required, this prospectus may be amended or supplemented from time to time to describe a specific plan of distribution. In connection with distributions of the shares or otherwise, the selling stockholders have advised us that they may enter into hedging transactions with broker-dealers or other financial institutions. In connection with such transactions, broker-dealers or other financial institutions may engage in short sales of the common stock in the course of hedging the positions they assume with a selling stockholder. The selling stockholders have advised us that they may also sell the common stock short and redeliver the shares to close out such short positions. The selling stockholders have advised us that they may also enter into option or other transactions with broker-dealers or other financial institutions which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). The selling stockholders have advised us that they may also pledge shares to a broker-dealer or other financial institution, and, upon a default, such broker-dealer or other financial institution may effect sales of the pledged shares pursuant to this prospectus (as supplemented or amended to reflect such transaction).

In effecting sales, broker-dealers or agents engaged by a selling stockholder may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholder in amounts to be negotiated immediately prior to the sale.

In offering the shares covered by this prospectus, a selling stockholder and any broker-dealers who execute sales for such selling stockholder may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. Any profits realized by a selling stockholder and the compensation of any broker-dealer may be deemed to be underwriting discounts and commissions.

In order to comply with the securities laws of certain states, if applicable, the shares must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states the shares may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

The selling stockholders have advised us that they may sell their shares at market prices prevailing at the time of sale, at prices related to such prevailing market prices, at negotiated prices or at fixed prices and that the transactions listed above may include cross or block transactions.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Securities Exchange Act of 1934 may apply to their sales of common stock and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act of 1933. The selling stockholders have advised us that they may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

At the time a particular offer of shares is made, if required, a prospectus supplement will be distributed that will set forth the number of shares being offered and the terms of the offering, including the name of any underwriter, dealer or agent, the purchase price paid by any underwriter, any discount, commission and other item constituting compensation, any discount, commission or concession allowed or reallowed or paid to any dealer, and the proposed selling price to the public.

We have agreed to indemnify the selling stockholders against certain liabilities, including certain liabilities under the Securities Act.

We have agreed with the selling stockholders that received shares of our common stock in the Coelacanth merger to keep the registration statement of which this prospectus constitutes a part effective until the earliest to occur of:

- such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement;

- the expiration of twenty-four months from the date the registration statement is declared effective; or

- such time as all shares covered by this prospectus may be sold by the selling stockholders in accordance with the requirements of Rule 144 in a 90-day period.

Each of the selling stockholders that received common stock in the Coelacanth merger has entered into a stockholder agreement under which such selling stockholder has agreed not to sell or otherwise transfer shares of common stock received in the merger until: (i) the earlier of the effectiveness of the registration statement of which this prospectus is a part or October 10, 2001 with respect to 50% of such shares; (ii) January 8, 2002 with respect to an additional 20% of such shares; (iii) April 8, 2002 with respect an additional 20% of such shares; and (iv) July 12, 2002 for the final 10% of such shares. All shares offered by this prospectus by a selling stockholder that received common stock in the Coelacanth merger will be sold subject to the terms and conditions of the stockholder agreement.

All shares offered by this prospectus by any other stockholder will be sold subject to the terms and conditions of the registration rights agreement described in the section entitled "Selling Stockholders."

LEGAL MATTERS

The validity of the common stock offered by this prospectus has been passed upon for us by Vinson & Elkins L.L.P., Houston, Texas.

EXPERTS

The financial statements, as of December 31, 1999 and 2000, and for each of the three years in the period ended December 31, 2000, incorporated by reference in this prospectus have been audited by Arthur Andersen LLP, independent public accountants, as indicated in their report with respect thereto, and are included herein in reliance upon the authority of said firm as experts in giving said report.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act of 1933 regarding the offer and sale of shares of common stock by the selling stockholders. This prospectus, which constitutes a part of the registration statement, does not contain all of the information contained in the registration statement, some items of which are contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information about us and our common stock, please review the registration statement and the exhibits filed as a part of it. Statements made in this prospectus that describe documents may not necessarily be complete. We recommend that you review the documents that we have filed with the registration

statement to obtain a more complete understanding of these documents. A copy of the registration statement, including the exhibits filed as a part of it, may be inspected without charge at the SEC's Public Reference Room, 450 Fifth Street, N.W., Washington, D.C. 20549, and copies of all or any part of the registration statement may be obtained from the SEC upon the payment of fees prescribed by it. You may obtain information on the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a Web site at http://www.sec.gov that contains reports, proxy and information statements and other information regarding companies that file electronically with it.

We are subject to the information and reporting requirements of the Securities Exchange Act of 1934 and will file periodic reports, proxy statements and other information with the SEC. You may inspect any of these documents as described in the preceding paragraph. These reports, proxy statements and other information may also be inspected at the offices of Nasdaq Operations, 1735 K Street, N.W., Washington, D.C. 20006.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus information that we file with the SEC in other documents. This means that we can disclose important information to you by referring to other documents that contain that information. The information incorporated by reference is considered to be part of this prospectus, except for information superseded by information in this prospectus. We incorporate by reference the documents listed below that we have previously filed with the SEC and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, prior to the termination of the offering of the securities covered by this prospectus:

- our annual report on Form 10-K for the year ended December 31, 2000;

- our quarterly reports on Form 10-Q for the quarter ended March 31, 2001;

- our current report on Form 8-K dated June 13, 2001; and

- the description of our common stock contained in our registration statement on Form 8-A filed with the Commission on March 27, 2000 pursuant to Section 12 of the Securities Exchange Act of 1934, including any amendments and reports filed for the purpose of updating such description.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus modifies or supersedes that statement. Any statement that is modified or superseded will not constitute a part of this prospectus, except as modified or superseded.

Upon your written or oral request, we will provide you at no cost a copy of any or all of the documents incorporated by reference in this prospectus, other than the exhibits to those documents, unless the exhibits are specifically incorporated by reference into this prospectus. You may request a copy of these documents by contacting:

Investor Relations
Lexicon Genetics Incorporated
4000 Research Forest Drive
The Woodlands, Texas 77381
Telephone: (281) 364-0100

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The estimated expenses payable by the Registrant in connection with the issuance and distribution of the securities being registered (other than underwriting discounts and commissions) are as follows:

SEC Registration Fee	$ 7,872
Printing Expenses	5,000
Accounting Fees and Expenses	5,000
Legal Fees and Expenses	5,000
Transfer Agent and Registrar Fees	--
Miscellaneous Expenses	2,128
Total	$ 25,000

The selling stockholders will pay any underwriting discounts and commissions, brokerage fees and other expenses, including fees and expenses of their counsel, if any, which discounts, commissions, fees and expenses are not included in the foregoing table.

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law ("DGCL") provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation by reason of the fact that he is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action, suit or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. Section 145 further provides that a corporation similarly may indemnify any such person serving in any such capacity who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that he is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees) actually and reasonably incurred in connection with the defense or settlement of such action or suit if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or such other court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Delaware Court of Chancery or such other court shall deem proper.

Lexicon's certificate of incorporation and bylaws provide that indemnification shall be to the fullest extent permitted by the DGCL for all current or former directors or officers. As permitted by the DGCL, the certificate of incorporation provides that directors of Lexicon shall have no personal liability to Lexicon or its stockholders for monetary damages for breach of fiduciary duty as a director, except (1) for any breach of the director's duty of loyalty to Lexicon or its stockholders, (2) for acts or omissions not in good faith or which involve intentional misconduct or knowing violation of law, (3) under Section 174 of the DGCL or (4) for any transaction from which a director derived an improper personal benefit.

ITEM 16. EXHIBITS.

EXHIBIT NO.		DESCRIPTION
3.1+	--	Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Company's Registration Statement on Form S-1 (Registration No. 333-96469) and incorporated by reference herein).
3.2+	--	Restated Bylaws (filed as Exhibit 3.2 to the Company's Registration Statement on Form S-1 (Registration No. 333-96469) and incorporated by reference herein).
4.1*	--	Amended and Restated Registration Rights Agreement dated as of May 7, 1998 by and among the Company and the stockholders named therein.
4.2*	--	Form of Stockholder Agreement by and between the Company and each former stockholder of Coelacanth Corporation.
5.1*	--	Opinion of Vinson & Elkins L.L.P.
23.1*	--	Consent of Arthur Andersen LLP
23.2*	--	Consent of Vinson & Elkins L.L.P. (contained in Exhibit 5.1)
24.1*	--	Power of Attorney (contained in signature page)

- ----------
+ Previously filed.
* Filed herewith.

ITEM 17. UNDERTAKINGS.

The undersigned Registrant hereby undertakes:

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

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the "Securities Act");

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

(iii) to include any material information with respect to the plan of distribution not previously disclosed in this Registration Statement or any material change to such information in this Registration Statement;

provided, however, that paragraphs (a)(i) and (a)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that are incorporated by reference in this Registration Statement.

(b) 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.

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

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

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 14, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of The Woodlands, in the State of Texas, on August 10, 2001.

LEXICON GENETICS INCORPORATED

By: /s/ Arthur T. Sands

Arthur T. Sands, M.D., Ph.D.
President and Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below appoints Arthur T. Sands and Jeffrey L. Wade, and each of them, any of whom may act without the joinder of the other, as his true and lawful attorneys-in-fact and agents with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement and any Registration Statement (including any amendment thereto) for this offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or would do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute and substitutes, may lawfully do or cause to be done by virtue hereof.

PURSUANT TO THE REQUIREMENTS OF THE SECURITIES ACT OF 1933, AS AMENDED, THIS REGISTRATION STATEMENT HAS BEEN SIGNED BELOW BY THE FOLLOWING PERSONS IN THE CAPACITIES AND ON THE DATES INDICATED BELOW.

Signature	Title	Date
/s/ Arthur T. Sands Arthur T. Sands, M.D., Ph.D.	President, Chief Executive Officer and Director (principal executive officer)	August 10, 2001
/s/ Julia P. Gregory Julia P. Gregory	Executive Vice President, Chief Financial Officer (principal financial and accounting officer)	August 10, 2001
/s/ C. Thomas Caskey C. Thomas Caskey, M.D.	Chairman of the Board of Directors	August 10, 2001
/s/ Sam L. Barker Sam L. Barker, Ph.D.	Director	August 10, 2001
/s/ Gordon A. Cain Gordon A. Cain	Director	August 10, 2001
/s/ Patricia M. Cloherty Patricia M. Cloherty	Director	August 10, 2001

/s/ Robert J. Lefkowitz Robert J. Lefkowitz, M.D.	Director	August 10, 2001
/s/ William A. McMinn William A. McMinn	Director	August 10, 2001

EXHIBIT INDEX

EXHIBIT NO.		DESCRIPTION
3.1+	--	Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Company's Registration Statement on Form S-1 (Registration No. 333-96469) and incorporated by reference herein).
3.2+	--	Restated Bylaws (filed as Exhibit 3.2 to the Company's Registration Statement on Form S-1 (Registration No. 333-96469) and incorporated by reference herein).
4.1*	--	Amended and Restated Registration Rights Agreement dated as of May 7, 1998 by and among the Company and the stockholders named therein.
4.2*	--	Form of Stockholder Agreement by and between the Company and each former stockholder of Coelacanth Corporation.
5.1*	--	Opinion of Vinson & Elkins L.L.P.
23.1*	--	Consent of Arthur Andersen LLP
23.2*	--	Consent of Vinson & Elkins L.L.P. (contained in Exhibit 5.1)
24.1*	--	Power of Attorney (contained in signature page)

- ----------
\+ Previously filed.
* Filed herewith.

Exhibit 4.1

AMENDED AND RESTATED
REGISTRATION RIGHTS AGREEMENT

This Amended and Restated Registration Rights Agreement, dated as of May 7, 1998 (this "Agreement"), is entered into by and among Lexicon Genetics Incorporated, a Delaware corporation (the "Company"), the persons listed on Schedule A hereto (the "Common Holders") and the persons listed on Schedule B hereto (the "Series A Holders").

WITNESSETH:

WHEREAS, the Company and the Common Holders are parties to a Registration Rights Agreement dated as of September 14, 1995 (the "Existing Agreement") pursuant to which the Common Holders possess certain rights with respect to the registration of the offer and sale of shares of the Common Stock, par value $0.001 per share ("Common Stock"), of the Company under the Securities Act of 1933, as amended; and

WHEREAS, the Company proposes to enter into a Series A Preferred Stock Purchase Agreement (the "Stock Purchase Agreement") with the Series A Holders providing for the purchase by the Series A Holders of shares of the Series A Preferred Stock, par value $0.01 per share ("Series A Preferred Stock"), of the Company; and

WHEREAS, the obligations of the Series A Holders under the Stock Purchase Agreement are conditioned upon the execution and delivery of this Agreement by the Company and the Common Holders;

NOW, THEREFORE, the parties hereto agree as follows:

1. CERTAIN DEFINITIONS. As used in this Agreement, the following terms shall have the meanings set forth below:

(a) "Cain Shares" shall mean the Common Shares issued by the Company to Gordon A. Cain.

(b) "Commercially Reasonable Best Efforts" when used with respect to an obligation to be performed or term or provision to be observed hereunder, shall mean such efforts (including, without limitation, expenditures of funds) as a prudent person seeking the benefits of such performance or action would make, use, apply or exercise to preserve, protect or advance its rights or interests.

(c) "Commission" shall mean the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

(d) "Company" shall have the meaning set forth in the initial paragraph of this Agreement.

(e) "Common Holders" shall have the meaning set forth in the initial paragraph of this Agreement.

(f) "Common Stock" shall have the meaning set forth in the recitals of this Agreement.

(g) "Common Shares" shall mean the shares of Common Stock issued or issuable by the Company to the Common Holders and any shares of Common Stock issued as a dividend or other distribution with respect to or in exchange for or in replacement of such shares.

(h) "Conversion Shares" shall mean (i) the shares of Common Stock issued or issuable upon conversion of the Series A Preferred Stock, (ii) the shares of Common Stock issued or issuable upon the exercise of the warrants issued to Punk, Ziegel & Company in connection with the sale of the Series A Preferred Stock and (iii) any shares of Common Stock issued as a dividend or other distribution with respect to or in exchange for or in replacement of such shares.

(i) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(j) "Holder" shall mean (i) any Common Holder who holds Registrable Securities, (ii) any Series A Holder who holds Registrable Securities and (iii) any other holder of Registrable Securities to whom the registration rights conferred by this Agreement have been transferred in compliance with Section 9 hereof.

(k) "Initiating Holders" shall mean (i) any Holder or Holders who in the aggregate hold at least 25% of the then-outstanding Cain Shares that constitute Registrable Securities or (ii) any Holder or Holders who in the aggregate hold at least 25% of the then-outstanding Conversion Shares that constitute Registrable Securities.

(l) "Person" means any individual, corporation, partnership, joint venture, association, joint-stock company, trust, unincorporated organization or government or other agency or political subdivision thereof.

(m) "Prospectus" means the prospectus included in any Registration Statement (including without limitation, a prospectus that discloses information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated under the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the securities covered by such Registration Statement, and all other amendments and supplements to the prospectus, including post-effective amendments, and all material incorporated by reference or deemed to be incorporated by reference in such prospectus.

(n) The terms "register," "registered" and "registration" shall refer to a registration effected by preparing and filing a Registration Statement in compliance with the Securities Act and applicable rules and regulations thereunder, and the declaration or ordering of the effectiveness of such Registration Statement.

(o) "Registrable Securities" shall mean (i) the Common Shares and (ii) the Conversion Shares, provided, however, that Registrable Securities shall not include any shares of Common Stock which have been disposed of pursuant to an effective Registration Statement, which have been sold or otherwise transferred under Rule 144 or which may be sold pursuant to Rule 144(k) pursuant to the terms set forth herein.

(p) "Registration Expenses" shall mean all expenses incident to the Company's performance of or compliance with this Agreement including, without limitation: (i) all registration and filing fees, (ii) the fees and expenses of compliance with securities or blue sky laws (including fees and disbursements of

counsel in connection with blue sky qualifications of the Registrable Securities), (iii) all printing, messenger and delivery expenses, (iv) the Company's internal expenses (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), (v) the fees and expenses incurred in connection with the listing or quotation, as appropriate, of the Registrable Securities, (vi) the fees and disbursements of counsel for the Company and the fees and expenses for independent certified public accountants retained by the Company (including the expenses of any special audit or cold comfort letters), (vii) the fees and expenses of any special experts retained by the Company in connection with such registration, and (viii) the reasonable fees and expenses of one firm of counsel for the Series A Holders who are selling Registrable Securities pursuant to a Registration Statement, but shall not include Selling Expenses.

(q) "Registration Statement" means any registration statement of the Company which covers any of the Registrable Securities pursuant to the provisions of this Agreement, including the Prospectus, amendments and supplements to such Registration Statement, including post-effective amendments, all exhibits and all material incorporated by reference in such Registration Statement.

(r) "Rule 144" shall mean Rule 144 as promulgated by the Commission under the Securities Act, as such Rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(s) "Rule 145" shall mean Rule 145 as promulgated by the Commission under the Securities Act, as such Rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(t) "Securities Act" shall mean the Securities Act of 1933, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(u) "Selling Expenses" shall mean all underwriting discounts and selling commissions applicable to the sale of Registrable Securities and all fees and disbursements of counsel for any Holder (other than the fees and disbursements of counsel included in Registration Expenses or paid by the Company pursuant to Section 4).

(v) "Series A Holders" shall have the meaning set forth in the initial paragraph of this Agreement.

2. DEMAND REGISTRATION.

2.1 Request for Registration. (a) If the Company shall receive from Initiating Holders, at any time or times not earlier than 180 days after the effective date of the first Registration Statement under the Securities Act filed by the Company for an offering of its securities to the general public, a written request (the "Request") that the Company effect any registration for the offer and sale of all or a part of the Registrable Securities held by the Holders participating in the proposed registration, for an amount of Shares which is not less than 15% of the aggregate combined number of the then outstanding shares held by Gordon A. Cain and the Series A Holders (calculated as if all such outstanding shares have been converted into Common Stock), under the Securities Act, the Company will:

(i) within ten (10) days of the receipt of the Request, give written notice of the proposed registration to all other Holders; and

(ii) as soon as practicable, use Commercially Reasonable Best Efforts to effect such registration (including, without limitation, filing a Registration Statement and any appropriate pre-effective or post-effective amendments, appropriate qualifications under applicable blue sky or other state securities laws, and appropriate compliance with the Securities Act) so as to permit or facilitate the sale and distribution of all or such portion of the Registrable Securities as are specified in such Request, together with all or such portion of the Registrable Securities of any Holder or Holders joining in such request as are specified in a written request received by the Company within 20 days after such written notice from the Company is effective.

Each Request shall specify the amount of Registrable Securities proposed to be sold and the intended method(s) of disposition thereof.

(b) The Company shall not be obligated to effect, or to take any action to effect, any such registration pursuant to this Section 2:

(i) in any particular jurisdiction in which the Company would be required to execute a general consent to service of process in effecting such registration, qualification, or compliance, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(ii) prior to the expiration of a period of twelve months after the Company has initiated any previous registration pursuant to this Section 2.1, or after the Company has initiated a total of three such registrations pursuant to this Section 2.1; provided that the Company shall not be required to effect (A) more than two such registrations requested solely by Initiating Holders of Conversion Shares and (B) more than one such registration requested solely by Initiating Holders of Cain Shares; and provided further that a registration initiated pursuant to this Section 2.1 and subsequently withdrawn by the Holders registering shares therein shall not be counted as a requested registration pursuant to this clause (ii) if such withdrawal is based upon material adverse information relating to the Company that is not known by the Initiating Holders at the time of their request for registration pursuant to this Section 2.1 or if the Holders bear the Registration Expenses for such registration;

(iii) during the period starting with the date 60 days prior to the Company's good faith estimate of the date of filing of, and ending on a date 180 days after the effective date of, a Company-initiated registration (other than a registration relating solely to employee benefit plans or a registration relating solely to a Rule 145 transaction), provided that the Company is actively employing in good faith all Commercially Reasonable Best Efforts to cause such Registration Statement to become effective;

(iv) if the Initiating Holders do not request that such offering be firmly underwritten by underwriters selected by a majority in interest of the Initiating Holders (subject to the consent of the Company, which consent will not be unreasonably withheld); provided that the foregoing condition to the Company's obligation to effect a requested registration shall not apply in the event the registration may be effected on Form S-3;

(v) if the Company and the Initiating Holders are unable to obtain the commitment of the underwriters described in clause (iv) above, if applicable, to firmly underwrite the offer; or

(vi) if, within 14 days after its receipt of a written request to effect such registration, the Company causes to be delivered to the Initiating Holders an opinion of counsel reasonably acceptable to the Initiating Holders to the effect that the proposed disposition of Registrable Securities by the Holders wishing to dispose of their Registrable Securities pursuant to this Section 2 will not require registration or qualification under the Securities Act, it being specifically understood and agreed that such Holders will promptly furnish to the Company and such counsel all information such counsel may reasonably request in order to enable such counsel to determine whether it would be able to render such opinion.

2.2 Right to Defer Registration. Subject to the provisions of Section 2.1(b), the Company shall use Commercially Reasonable Best Efforts to file a Registration Statement covering the Registrable Securities so requested to be registered as soon as practicable after receipt of the Request or Requests of the Holders wishing to dispose of their Registrable Securities pursuant to this Section 2; provided, however, that if (i) in the good faith judgment of the Board of Directors of the Company, such registration would be seriously detrimental to the Company and the Board of Directors of the Company concludes, as a result, that it is essential to defer the filing of such Registration Statement at such time, and (ii) the Company shall furnish to such Holders a certificate signed by the President of the Company stating that in the good faith judgment of the Board of Directors of the Company, it would be seriously detrimental to the Company for such Registration Statement to be filed in the near future and that it is, therefore, essential to defer the filing of such Registration Statement, then the Company shall have the right to defer such filing for the period during which such disclosure would be seriously detrimental, provided that (except as provided in Section 2.1(b)(iii) above) the Company may not defer the filing for a period of more than 90 days after receipt of the request of the Initiating Holders, and, provided further, that the Company shall not defer its obligation in this manner more than twice in any twelve-month period.

2.3 Underwriting. (a) If the registration requested by the Initiating Holders is for a registered public offering involving an underwriting, the Company shall so advise the Holders as a part of the written notice given pursuant to Section 2.1 (a) above. In such event, the right of any Holder to registration pursuant to Section 2 shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting (together with the Company and other holders of securities of the Company exercising registration rights with respect to such registration) shall enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected by a majority in interest of the Initiating Holders, subject to the consent of the Company, which consent shall not be unreasonably withheld.

(b) Notwithstanding any other provision of this Section 2, if the representative of the underwriters advises the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, the number of shares to be included in the underwriting or registration shall be allocated first to the Holders of the same kinds of Shares as the Initiating Holders (, Cain Shares or Conversion Shares) and thereafter as set forth in Section 10 hereof. If a person who has requested inclusion in such registration as provided above does not agree to the terms of any such underwriting, such person shall be excluded therefrom by written notice from the Company, the underwriter or the Initiating Holders. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall also be withdrawn from such registration. If shares are so withdrawn from the registration and if the number of shares to be included in such registration was previously reduced as a result of marketing factors pursuant to this Section 2.3, then the Company shall offer to all Holders who have retained rights

to include securities in the registration the right to include additional securities in the registration in an aggregate amount equal to the number of shares so withdrawn, with such shares to be allocated among such Holders requesting additional inclusion first to the Initiating Holders with respect to the Cain Shares and Conversion Shares requested to be included by the Initiating Holders in such registration, then to the Holders of the same kinds of Shares as the Initiating Holders (e.g., Cain Shares or Conversion Shares) and thereafter in accordance with Section 10 hereof.

3. PIGGYBACK REGISTRATION.

3.1 Notice of Registration. If the Company shall determine to register any of its securities either for its own account or the account of a security holder or holders exercising their respective demand registration rights (other than pursuant to Section 2 hereof), other than a registration relating solely to employee benefit plans, a registration relating solely to a Rule 145 transaction, or a registration on any registration form that does not permit secondary sales, the Company will:

(i) promptly give to each Holder written notice thereof (but in no event less than 30 days before the anticipated date of filing); and

(ii) use Commercially Reasonable Best Efforts to include in such registration (and any related qualification under blue sky laws or other compliance), except as set forth in Section 3.2 below, and in any underwriting involved therein (to be included on the same terms and conditions as any similar securities of the Company or any other security holder included therein and to permit the sale or other disposition of such Registrable Securities in accordance with the terms of such underwriting), all the Registrable Securities specified in a written request or requests, made by any Holder within 20 days after the written notice from the Company described in clause (i) above is given. Such written request may specify all or a part of a Holder's Registrable Securities.

3.2 Right to Terminate Registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 3 prior to the effectiveness of such registration whether or not any Holder has elected to include Registrable Securities in such registration. The Holders shall be permitted to withdraw all or any part of the Registrable Securities from a registration pursuant to this Section 3 at any time prior to the effectiveness of such registration.

3.3 Underwriting. (a) If the registration of which the Company gives notice is for a registered public offering involving an underwriting, the Company shall so advise the Holders as a part of the written notice given pursuant to Section 3.1 above. In such event, the right of any Holder to registration pursuant to this Section 3 shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting (together with the Company and such other holders of securities of the Company exercising registration rights with respect to such registration) shall enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected by the Company or the security holders initiating such registration, as the case may be.

(b) Notwithstanding any other provision of this Section 3, if the representative of the underwriters advises the Company in writing that marketing factors require a limitation on the number of shares to be underwritten, the representative may (subject to the limitations set forth below) exclude all Registrable Securities from, or limit the number of Registrable Securities to be included in, the registration and underwriting. The Company shall so advise all holders of securities requesting registration, and the amount of securities that are

entitled to be included in the registration and underwriting shall be allocated first to the Company for securities being sold for its own account and thereafter as set forth in Section 10 hereof. If any person does not agree to the terms of any such underwriting, such person shall be excluded therefrom by written notice from the Company or the underwriter. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall be withdrawn from such registration.

3.4 Continuing Obligation. No registration effected under this Section 3, and no failure to effect a registration under this Section 3, shall relieve the Company of its obligation to effect a registration upon the request of Holders pursuant to Section 2 (except as expressly provided therein), and no failure to effect a registration under this Section 3 and to complete the sale of Registrable Securities in connection therewith shall relieve the Company of any other obligation under this Agreement (including, without limitation, the Company's obligations to satisfy in full the Registration Expenses and its obligations pursuant to Section 6.1).

4. EXPENSES OF REGISTRATION. All Registration Expenses incurred in connection with any registration, qualification or compliance pursuant to this Agreement, including the reasonable fees of one counsel for the selling stockholders in the case of a registration pursuant to Section 2 or Section 3 shall be borne by the Company. All Selling Expenses relating to securities so registered shall be borne by the holders of such securities pro rata on the basis of the number of shares of securities so registered on their behalf.

5. REGISTRATION PROCEDURES. In the case of each registration effected by the Company pursuant to this Agreement, the Company will keep each Holder advised in writing as to the initiation of each registration and as to the completion thereof. At its expense, the Company will use Commercially Reasonable Best Efforts to:

(a) keep such registration effective for a period of 120 days or until the Holder or Holders have completed the distribution described in the Registration Statement relating thereto, whichever first occurs; provided, however, that such 120-day period shall be extended for a period of time equal to the period after the effectiveness of such requirements that the Holder refrains from selling any securities included in such registration at the request of an underwriter of Common Stock (or other securities) of the Company; provided further, however, that in the case of a Registration Statement on Form S-3 (or any substitute form that may be adopted by the Commission) the Company will keep such registration effective for a period of 5 years or until the Holders have completed the distribution of all of their Registrable Securities;

(b) promptly prepare and file with the Commission such amendments and post-effective amendments to the Registration Statement as may be necessary to keep such Registration Statement effective for as long as such registration is required to remain effective pursuant to the terms hereof; cause the Prospectus to be supplemented by any required Prospectus supplement, and, as so supplemented, to be filed pursuant to Rule 424 under the Securities Act; and comply with the provisions of the Securities Act applicable to it with respect to the disposition of all Registrable Securities covered by such Registration Statement during the applicable period in accordance with the intended methods of disposition by the selling Holders set forth in such Registration Statement or supplement to the Prospectus;

(c) furnish such number of prospectuses and other documents incident thereto, including any amendment of or supplement to the prospectus, as a Holder from time to time may reasonably request;

(d) within a reasonable time period (to allow the opportunity, for review and comment, as set forth below) prior to filing a Registration Statement or a Prospectus or any amendment or supplement to

such Registration Statement or Prospectus furnish to (i) each selling Holder, (ii) not more than one counsel, if any, representing all selling Holders, to be selected by a majority-in-interest of such selling Holders, and (iii) each underwriter, if any, of the Registrable Securities covered by such Registration Statement copies of such Registration Statement as proposed to be filed, together with exhibits thereto, for purposes of each such person's review and comment, and thereafter furnish to such selling Holders, counsel and underwriters, if any, for their review and comment such number of copies of such Registration Statement, each amendment and supplement thereto (in each case including all exhibits thereto and documents incorporated by reference therein), the Prospectus included in such Registration Statement (including each Prospectus subject to completion) and such other documents or information as such selling Holders, counsel or underwriters may reasonably request in order to facilitate the disposition of the Registrable Securities;

(e) notify each selling Holder of (and in any event within twenty-four (24) hours of the receipt of) any stop order issued or threatened by the Commission and take all reasonable actions required to prevent the entry of such stop order or to remove it at the earliest possible moment if entered;

(f) on or prior to the date on which the Registration Statement is declared effective by the Commission, use all reasonable efforts to (i) register or qualify the Registrable Securities under such other securities or blue sky laws of such jurisdictions in the United States as any selling Holder reasonably (in light of the intended plan of distribution) requests, and (ii) file documents required to register such Registrable Securities with or approved by such other governmental agencies or authorities in the United States as may be necessary by virtue of the business and operations of the Company and do any and all other acts and things that may be reasonably necessary or advisable to enable such selling Holder to consummate the disposition of the Registrable Securities owned by such selling Holder; provided that the Company will not be required to (A) qualify generally to do business in any jurisdiction where it would not otherwise be required to qualify but for this paragraph (f), (B) subject itself to taxation in any such jurisdiction or (C) consent to general service of process in any such jurisdiction;

(g) notify each selling Holder, selling Holders' counsel and any underwriter promptly (and in any event within 24 hours) and (if requested by any such Person) confirm such notice in writing, (i) when a Prospectus or any Prospectus supplement or post-effective amendment has been filed and, with respect to a Registration Statement or any post-effective amendment, when the same has become effective, (ii) of any request by the Commission or any other federal or state governmental authority for amendments or supplements to a Registration Statement or Prospectus or for additional information to be included in any Registration Statement or Prospectus or otherwise, (iii) of the issuance by the Commission of any stop order suspending the effectiveness of a Registration Statement or the initiation or threatening of any proceedings for that purpose, (iv) of the issuance by any state securities commission or other regulatory authority of any order suspending the qualification or exemption from qualification of any of the Registrable Securities under state securities or "blue sky" laws or the initiation of any proceedings for that purpose, and (v) of the happening of any event which makes any statement made in a Registration Statement or related Prospectus or any document incorporated or deemed to be incorporated by reference therein untrue or which requires the making of any changes in such Registration Statement, Prospectus or documents so that they will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements in the Registration Statement and Prospectus not misleading in light of the circumstances under which they were made; and, as promptly as practicable thereafter, prepare and file with the Commission and furnish a supplement or amendment to

such Prospectus so that, as thereafter deliverable to the purchasers of such Registrable Securities, such Prospectus will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading;

(h) make generally available an earnings statement satisfying the provisions of Section 11(a) of the Securities Act no later than ninety (90) days after the end of the 12month period beginning with the first day of the Company's first fiscal quarter commencing after the effective date of a Registration Statement, which earnings statement shall cover said 12-month period, and which requirement will be deemed to be satisfied if the Company timely files complete and accurate information on Forms 10-Q, 10-K and 8-K under the Exchange Act and otherwise complies with Rule 158 under the Securities Act;

(i) if requested by the managing underwriter or underwriters, selling Holders' counsel, or any selling Holder, unless otherwise advised by counsel, promptly incorporate in a Prospectus supplement or post-effective amendment such information as the managing underwriter or underwriters request, or selling Holders' counsel requests, to be included therein, including, without limitation, with respect to the Registrable Securities being sold by such selling Holder to such underwriter or underwriters, the purchase price being paid therefor by such underwriter or underwriters and with respect to any other terms of the underwritten offering of the Registrable Securities to be sold in such offering, and promptly make all required filings of such Prospectus supplement or post-effective amendment;

(j) enter into customary agreements reasonably satisfactory to the Company (including, if applicable, an underwriting agreement in customary form and which is reasonably satisfactory to the Company) and take such other actions as are reasonably required in order to expedite or facilitate the disposition of such Registrable Securities (the selling Holders, at their option may, require that any or all of the representations, warranties and covenants of the Company to or for the benefit of such underwriters also be made to and for the benefit of such selling Holders);

(k) make available to each selling Holder (and will deliver to their counsel) and each underwriter, if any, subject to restrictions imposed by the United States federal government or any agency or instrumentality thereof, copies of all correspondence between the Commission and the Company, its counsel or auditors and will also make available for inspection at reasonable times at the Company's offices by any selling Holder of such Registrable Securities, any underwriter participating in any disposition pursuant to such Registration Statement and any attorney, accountant or other professional retained by any such Selling Holder or underwriter (collectively, the "Inspectors"), all financial and other records, pertinent corporate documents and properties of the Company as shall be reasonably necessary to enable them to exercise their due diligence responsibility, and cause the Company's officers and employees to supply all information reasonably requested by any Inspectors in connection with such Registration Statement;

(1) in connection with an underwritten offering, participate, to the extent reasonably requested by the managing underwriter or underwriters for the offering or the selling Holders, in customary efforts to sell the securities under the offering, including, without limitation, participating in "road shows"; provided that the Company shall not be obligated to participate in more than two such selling efforts in any 12-month period;

(m) during the period when the Prospectus is required to be delivered under the Securities Act, promptly file all documents required to be filed with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act;

(n) use all reasonable efforts to obtain a cold comfort letter from the Company's independent public accountants in customary form and covering such matters of the type customarily covered by cold comfort letters, as the selling Holders may request;

(o) cause all such Registrable Securities registered pursuant hereunder to be listed on each securities exchange on which similar securities issued by the Company are then listed;

(p) provide a transfer agent and registrar for all Registrable Securities registered pursuant to such Registration Statement and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration; and

(q) otherwise comply with all applicable rules and regulations of the Commission.

6. INDEMNIFICATION.

6.1 Indemnification by the Company. The Company agrees to indemnify and hold harmless, to the fullest extent permitted by law, each selling Holder, its partners, officers, directors, employees and agents, and each Person, if any, who controls such selling Holder within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, together with the partners, officers, directors, employees and agents of such controlling Person (collectively, the "Controlling Persons"), from and against any loss, claim, damage, liability, attorneys' fees, cost or expense and costs and expenses of investigating and defending any such claim (collectively, the "Damages") and any action in respect thereof to which such selling Holder, its partners, officers, directors, employees and agents, and any such Controlling Person may become subject under the Securities Act or otherwise, insofar as such Damages (or proceedings 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 or Prospectus or any preliminary Prospectus, or arise out of, or are based upon, any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading under light of the circumstances in which they were made, except insofar as the same are based upon information furnished in writing to the Company by a Selling Holder expressly for use therein, and shall reimburse each selling Holder, its partners, officers, directors, employees and agents, and each such Controlling Person for any legal and other expenses incurred by .that selling Holder, its partners, officers, directors, employees and agents, or any such Controlling Person in investigating or defending or preparing to defend against any such Damages or proceedings; provided, however, that the Company shall not be liable to any Holder or other indemnitee to the extent that any such Damages arise out of or are based upon an untrue statement or omission made in any preliminary prospectus if (i) such Holder failed to send or deliver a copy of the final Prospectus with or prior to the delivery of written confirmation of the sale by such Holder to the Person asserting the claim from which such Damages arise, and (ii) the final Prospectus would have corrected such untiiie statement or such omission; and provided further, however, that the Company shall not be liable in any such case to the extent that any such Damages arise out of or are based upon an untrue statement or omission in any Prospectus if (x) such untrue statement or omission is corrected in an amendment or supplement to such Prospectus, (y) having previously been furnished by or on behalf of the Company with copies of such Prospectus as so amended or supplemented, and (z) after being notified by the Company pursuant hereto of the happening of any event which would make any statement in the Registration Statement or related Prospectus or any document incorporated or deemed to be incorporated by reference therein untrue or misleading, the Holder continues to offer for sale the

Registrable Securities pursuant to the Registration Statement or Prospectus which is the subject of such notice, such Holder thereafter fails to deliver such Prospectus as so amended or supplemented prior to or concurrently with the sale of a Registrable Security to the Person asserting the claim from which such Damages arise; provided further, that the Company shall not be liable in any case to the extent that any such Damages arise out of or are based upon an untrue statement or omission in any Prospectus, even if an amended and corrected Prospectus is not furnished to the Holder, but only to the extent that the Holder, after being notified by the Company pursuant hereto, continues to use such Prospectus and in such case and to the extent of, and with respect to, Damages which arise after the Holder receives such notice. The Company also agrees to indemnify any underwriters of the Registrable Securities, their officers and directors and each Person who controls such underwriters on substantially the same basis as that of the indemnification of the Selling Holders provided in this Section 6.1.

6.2 Indemnification by Selling Holders. Each selling Holder agrees, severally but not jointly, to indemnify and hold harmless the Company, its officers, directors, employees and agents and each Person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, together with the partners, officers, directors, employees and agents of such controlling Person, to the same extent as the foregoing indemnity from the Company to such selling Holder, but only with reference to information related to such selling Holder, or its plan of distribution, furnished in writing by such selling Holder expressly for use in any Registration Statement or Prospectus, or any amendment or supplement thereto, or any preliminary Prospectus. In case any action or proceeding shall be brought against the Company or its officers, directors, employees or agents or any such controlling Person or its officers, directors, employees or agents, in respect of which indemnity may be sought against such selling Holder, such Selling Holder shall have the rights and duties given to the Company, and the Company or its officers, directors, employees or agents, or such controlling Person, or its officers, directors, employees or agents, shall have the rights and duties given to such selling Holder, by the preceding paragraph. Each selling Holder also agrees to indemnify and hold harmless any underwriters of the Registrable Securities, their officers and directors and each Person who controls such underwriters on substantially the same basis as that of the indemnification of the Company provided in this Section 6.2. Notwithstanding anything. contained herein to the contrary, no selling Holder shall be required to indemnify such underwriters or the Company or its officers, directors, employees or agents or any such controlling Person or its officers, directors, employees or agents, for any amount in excess of the net proceeds for the Registrable Securities sold for the account of such selling Holder.

6.3 Conduct of Indemnification Proceedings. Promptly after receipt by any person in respect of which indemnity may be sought pursuant to Section 6.1 or 6.2 (an "Indemnified Party") of notice of any claim or the commencement of any action, the Indemnified Party shall, if a claim in respect thereof is to be made against the Person against whom such indemnity may be sought (an "Indemnifying Party"), notify the Indemnifying Party in writing of the claim or the commencement of such action; provided that the failure to notify the Indemnifying Party shall not relieve it from any liability which it may have to an Indemnified Party otherwise than under Section 6.1 or 6.2 except to the extent of any actual prejudice resulting therefrom. If any such claim or action shall be brought against an Indemnified Party, and it shall notify the Indemnifying Party thereof, the Indemnifying Party shall be entitled to participate therein, and, to the extent that it wishes, jointly with any other similarly notified Indemnifying Party, to assume the defense thereof with counsel reasonably satisfactory to the Indemnified Party. After notice from the Indemnifying Party to the Indemnified Party of its election to assume the defense of such claim or action, the Indemnifying Party shall not be liable to the Indemnified Party for any legal or other expenses subsequently incurred by the Indemnified Party in connection with the defense thereof other than reasonable costs of investigation; provided that the Indemnified Party shall have the right to employ separate counsel to represent the Indemnified Party and its controlling Persons who may be subject to liability arising out of any claim in respect of which

indemnity may be sought by the Indemnified Party against the Indemnifying Party, but the fees and expenses of such counsel shall be for the account of such Indemnified Party unless (i) the Indemnifying Party and the Indemnified Party shall have mutually agreed to the retention of such counsel or (ii) in the opinion of counsel to such Indemnified Party, representation of both parties by the same counsel would be inappropriate due to actual or potential conflicts of interest between them, it being understood, however, that the Indemnifying Party shall not, in connection with any one such claim or action or separate but substantially similar or related claims or actions in the same jurisdiction arising out of the same general allegations or circumstances, be liable for the fees and expenses of more than one separate firm of attorneys (together with appropriate local counsel) at any time for all Indemnified Parties. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any claim or pending or threatened proceeding in respect of which the Indemnified Party is or could have been a party and indemnity could have been sought hereunder by such Indemnified Party, unless such settlement includes an unconditional release of such Indemnified Party from all liability arising out of such claim or proceeding. Whether or not the defense of any claim or action is assumed by the Indemnifying Party, such Indemnifying Party will not be subject to any liability for any settlement made without its consent, which consent will not be unreasonably withheld.

6.4 Contribution. If the indemnification provided for in this Section 6 is unavailable to the Indemnified Parties in respect of any Damages referred to herein, then each Indemnifying Party, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such Damages in such proportion as is appropriate to reflect the relative benefits but also the relative fault of the Company on the one hand and the Selling Holders on the other in connection with the statements or omissions which resulted in such Damages, as well as any other relevant equitable considerations. The relative fault of the Company on the one hand and of each selling Holder on the other shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by such party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The Company and the selling Holders agree that it would not be just and equitable if contribution pursuant to this Section 6.4 were determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to in the immediately preceding paragraph. The amount paid or payable by an Indemnified Party as a result of the Damages referred to in the immediately preceding paragraph shall be deemed to include, subject to the limitations set forth above, any legal or other expenses reasonably incurred by such Indemnified Party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this Section 6.4, no selling Holder shall be required to contribute any amount in excess of the amount by which the net proceeds for the Registrable Securities sold for the account of the selling Holder exceeds the amount of any damages which such selling Holder has otherwise paid by reason of such untrue or alleged untrue statement or omission or alleged omission. No Person guilty of fraudulent misrepresentation (within the meaning of Section 11 (f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation. Each selling Holder's obligations to contribute pursuant to this Section 6.4 is several in the proportion that the proceeds of the offering received by such selling Holder bears to the total proceeds of the offering received by all the selling Holders and not joint.

7. INFORMATION AND OTHER OBLIGATIONS OF HOLDER.

(a) As a condition to exercising the registration rights provided for herein, each Holder of Registrable Securities shall furnish to the Company such information regarding such Holder and the distribution proposed by

such Holder as the Company may reasonably request in writing and as shall be reasonably required in connection with any registration, qualification, or compliance referred to in this Agreement.

(b) The failure of any Holder to furnish the information requested pursuant to Section 7(a) shall not affect the obligation of the Company under Sections 2 or 3 to the remaining Holder(s) who furnish such information unless, in the reasonable opinion of counsel to the Company or the underwriters, if any, such failure impairs or may impair the legality of the Registration Statement or the underlying offering.

(c) Each Holder, with respect to any Registrable Securities included in any registration, shall cooperate in good faith with the Company and the underwriters, if any, in connection with such registration.

(d) Each Holder, with respect to any Registrable Securities included in any registration, shall make no further sales or other dispositions, or offers therefor, of such shares under such Registration Statement if, during the effectiveness of such Registration Statement, an intervening event should occur which, in the opinion of counsel to the Company, makes the Prospectus included in such Registration Statement no longer comply with the Securities Act until such time as such holder has received from the Company copies of a new, amended or supplemented Prospectus complying with the Securities Act.

8. RULE 144 REPORTING. With a view to making available the benefits of certain rules and regulations of the Commission that may permit the sale of the Restricted Securities to the public without registration, the Company agrees to use its best efforts to:

(a) make and keep public information regarding the Company available as those terms are understood and defined in Rule 144 under the Securities Act, at all times from and after 90 days following the effective date of the first Registration Statement under the Securities Act filed by the Company for an offering of its securities to the general public;

(b) file with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act at any time after it has become subject to such reporting requirements; and

(c) so long as a Holder owns any restricted Registrable Securities, furnish to the Holder forthwith upon written request a written statement by the Company as to its compliance with the reporting requirements of Rule 144 (at any time from and after 90 days following the effective date of the first Registration Statement filed by the Company for an offering of its securities to the general public), and of the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements), a copy of the most recent annual or quarterly report of the Company, and such other reports and documents so filed as a Holder may reasonably request in availing itself of any rule or regulation of the Commission allowing a Holder to sell any such securities without registration.

9. TRANSFER OR ASSIGNMENT OF REGISTRATION RIGHTS. The rights to cause the Company to register securities granted to Holders by the Company under this Agreement may be transferred or assigned by a Holder in connection with any transfer or assignment of Registrable Securities; provided that any transfer or assignment of the registration rights granted under this Agreement shall be conditioned upon (i) the Company's being given written notice at the time of or within a reasonable time after said transfer or assignment, stating the name and address of the transferee or assignee and identifying the securities with respect to which such registration rights are being

transferred or assigned and (ii) the assumption in writing by the transferee or assignee of the obligations of a Holder under this Agreement.

10. ALLOCATION OF REGISTRATION OPPORTUNITIES. In any circumstance in which all of the Registrable Securities requested to be included in a registration on behalf of the Holders cannot be so included as a result of limitations of the aggregate number of shares of Registrable Securities that may be so included, the number of shares of Registrable Securities that may be so included shall be allocated among the Holders requesting inclusion of shares pro rata on the basis of the number of shares of Registrable Securities held by such Holders. The Company shall not limit the number of Registrable Securities to be included in a registration pursuant to this Agreement in order to include shares held by stockholders with no registration rights or, with respect to registrations under Section 2 hereof, in order to include in such registration securities registered for the Company's own account or securities other than Registrable Securities.

11. TERMINATION OF REGISTRATION RIGHTS. The right of any Holder to request registration or inclusion of Registrable Securities held by such Holder in any registration pursuant to Section 2 or 3 hereof shall terminate on the earlier to occur of (i) such date as all Registrable Securities held by such Holder (including any Registrable Securities that such Holder is entitled to acquire upon conversion of Series A Preferred Stock or exercise of warrants) have been sold under Rule 144 or an effective Registration Statement under the Securities Act or may immediately be sold under Rule 144(k), or (ii) the fifth anniversary of the completion of an initial public offering of Common Stock pursuant to an effective Registration Statement under the Securities Act.

12. LIMITATIONS ON SUBSEQUENT REGISTRATION RIGHTS. The Company agrees and covenants that it will not grant or allow any persons any registration rights with respect to any securities of the Company which rights are superior to the rights granted herein or which would reduce the number of Conversion Shares or Cain Shares that would be included for the account of Initiating Holders in any registration pursuant to Section 2 hereof, unless it shall first have obtained the written consent of (i) the Holders of at least 75% of the outstanding Registrable Securities, (ii) the Holders of at least 50% of the outstanding Conversion Shares that constitute Registrable Securities, and (iii) the Holders of at least 66-2/3% of the outstanding Cain Shares that constitute Registrable Securities.

13. MISCELLANEOUS.

13.1 Governing Law. This Agreement shall be governed in all respects by the internal laws of the State of Delaware, without reference to the conflicts of law principles thereof.

13.2 Successors and Assigns. Except as otherwise provided herein, this Agreement shall inure to the benefit of, and be binding upon, the successors, assigns, heirs, executors and administrators of the parties hereto.

13.3 Entire Agreement. This Agreement constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof. Without limiting the foregoing, this Agreement amends and restates the Existing Agreement in its entirety.

13.4 Notices, etc. All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, or otherwise delivered by hand or by messenger, including Federal Express or similar courier services, addressed (a) if to a Holder, to such Holder's address as set forth in the stock records of the Company, or (b) if to the Company, to 4000 Research Forest Drive, The Woodlands, Texas 77381 Attn: President, or at such other address as the Company shall have furnished to the

Holders. Each such notice or other communication shall for all purposes of this Agreement be treated as effective or having been given when delivered if delivered personally, or:- if sent by mail or courier, at the earlier of its receipt or 72 hours after the same has been deposited in a regularly maintained receptacle for the deposit of the United States mail, addressed and mailed as aforesaid.

13.5 Counterparts. This Agreement may be executed in any number of counterparts, each of which may be executed by less than all of the Holders, each of which shall be enforceable against the parties actually executing such counterparts, and all of which together shall constitute one instrument.

13.6 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect such provision in any other jurisdiction, and this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

13.7 Titles and Subtitles. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

13.8 Amendment and Waiver. Except as expressly provided herein, this Agreement, or any provision hereof, may be amended, waived, discharged or terminated upon the written consent of the Company and the Holders of at least 75% of the then outstanding Registrable Securities; provided, however, that (i) if any of the rights of the Holders of the Conversion Shares are adversely affected by such amendment or waiver, the written consent of the Holders of at least 50% of the outstanding Conversion Shares that constitute Registrable Securities shall also be required, and (ii) if any of the rights of the Holders of the Cain Shares are adversely affected by such amendment or waiver, the written consent of the Holders of at least 66-2/3% of the outstanding Cain Shares that constitute Registrable Securities shall also be required.

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

LEXICON GENETICS INCORPORATED

By: /s/ Arthur T. Sands

Arthur T. Sands, M.D., Ph.D.
President and Chief Executive Officer

EXHIBIT 4.2

STOCKHOLDER AGREEMENT

This Stockholder Agreement is made and entered into as of this ____ day of _____, 2001 by and among the undersigned stockholder (the "Stockholder") of Coelacanth Corporation, a Delaware corporation (the "Company"), Lexicon Genetics Incorporated, a Delaware corporation (the "Parent") and Angler Acquisition Corp., a Delaware corporation and wholly owned subsidiary of the Parent (the "Merger Sub"). This Agreement is being delivered pursuant to Sections 4.11 and 5.3(h) of the Agreement and Plan of Merger dated as of June __, 2001 (the "Merger Agreement") by and among the Parent, the Merger Sub and the Company. Capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Merger Agreement.

WHEREAS, the Merger Agreement provides that it is a condition to the obligations of the Parent and the Merger Sub to consummate and effect the Merger Agreement and the transactions contemplated thereby that stockholders of the Company holding at least 90% of the Company's outstanding common stock, $.0001 par value per share (the "Common Stock"), on a fully diluted, as-converted basis, shall have executed and delivered this Agreement;

WHEREAS, the Parent and the Merger Sub would not consummate and effect the transactions contemplated by the Merger Agreement if such condition were not satisfied;

WHEREAS, the Stockholder expects to derive a significant benefit from the consummation of the transactions contemplated by the Merger Agreement; and

WHEREAS, the Stockholder desires to execute and deliver this Agreement as an inducement to the Parent and the Merger Sub to consummate and effect the transactions contemplated by the Merger.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the Stockholder hereby represents and warrants to and agrees with the Parent and the Merger Sub as follows:

1. Stockholder's Title and Authority. The Stockholder hereby represents and warrants to the Parent and the Merger Sub that (a) the Stockholder has duly authorized, executed and delivered this Agreement and this Agreement constitutes a valid and binding agreement and neither the execution and delivery of this Agreement nor the consummation by the Stockholder of the transactions contemplated hereby will constitute a violation of, a default under, or conflict with any contract, commitment, agreement, understanding, arrangement or restriction of any kind to which the Stockholder is a party or by which the Stockholder is bound; (b) consummation by the Stockholder of the transactions contemplated hereby will not violate, or require any consent, approval, or notice under, any provision of law applicable to the Stockholder; (c) the shares of capital stock of the Company and options and warrants to acquire capital stock of the Company as set forth on the signature page hereto (the "Shares") and the certificates or other instruments representing same are now and, at the Closing, will be, held by the Stockholder or by a nominee or custodian for the benefit of the Stockholder, free and clear of all liens, claims, security interests, proxies, voting trusts or agreements or any other encumbrances whatsoever ("Encumbrances") with respect to the ownership or voting of the Shares or otherwise, other than Encumbrances created by or arising pursuant to the Agreement and Irrevocable Proxy previously executed by the Stockholder, if so executed by the Stockholder, and there are no outstanding options, warrants or rights to purchase or acquire, or proxies, powers-of-attorney, voting agreements, trust agreements or other agreements relating to, the Shares other than such Agreement and Irrevocable Proxy; (d) such Shares constitute all of the securities of the Company owned beneficially or of record by the Stockholder on the date hereof and as will be so owned on the Closing Date; and (e) the Stockholder has the present power and right to vote all of the Shares (other than options and warrants) that are entitled to vote.

2. Stockholders' Representative. The Stockholder hereby irrevocably ratifies and agrees to the appointment of Michael Steinmetz, on behalf of MPM Asset Management, as the representative (the "Representative") of the stockholders of the Company (provided that the Representative may be replaced in accordance with Section 8.4 of the Merger Agreement) for the purpose of administering the Merger Agreement on behalf of the Stockholder, to the extent set forth in the Merger Agreement and the Indemnity Escrow Agreement, including without limitation, signing the Indemnity Escrow Agreement, performing the functions and acts of the Representative thereunder, delivering appropriate instructions and executing any documents or agreements

necessary or desirable for carrying out the functions of the Representative thereunder and otherwise administering the indemnification and escrow distribution provisions set forth in Article 8 of the Merger Agreement. The Stockholder agrees that the Parent and the Surviving Corporation shall be entitled to deal exclusively with the Representative and that the Representative shall have the authority to bind the Stockholder with respect to all such matters arising under the Merger Agreement and the Escrow Agreement.

3. Registration Rights. The Stockholder has reviewed, and hereby understands, acknowledges and agrees to, the provisions relating to registration set forth in Section 4.11 of the Merger Agreement and further agrees to provide timely to the Representative the information relating to the Stockholder required by Section 4.11(c) of the Merger Agreement. The Stockholder has reviewed, and hereby acknowledges and agrees to be bound by and in accordance with, the indemnification provisions and procedures set forth in Sections 4.11(g) and (h), respectively, of the Merger Agreement.

4. Investment Intent. The Stockholder hereby represents and warrants to each of the Parent and Merger Sub as follows: (i) the Stockholder is acquiring the shares of Parent Common Stock to be issued pursuant to the Merger Agreement and the Merger to such Stockholder solely for such Stockholder's account, for investment purposes only and with no current intention or plan to distribute, sell or otherwise dispose of any of those shares in connection with any distribution in violation of the securities laws; (ii) the Stockholder is not a party to any agreement or other arrangement for the disposition of any shares of Parent Common Stock; (iii) the Stockholder is an "accredited investor" as defined in Rule 501(a) under the Securities Act of 1933, as amended (the "Securities Act"); (iv) the Stockholder (A) is able to bear the economic risk of an investment in the Parent Common Stock acquired pursuant to the Merger Agreement and the Merger, (B) can afford to sustain a total loss of that investment, (C) has such knowledge and experience in financial and business matters, and such past participation in investments, that he is capable of evaluating the merits and risks of the proposed investment in the Parent Common Stock, (D) has received and reviewed copies of the Merger Agreement, the Parent SEC Reports and the Company's unaudited consolidated balance sheet dated April 30, 2001 and the Company's unaudited consolidated statement of operations for the 10-month period ending on April 30, 2001; and (v) the Stockholder, if a corporation, partnership, trust or other entity, acknowledges that it was not formed for the specific purpose of acquiring the Parent Common Stock. Without limiting any of the foregoing, the Stockholder acknowledges that the shares of Parent Common Stock to be delivered to such Stockholder pursuant to the Merger Agreement and the Merger have not been registered under the Securities Act or qualified under applicable blue sky laws, and the Stockholder agrees not to dispose of any portion of Parent Common Stock unless either (x) a registration statement under the Securities Act is in effect as to the applicable shares and the disposition is made in accordance with that registration statement, or (y) an exemption from the registration requirements of the Securities Act is available with respect to the applicable shares and the disposition is made in accordance with that exemption; and, in the case of either (x) or (y), the disposition is made in accordance with the provisions of Sections 6 and 7 of this Agreement.

5. Receipt and Release. As of the Closing and upon distribution of the Purchase Price in accordance with the Merger Agreement, the Stockholder acknowledges, confirms and agrees that the shares of Parent Common Stock allocated to such Stockholder, and issued to such Stockholder or to the Representative on behalf of such Stockholder, at the Effective Time pursuant to the Merger and the Merger Agreement constitute in full such Stockholder's proportionate share of the Purchase Price determined in accordance with Section 1.6 of the Merger Agreement and to which such Stockholder is entitled pursuant to the Merger Agreement. The Stockholder hereby remits, releases, acquits and forever discharges the Company, the Surviving Corporation and the Parent of and from any Claims (as defined below) relating to the sufficiency or amount of consideration allocated to and received by such Stockholder (or by the Representative on behalf of such Stockholder) at the Effective Time pursuant to the Merger Agreement and the Merger.

As of the Closing, the Stockholder does hereby for the Stockholder and any of the Stockholder's heirs, executors, administrators and legal representatives remise, release, acquit and forever discharge the Company (and, as of the Effective Time, the Surviving Corporation) of and from any and all claims, demands, liabilities, responsibilities, disputes, causes of action and obligations (collectively "Claims") of every nature whatsoever, liquidated or unliquidated, known or unknown, matured or unmatured, fixed or contingent, which such Stockholder now has, owns or holds or has at any time previously had, owned or held against the Company including, without limitation, any and all Claims arising out of the negligence, gross negligence or willful acts of the Company and its employees and agents, whether any such Claim exists as of the Closing or relates to any matter that occurred on or

prior to the Closing; provided, however, that, except as set forth in the preceding paragraph, any Claim that may arise in connection with the failure of any of the parties hereto to perform any of their obligations hereunder or under the Merger Agreement or under any other agreement relating to the transactions contemplated hereby or by the Merger Agreement or from any breaches by any such party of any of such party's representations or warranties herein or in any other agreement relating to the transactions contemplated hereby or by the Merger Agreement shall not be remised, released, acquitted or discharged pursuant to this Agreement.

The Stockholder hereby represents and warrants that the Stockholder has not previously assigned or transferred, or purported to assign or transfer, to any person all or any part of any such Claims. The Stockholder covenants and agrees not to assign or transfer to any person all or any part of any such Claims. The Stockholder represents and warrants that the Stockholder has read and understands all of the provisions of this Section 5 and that the Stockholder has been represented by legal counsel of his own choosing in connection with the negotiation, execution and delivery of this Agreement.

6. Certain Prohibited Transactions. The Stockholder hereby agrees that, except with the prior written consent of Parent, the Stockholder will not sell, offer to sell, solicit offers to buy, dispose of, loan, pledge or grant any right with respect to any Parent Common Stock issued to the Stockholder pursuant to the Merger Agreement and the Merger (collectively, a "Disposition"), or engage in any hedging or other transaction which is designed to or could reasonably be expected to lead to or result in a Disposition of any such Parent Common Stock by such Stockholder or any other person or entity. Such prohibited hedging or other transaction shall include, without limitation, effecting any short sale or having in effect any short position (whether or not such sale or position is against the box and regardless of when such position was entered into) or making any purchase, sale or grant of any right (including, without limitation, any put or call option) with respect to any such Parent Common Stock or with respect to any security (other than a broad-based market basket or index) that includes, relates to or derives any significant part of its value from Parent Common Stock.

7. Restrictions on Sale of Parent Company Stock. The restrictions described in Section 6 above will lapse as follows: (i) on the earlier to occur of (A) the effective date of the Registration Statement or (B) the 90th day after the Closing Date, with respect to 50% of the Parent Common Stock received by the Stockholder pursuant to the Merger Agreement and the Merger, (ii) on the 180th day after the Closing Date with respect to 20% of such Parent Company Stock, (iii) on the 270th day after the Closing Date with respect to 20% of such Parent Company Stock and (iv) on the first anniversary of the Closing Date with respect to the remainder of such Parent Common Stock, which remainder shall be the Parent Common Stock held in escrow pursuant to the Indemnity Escrow Agreement.

8. Escrow. The Stockholder hereby acknowledges that the Stockholder has reviewed Section 9.1 of the Merger Agreement, and agrees that Parent is entitled to deduct from the Escrow Fund amounts equal to the Excess Expenses. The Stockholder has reviewed and understands the indemnification provisions in Articles 7 and 8 of the Merger Agreement and hereby agrees that the Escrow Fund shall be available to satisfy such matters for which the Escrow Fund is available under the terms of the Merger Agreement, subject to the limitations and procedures set forth in Articles 7 and 8 of the Merger Agreement. The provisions of Articles 7 and 8 of the Merger Agreement shall apply mutatis mutandis to any such misrepresentation or breach by the Stockholder.

9. Notices. Any notice, demand, or communication required or permitted to be given by any provision of this Agreement shall be deemed to have been sufficiently given or served for all purposes if (a) personally delivered, (b) mailed by registered or certified first-class mail, prepaid with return receipt requested, (c) sent by a nationally recognized overnight courier service, to the recipient at the address below indicated or (d) delivered by facsimile which is confirmed in writing by sending a copy of such facsimile to the recipient thereof pursuant to clause (a) or (c) above:

If to Parent/Merger Sub:

Lexicon Genetics Incorporated
4000 Research Forest Drive
The Woodlands, TX 77381
Attn: Dr. Arthur T. Sands, President and CEO
Telefax: 281-863-8088

with a copy to:

Vinson & Elkins, L.L.P.
1001 Fannin, Suite 2300
Houston, Texas 77002
Attention: David Oelman
Telefax: (713) 615-5861

If to the Stockholder:

_____

_____

_____

with a copy to:

_____

_____

_____

with a copy to:

Mintz Levin Cohn Ferris Glovsky and Popeo PC
One Financial Center

Boston, MA 02111
Attn: Jonathan Kravetz
Telefax: _____

or to such other address as any party hereto may, from time to time, designate in a written notice given in like manner.

Except as otherwise provided herein, any notice under this Agreement will be deemed to have been given (x) on the date such notice is personally delivered or delivered by facsimile, (y) four days after the date of mailing if sent by certified or registered mail or (z) the next succeeding business day after the date such notice is delivered to the overnight courier service if sent by overnight courier; provided that in each case notices received after 4:00 p.m. (local time of the recipient) shall be deemed to have been duly given on the next business day.

10. Counterparts. This Agreement may be executed in one or more counterparts, all of which shall be considered one and the same agreement and each of which shall be deemed an original.

11. Governing Law. This Agreement shall be construed under and governed by the laws of the State of Delaware applicable to contracts made and to be performed entirely within such state without giving effect to the provisions thereof relating to conflicts of law.

12. Amendment. This Agreement may not be amended, modified or supplemented except upon the execution and delivery of a written agreement executed by the parties hereto.

13. Binding Effect; Assignment. The terms and provisions of this Agreement shall be binding upon, inure to the benefit of and be enforceable by the successors and permitted assigns of the parties hereto. No party hereunder shall have the right to assign its rights hereunder or any interest herein without the prior consent of the other parties hereto. Nothing in this Agreement is intended or shall be construed to confer upon any person other than the parties hereto and their respective permitted assigns any right, remedy or claim under or by reason of this Agreement or any part hereof.

14. Headings. The headings contained in this Agreement are for reference only and shall not affect in any way the meaning or interpretation of this Agreement.

15. Construction. This Agreement has been negotiated by the Stockholder and the Parent and their respective legal counsel, and legal and equitable principles that might require the construction of this Agreement against the party drafting this Agreement shall not apply in any construction or interpretation of this Agreement.

16. Severability. Any provision of this Agreement which is invalid, illegal or unenforceable in any jurisdiction shall, as to that jurisdiction, be ineffective to the extent of such invalidity, illegality or unenforceability, without affecting in any way the remaining provisions hereof in such jurisdiction or rendering that or any other provision of this Agreement invalid, illegal or unenforceable in any other jurisdiction.

17. Further Assurances. The Stockholder will, upon request, execute and deliver any additional documents and take such further actions as may reasonably be necessary or desirable to carry out the provisions hereof.

IN WITNESS WHEREOF, the parties hereto have executed this Stockholder Agreement as of this _____ day of _____, 2001.

_____
Signature of Stockholder

_____
Name of Stockholder

Shares Owned:

_____ shares of Common Stock
_____ shares of Series A Preferred Stock
_____ shares of Series B Preferred Stock
_____ shares of Series C Preferred Stock
_____ shares of Series D Preferred Stock

Options and Warrants Owned:

Options to purchase _____ shares of Common Stock

Warrants to purchase _____ shares of Common Stock

Agreed and Accepted:

LEXICON GENETICS INCORPORATED

By: _____
Name:_____
Title:_____

ANGLER ACQUISITION CORP.

By: _____
Name:_____
Title:_____

EXHIBIT 5.1

August 10, 2001

Lexicon Genetics Incorporated
4000 Research Forest Drive
The Woodlands, Texas 77381

Re: Registration Statement on Form S-3 of Lexicon Genetics Incorporated

Ladies and Gentlemen:

We have acted as counsel to Lexicon Genetics Incorporated (the "Company"), a Delaware corporation, with respect to certain legal matters in connection with the Company's Registration Statement on Form S-3 (the "Registration Statement") relating to the registration by the Company under the Securities Act of 1933, as amended (the "Securities Act"), of the offer and sale by certain stockholders of the Company from time to time, pursuant to Rule 415 under the Securities Act, of up to 3,527,991 shares (the "Shares") of the Company's common stock, par value $0.001 per share.

We have examined originals or copies, certified or otherwise identified to our satisfaction, of the Restated Certificate of Incorporation and Restated Bylaws of the Company, each as amended to the date hereof, and such other certificates, documents and instruments as we considered appropriate for purposes of the opinion hereafter expressed.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and validly issued and are fully paid and non-assessable.

The foregoing opinion is limited in all respects to the laws of the State of Delaware and the federal laws of the United States of America.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the prospectus forming a part of the Registration Statement. By giving such consent, we do not admit that we are within 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 issued thereunder.

Very truly yours,

VINSON & ELKINS L.L.P.
/s/ VINSON & ELKINS L.L.P.

EXHIBIT 23.1

CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation by reference in this registration statement of our report dated February 27, 2001 included in Lexicon Genetics Incorporated's Form 10-K for the year ended December 31, 2000, and to all references to our Firm included in this registration statement.

/s/ ARTHUR ANDERSEN LLP

Houston, Texas
August 8, 2001