

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

AMENDMENT NO. 1  
TO FORM SB-2  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

SIGA PHARMACEUTICALS, INC.  
(NAME OF SMALL BUSINESS ISSUER IN ITS CHARTER)

|                                                                         |                                                             |                                         |
|-------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------|
| DELAWARE                                                                | 2834                                                        | 13-3864870                              |
| (STATE OR OTHER<br>JURISDICTION OF<br>INCORPORATION OR<br>ORGANIZATION) | (PRIMARY STANDARD INDUSTRIAL<br>CLASSIFICATION CODE NUMBER) | (I.R.S. EMPLOYER<br>IDENTIFICATION NO.) |

666 THIRD AVENUE  
NEW YORK, NY 10017  
(212) 681-4970  
(ADDRESS AND TELEPHONE NUMBER OF PRINCIPAL  
EXECUTIVE OFFICES AND PRINCIPAL PLACE OF BUSINESS)

DAVID H. DE WEESE, PRESIDENT AND CHIEF EXECUTIVE OFFICER  
SIGA PHARMACEUTICALS, INC.  
666 THIRD AVENUE  
NEW YORK, NY 10017  
(212) 681-4970  
(NAME, ADDRESS AND TELEPHONE NUMBER OF AGENT FOR SERVICE)

COPIES TO:

|                                                                                                                                    |                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADAM EILENBERG, ESQ.<br>EILENBERG & ZIVIAN<br>666 THIRD AVENUE<br>NEW YORK, NY 10017<br>(212) 986-2468<br>FACSIMILE (212) 986-2399 | KENNETH KOCH, ESQ.<br>SQUADRON, ELLENOFF, PLESENT<br>& SHEINFELD, LLP<br>551 FIFTH AVENUE<br>NEW YORK, NY 10176<br>(212) 476-8362<br>FACSIMILE (212) 697-6686 |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: As soon as practicable after this Registration Statement becomes effective. If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of 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 OFFERING PRICE PER SHARE(1) | PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(1) | AMOUNT OF REGISTRATION FEE |
|----------------------------------------------------------------------------|-------------------------|----------------------------------------------|----------------------------------------------|----------------------------|
| Common Stock, par value \$ .0001.....                                      | 4,000,000               | \$ 5.00                                      | \$20,000,000                                 | \$6,060                    |
| Underwriter's Warrants, each to purchase one share of Common Stock(2)..... | 400,000                 | \$0.001                                      | \$400                                        | -- (3)                     |
| Common Stock, par value \$ .0001(4)(6).....                                | 400,000                 | \$5.50                                       | \$2,200,000                                  | \$667                      |
| Common Stock, par value                                                    |                         |                                              |                                              |                            |

\$.0001(5)(6)..... 100,000 \$5.00 \$500,000 \$152

Total: ..... \$6,879(7)

- (1) Estimated solely for the purpose of calculating the registration fee.
- (2) To be issued to the Underwriter at the time of delivery and acceptance of the securities to be sold to the public hereunder.
- (3) No fee due pursuant to Rule 457(g) under the Securities Act of 1933.
- (4) Issuable upon exercise of the Underwriter's Warrants.
- (5) Issuable upon exercise of warrants (the "Bridge Warrants") issued to certain persons in connection with a bridge financing completed on February 28, 1997.
- (6) Also registered hereunder pursuant to Rule 416 are an indeterminate number of shares of Common Stock which may be issued pursuant to the anti-dilution provisions applicable to the Underwriter's Warrants and the Bridge Warrants.
- (7) \$5,618 of this amount has been previously paid.

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THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

SIGA PHARMACEUTICALS, INC.

CROSS-REFERENCE SHEET SHOWING LOCATION IN PROSPECTUS OF INFORMATION REQUIRED BY  
ITEMS REQUIRED BY PART 1 OF FORM SB-2

| ITEM<br>----- | TITLE OF ITEM<br>-----                                                                          | CAPTION IN PROSPECTUS<br>-----                                |
|---------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1.            | Front of Registration Statement and<br>Outside Front Cover of Prospectus...                     | Front Cover Page                                              |
| 2.            | Inside Front and Outside Back Cover<br>Pages of Prospectus.....                                 | Inside Front Cover Page                                       |
| 3.            | Summary Information and Risk<br>Factors.....                                                    | Prospectus Summary; Risk Factors                              |
| 4.            | Use of Proceeds.....                                                                            | Use of Proceeds                                               |
| 5.            | Determination of Offering Price.....                                                            | Underwriting                                                  |
| 6.            | Dilution.....                                                                                   | Dilution                                                      |
| 7.            | Selling Security Holders.....                                                                   | Not Applicable                                                |
| 8.            | Plan of Distribution.....                                                                       | Front Cover Page; Underwriting                                |
| 9.            | Legal Proceedings.....                                                                          | Business                                                      |
| 10.           | Directors, Executive Officers,<br>Promoters and Control Persons.....                            | Management                                                    |
| 11.           | Security Ownership of Certain<br>Beneficial Owners and Management....                           | Principal Stockholders                                        |
| 12.           | Description of Securities.....                                                                  | Description of Securities; Dividend<br>Policy                 |
| 13.           | Interest of Named Experts and<br>Counsel.....                                                   | Legal Matters; Experts                                        |
| 14.           | Disclosure of Commission Position on<br>Indemnification for Securities Act<br>Liabilities.....  | Description of Securities                                     |
| 15.           | Organization Within Last Five Years..                                                           | Certain Transactions                                          |
| 16.           | Description of Business.....                                                                    | Business                                                      |
| 17.           | Management's Discussion and Analysis<br>or Plan of Operation.....                               | Plan of Operation                                             |
| 18.           | Description of Property.....                                                                    | Business                                                      |
| 19.           | Certain Relationships and Related<br>Transactions.....                                          | Certain Transactions                                          |
| 20.           | Market for Common Equity and Related<br>Stockholder Matters.....                                | Description of Securities; Shares<br>Eligible for Future Sale |
| 21.           | Executive Compensation.....                                                                     | Management                                                    |
| 22.           | Financial Statements.....                                                                       | Financial Statements                                          |
| 23.           | Changes In and Disagreements With<br>Accountants on Accounting and<br>Financial Disclosure..... | Not Applicable                                                |

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 +A REGISTRATION STATEMENT RELATING TO THESE SECURITIES HAS BEEN FILED WITH THE +  
 +SECURITIES AND EXCHANGE COMMISSION. INFORMATION CONTAINED HEREIN IS SUBJECT +  
 +TO COMPLETION OR AMENDMENT PRIOR TO THE DATE SUCH REGISTRATION STATEMENT +  
 +BECOMES EFFECTIVE. THESE SECURITIES MAY NOT BE SOLD NOR MAY OFFERS TO BUY BE +  
 +ACCEPTED PRIOR TO THE TIME THE REGISTRATION STATEMENT BECOMES EFFECTIVE. THIS +  
 +PROSPECTUS SHALL NOT CONSTITUTE AN OFFER TO SELL OR THE SOLICITATION OF AN +  
 +OFFER TO BUY NOR SHALL THERE BE ANY SALE OF THESE SECURITIES IN ANY STATE IN +  
 +WHICH SUCH OFFER, SOLICITATION OR SALE WOULD BE UNLAWFUL PRIOR TO +  
 +REGISTRATION OR QUALIFICATION UNDER THE SECURITIES LAWS OF ANY SUCH STATE. +  
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PRELIMINARY PROSPECTUS, SUBJECT TO COMPLETION, DATED JULY 11, 1997

SIGA

SIGA PHARMACEUTICALS, INC.

MINIMUM: 3,250,000 SHARES OF COMMON STOCK

MAXIMUM: 4,000,000 SHARES OF COMMON STOCK

This Prospectus relates to an offering (the "Offering") by SIGA Pharmaceuticals, Inc. (the "Company") of a minimum of 3,250,000 shares of common stock, par value \$.0001 per share (the "Common Stock") (sometimes hereinafter referred to as the "Securities") (the "Minimum Offering") and a maximum of 4,000,000 shares of Common Stock (the "Maximum Offering"), to be sold on a "best-efforts" basis through Sunrise Securities Corp. (the "Underwriter"). Prior to the Offering, there has been no public market for the Common Stock. It is currently anticipated that the initial offering price will be \$5.00 per share. See "Underwriting" for information relating to the factors considered in determining the initial offering price.

The Company has applied for quotation of the Common Stock on The NASDAQ SmallCap Market ("Nasdaq") under the trading symbol "SGPH".

The Company is a development stage, biopharmaceutical company which has suffered operating losses since its inception and which has received a going concern opinion from its independent accountants. As of March 31, 1997, the Company had an accumulated deficit of \$2,820,000. The Company expects to incur substantial additional operating losses in the development and commercialization of its technologies.

THE SECURITIES OFFERED HEREBY ARE SPECULATIVE AND INVOLVE A HIGH DEGREE OF RISK. ONLY INVESTORS WHO CAN BEAR THE RISK OF LOSS OF THEIR ENTIRE INVESTMENT SHOULD INVEST. FOR A DESCRIPTION OF CERTAIN RISKS REGARDING AN INVESTMENT IN THE COMPANY AND IMMEDIATE SUBSTANTIAL DILUTION, SEE "RISK FACTORS" (PAGE 10) AND "DILUTION" (PAGE 22).

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THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY STATE SECURITIES COMMISSION NOR HAS THE COMMISSION OR ANY STATE SECURITIES COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

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|                    | PRICE TO PUBLIC | UNDERWRITING DISCOUNTS AND COMMISSIONS(1) | PROCEEDS TO COMPANY(2)(3) |
|--------------------|-----------------|-------------------------------------------|---------------------------|
| Per Share.....     | \$5.00          | \$.50                                     | \$4.50                    |
| Total Minimum..... | \$16,250,000    | \$1,625,000                               | \$14,625,000              |
| Total Maximum..... | \$20,000,000    | \$2,000,000                               | \$18,000,000              |

(footnotes appear on page 3)

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SUNRISE SECURITIES CORP.

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The date of this Prospectus is , 1997.

## MECHANISMS TO PREVENT INFECTION

[Photo]

For a pathogen to infect a host, an interaction is required between its surface proteins and the host's mucosal tissue. SIGA uses two different methods to prevent serious infection. One is to develop mucosal vaccines, inducing antibodies at mucosal surfaces, blocking the ability of the pathogen to adhere. The second is to develop novel anti-infectives that will prevent surface proteins from being expressed. SIGA has major mucosal vaccine development programs targeting strep throat and periodontal diseases; gram positive vectors for STD vaccines--HIV, HSV and HPV; and new targets for the development of antibiotics.

CERTAIN PERSONS PARTICIPATING IN THE OFFERING MAY ENGAGE IN TRANSACTIONS THAT STABILIZE, MAINTAIN OR OTHERWISE AFFECT THE PRICE OF THE COMMON STOCK, INCLUDING COVERING TRANSACTIONS, PENALTY BIDS AND SHORT SALES. FOR A DESCRIPTION OF THESE ACTIVITIES SEE "UNDERWRITING."

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- (1) Does not include additional compensation to the Underwriter consisting of (i) a non-accountable expense allowance equal to 3% of the gross proceeds of the Offering, of which \$45,000 has been paid by the Company to date and (ii) warrants entitling the Underwriter to purchase the number of shares of Common Stock equal to 10% of the number of shares of Common Stock sold in this Offering (the "Underwriter's Warrants"). The Company has also agreed to indemnify the Underwriter against certain civil liabilities, including those arising under the Securities Act of 1933, as amended (the "Securities Act"). See "Underwriting."
  - (2) After deducting discounts and commissions payable to the Underwriter, but before payment of the Underwriter's non-accountable expense allowance in the amount of \$487,500 in the Minimum Offering and \$600,000 in the Maximum Offering and the other expenses of the Offering payable by the Company (estimated at \$350,000). See "Underwriting."
  - (3) The shares of Common Stock are being offered on a "best-efforts" 3,250,000 share minimum, 4,000,000 share maximum basis. Pending sale of the 3,250,000 share minimum, all proceeds of this Offering will be held in a non-interest bearing escrow account at United States Trust Company of New York. Unless the 3,250,000 share minimum is sold by [September 1, 1997], or by [October 1, 1997] if extended upon the mutual agreement of the Company and the Underwriter (and after the expiration of an additional 10 business days to permit clearance of the funds in escrow), the Offering will terminate and all funds collected will be promptly returned to the subscribers without deduction or interest. During the escrow period, subscribers will not be entitled to a return of their subscriptions. After the sale of the initial 3,250,000 shares, the remaining 750,000 shares will also be offered on a "best efforts" basis. See "Underwriting."

Prior to the Offering, there has been no public market for the Common Stock, and there can be no assurance that any such market for the Common Stock will develop after the closing of the Offering or that, if developed, it will be sustained. Pursuant to Section 2720 of the National Association of Securities Dealers, Inc. ("NASD") Rules of Conduct, the Common Stock is being offered at a price no greater than the maximum price recommended by M.H. Meyerson & Co., a qualified independent underwriter. The offering price of the shares of Common Stock was established by negotiation between the Company and the Underwriter and does not necessarily bear any direct relationship to the Company's assets, earnings, book value per share or other generally accepted criteria of value. See "Underwriting."

Upon the consummation of the Offering, the Company's management and its existing stockholders will, in the aggregate, own beneficially shares having approximately 51% in the Minimum Offering and 46% in the Maximum Offering of the total voting power of the Company's outstanding stock.

This Prospectus also covers the offer and proposed sale by the Company of an estimated 100,000 shares of Common Stock issuable upon the exercise by the holders thereof of warrants (the "Bridge Warrants") to purchase an estimated 100,000 shares (the actual number of shares will be determined by dividing \$500,000 by the actual initial offering price per share) at an exercise price per share equal to the actual initial offering price per share issued to certain investors in connection with a private placement transaction completed on February 28, 1997 (the "Bridge Financing"). The Bridge Warrants are not exercisable until February 28, 1998. See "Plan of Operation--Bridge Financing."

The shares of Common Stock are being offered by the Underwriter on a "best efforts" basis. Subject to the provisions of the underwriting agreement between the Underwriter and the Company, the Underwriter reserves the right to withdraw, cancel or modify the Offering and to reject any order in whole or in part. Any modification to the Offering will be made by means of an amendment to this Prospectus. It is expected that delivery of certificates will be made against payment therefor at the office of the Underwriter, 135 East 57th St., New York, New York 10022, on or about \_\_\_\_\_, 1997.

TO INVEST IN THESE SECURITIES, A CALIFORNIA RESIDENT MUST HAVE, AS A MINIMUM, EITHER (i) A NET WORTH OF \$100,000, EXCLUSIVE OF HOME, HOME FURNISHINGS AND AUTOMOBILES, AND \$65,000 OF GROSS INCOME DURING THE LAST TAX YEAR AND ESTIMATED GROSS INCOME OF \$65,000 FOR THE CURRENT TAX YEAR OR (ii) A NET WORTH OF \$250,000, EXCLUSIVE OF HOME, HOME FURNISHINGS AND AUTOMOBILES.

As of the date of this Prospectus, the Company will become subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and, in accordance therewith, will file reports, proxy and information statements and other information with the Securities and Exchange Commission (the "Commission"). Such reports, proxy and information statements and other information can be inspected and copied at the Public Reference Section of the Commission at Room 1024, Judiciary Plaza, 450 Fifth Street, N.W., Washington, D.C. 20549 and at the following regional offices: New York Regional Office, Suite 1300, 7 World Trade Center, New York, New York 10048, and Chicago Regional Office, 500 West Madison Street, Suite 1400, Chicago, Illinois 60661-2511, and copies of such material may also be obtained from the Public Reference Section of the Commission at prescribed rates. The Commission maintains a World Wide Web site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding registrants that file such information electronically. The Company's Common Stock is expected to be quoted on Nasdaq and such reports and other information can also be inspected at the offices of Nasdaq Operations, 1735 K Street N.W., Washington, D.C., 20006. The Company intends to furnish its stockholders with annual reports containing audited financial statements and such other reports as the Company deems appropriate or as may be required by law.

## PROSPECTUS SUMMARY

The following summary is qualified in its entirety by the more detailed information and financial statements, including the notes thereto, appearing elsewhere in this Prospectus. Each prospective investor is urged to read this Prospectus in its entirety. Unless otherwise indicated, the information in this Prospectus assumes that the minimum number of shares of Common Stock will be sold and does not give effect to the exercise of (a) the Underwriter's Warrants and (b) other outstanding options and warrants to purchase an aggregate of 806,017 shares of Common Stock (includes 100,000 Bridge Warrants based on the assumed initial public offering price). The initial public offering price per share of Common Stock is assumed to be \$5.00.

### THE COMPANY

The Company is a development stage, biopharmaceutical company focused on the discovery, development and commercialization of vaccines, antibiotics and novel anti-infectives for serious infectious diseases. The Company's lead vaccine candidate is for the prevention of "strep throat." The Company is developing a technology for the mucosal delivery of its vaccines which may allow those vaccines to activate the immune system at the mucus-lined surfaces of the body--the mouth, the nose, the lungs and the gastrointestinal and urogenital tracts--the sites of entry for most infectious agents. The Company's anti-infectives programs, aimed at the increasingly serious problem of drug resistance, are designed to block the ability of bacteria to attach to human tissue, the first step in the infection process.

### VACCINE CANDIDATES

The Company's lead vaccine candidate is for the prevention of group A streptococcal pharyngitis or "strep throat," a recurrent infection affecting between seven and 20 million children in the United States each year. Strep throat remains the most common childhood disease for which there is no vaccine available, and, if ineffectively treated, can progress to rheumatic fever. No vaccine has been developed because more than 100 different serotypes of group A streptococcus are known to cause the disease. In order to be effective, a vaccine would have to be based upon an antigen (a molecule that triggers an immune response) common to most of the important serotypes. The high incidence of the disease, the potentially serious consequences of inadequate treatment and the recent emergence of drug-tolerant types of group A streptococcus create an important medical need for an effective vaccine.

The Company's proprietary antigen addresses the challenge of multiple serotypes in that this antigen is common to most types of the bacteria that cause strep throat, including types that have been associated with rheumatic fever. When a vaccine incorporating this antigen was orally administered to animals, it was shown to provide protection against multiple types of group A streptococcal infection. The Company's vaccine candidate for strep throat utilizes this antigen.

The Company is collaborating with the National Institutes of Health and the University of Maryland Center for Vaccine Development on the clinical development of this vaccine candidate and expects to file an Investigational New Drug Application ("IND") with the United States Food and Drug Administration (the "FDA") in the fall of 1997.

In addition to its strep throat vaccine, the Company is collaborating with Chiron Corporation ("Chiron") on research toward the development of vaccines against two sexually transmitted diseases and is testing a vaccine to prevent periodontal disease in a collaboration with The Research Foundation of State University of New York at Buffalo ("SUNY Buffalo").



## MUCOSAL VACCINE DELIVERY SYSTEM

The Company is also developing a proprietary mucosal vaccine delivery system which is a component of the Company's vaccine candidates and which the Company intends to license to other vaccine developers. Mucosally-delivered vaccines are considered attractive because such vaccines may mobilize an immune response concentrated at the site of infection and because they may activate both a mucosal IgA antibody response as well as a systemic (IgG and T cell) response. The Company's mucosal vaccine delivery system utilizes commensal bacteria (harmless bacteria that live in and on the body) that have been genetically engineered to continually present disease-associated antigens that stimulate an immune response at the body's mucosal surfaces. In this manner, the bacteria may be able to prevent infection at the earliest possible stage. The Company believes that mucosal vaccines developed using its proprietary commensal delivery technology could provide a number of potential advantages over conventional vaccines, including: more complete protection; fewer side effects; the potential for single dose administration; non-injectable administration; the potential for combination vaccine delivery; and lower cost production. The Company's mucosal vaccine delivery technology is potentially applicable to any infectious disease that begins at a mucosal surface.

## ANTI-INFECTIVES AND ANTIBIOTICS THERAPY CANDIDATES

The Company's anti-infectives program is targeted principally toward drug-resistant bacteria and hospital-acquired infections. According to estimates from the Centers for Disease Control, approximately two million hospital-acquired infections occur each year in the United States. According to the Pharmaceutical Manufacturers Association, the United States and worldwide antibiotic markets are \$7 billion and \$22 billion, respectively.

The Company's anti-infective approaches aim to block the ability of bacteria to attach to and colonize human tissue, thereby blocking infection at the first stage in the infection process. By comparison, antibiotics available today act by interfering with either the structure or the metabolism of a bacterial cell, affecting its ability to survive and to reproduce. No currently available antibiotics target preventing the attachment of a bacterium to its target tissue. By preventing attachment, the bacteria should be readily cleared by the body's immune system.

The Company's lead anti-infectives program is based on a novel target for antibiotic therapy. The Company's founding scientists have identified an enzyme, a selective protease, utilized by most gram-positive bacteria to anchor certain proteins to the bacterial cell wall. These surface proteins are the means by which certain bacteria recognize, adhere to and colonize specific tissue. The Company's strategy is to develop protease inhibitors. The Company believes protease inhibitors will have wide applicability to gram-positive bacteria in general, including antibiotic resistant staphylococcus and a broad range of serious infectious diseases including meningitis and respiratory tract infections.

The Company has entered into a collaborative research and license agreement with the Wyeth-Ayerst Laboratories Division of American Home Products Corporation ("Wyeth-Ayerst") to identify and develop protease inhibitors as novel antibiotics. Pursuant to the agreement, Wyeth-Ayerst is providing funding for a joint research and development program and is responsible for additional milestone payments. Under the terms of the agreement, the Company could receive up to \$25 million in research and milestone payments for products developed from the licensed technologies. Wyeth-Ayerst has exclusive license rights in the field (as defined in the agreement) to any product resulting from this research and is required to make royalty payments based on sales of any product developed from the licensed technologies. See "Business--Collaborative Research and Licenses."

The Company has entered into a letter of intent with MedImmune, Inc. ("MedImmune") regarding a technology transfer agreement pursuant to which the Company will acquire all of MedImmune's rights in gram-negative antibiotic targets, products, screens and services. The Company and MedImmune plan to collaborate in

the development of antibiotics against gram-negative pathogens. These bacteria utilize structures called pili to adhere to target tissue, and the Company plans to exploit the assembly and export of these essential infective structures as novel anti-infective targets. The Company and MedImmune contemplate that upon the execution of the technology transfer agreement, MedImmune will receive 335,530 shares of Common Stock (the "MedImmune Shares"). There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described above or at all. See "Risk Factors-- Dependence on Others; Collaborations."

#### SURFACE PROTEIN EXPRESSION SYSTEM

The Company is developing proprietary protein production systems based on its understanding of the mechanisms used by gram-positive bacteria to export and anchor surface proteins. Methods have been developed to engineer gram-positive bacteria to produce and secrete commercially useful proteins such as antigens or enzymes into the culture medium in a form requiring minimal purification. The Company believes that this technology provides a cost-effective alternative to E. coli, yeast and mammalian cell culture systems.

#### COMPANY BACKGROUND

The Company's technologies are licensed from The Rockefeller University ("Rockefeller"), Oregon State University ("Oregon State") and Emory University ("Emory"). The Company sponsors research and development activities in laboratories at Rockefeller, Emory, Oregon State and SUNY Buffalo, and does not maintain its own research and development facilities. See "Risk Factors-- Technologies Subject to Licenses" and "--Lack of Research and Development Facilities."

The Company was incorporated in Delaware in December 1995. The Company's executive offices are located at 666 Third Avenue, New York, NY, 10017, and its telephone number is (212) 681-4970.

THE OFFERING

Securities offered..... A minimum of 3,250,000 shares of Common Stock and a maximum of 4,000,000 shares of Common Stock, on a "best efforts" basis.

Offering price..... \$5.00 per share of Common Stock.

Common Stock outstanding after the Offering(1)(2).. A minimum of 6,617,182 shares and a maximum of 7,367,182 shares.

Use of Proceeds..... The net proceeds to the Company, aggregating approximately \$13,787,500 in the Minimum Offering and \$17,050,000 in the Maximum Offering, will be used to (i) repay short-term indebtedness of \$1,000,000 (plus accrued interest) incurred in the Bridge Financing (and held by non-affiliates of the Company) and (ii) fund research and development activities, and the balance used for working capital and general corporate purposes. See "Use of Proceeds."

Risk Factors..... The securities offered hereby involve a high degree of risk and substantial immediate dilution to new investors. Only investors who can bear the risk of losing their entire investment should invest. See "Risk Factors" and "Dilution."

Proposed Nasdaq symbol..... "SGPH"

(1) Excludes (i) up to 400,000 shares of Common Stock reserved for issuance upon exercise of the Underwriter's Warrants; (ii) 333,333 shares of Common Stock reserved for issuance upon the exercise of stock options which may be granted pursuant to the Company's 1996 Incentive and Non-Qualified Stock Option Plan (the "Plan") (options to purchase 33,334 shares of Common Stock at an exercise price of \$1.50 per share, 16,667 shares of Common Stock at an exercise price of \$3.00 per share and 10,000 shares of Common Stock at an exercise price per share equal to the initial public offering price (or \$5.00 if the Offering is not completed by November 1, 1997) have been granted and are outstanding under the Plan); (iii) 461,016 shares of Common Stock reserved for issuance upon the exercise of warrants granted to David H. de Weese, the Chairman, President and Chief Executive Officer of the Company, at an exercise price of \$3.00 per share (the "de Weese Warrants"); (iv) 150,000 shares of Common Stock reserved for issuance upon the exercise of warrants granted to Dr. Vincent Fischetti, the principal founding scientist of the Company's technologies, at an exercise price of \$1.50 per share (the "Fischetti Warrants"); (v) an estimated 100,000 shares of Common Stock reserved for issuance upon the exercise of the Bridge Warrants; and (vi) 35,000 shares of Common Stock reserved for issuance upon the exercise of warrants granted to two outside directors and three scientific advisors at an exercise price per share equal to the initial public offering price or \$5.00 if the Offering is not completed by November 1, 1997 (the "Directors/Advisors Warrants"). See "Plan of Operation--Bridge Financing," "Management--1996 Incentive and Non-Qualified Stock Option Plan" and "--Employment and Consulting Agreements," "Certain Transactions" and "Underwriting."

(2) Does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."

SUMMARY FINANCIAL INFORMATION

The summary financial data set forth below is derived from and should be read in conjunction with the audited financial statements, including the notes thereto, appearing elsewhere in this prospectus.

|                                         | DECEMBER 28,<br>1995<br>(DATE OF<br>INCEPTION) TO<br>DECEMBER 31,<br>1995 | YEAR<br>ENDED<br>DECEMBER 31,<br>1996 | DECEMBER 28,<br>1995<br>(DATE OF<br>INCEPTION) TO<br>DECEMBER 31,<br>1996 | THREE<br>MONTHS<br>ENDED<br>MARCH 31,<br>1996<br><br>(UNAUDITED) | THREE<br>MONTHS<br>ENDED<br>MARCH 31,<br>1997<br><br>(UNAUDITED) | DECEMBER 28<br>1995<br>(INCEPTION) TO<br>MARCH 31,<br>1997<br><br>(UNAUDITED) |
|-----------------------------------------|---------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------|
| STATEMENT OF OPERATIONS DATA:           |                                                                           |                                       |                                                                           |                                                                  |                                                                  |                                                                               |
| Operating expenses:                     |                                                                           |                                       |                                                                           |                                                                  |                                                                  |                                                                               |
| General and administrative.....         | \$ 1,000                                                                  | \$ 787,817                            | \$ 788,817                                                                | \$ 257,635                                                       | \$ 300,962                                                       | \$ 1,089,779                                                                  |
| Research and development.....           | --                                                                        | 662,205                               | 662,205                                                                   | 98,169                                                           | 203,959                                                          | 866,164                                                                       |
| Patent preparation fees.....            | --                                                                        | 452,999                               | 452,999                                                                   | 258,896                                                          | 15,462                                                           | 468,461                                                                       |
| Stock option and warrant compensation.. | --                                                                        | 367,461                               | 367,461                                                                   | --                                                               | --                                                               | 367,461                                                                       |
| Total operating expenses.....           | 1,000                                                                     | 2,270,482                             | 2,271,482                                                                 | 614,700                                                          | 520,383                                                          | 2,791,865                                                                     |
| Interest income/(expense).....          | --                                                                        | 2,306                                 | 2,306                                                                     | --                                                               | (30,390)                                                         | (28,084)                                                                      |
| Net loss.....                           | \$(1,000)                                                                 | \$(2,268,176)                         | \$(2,269,176)                                                             | \$(614,700)                                                      | \$(550,773)                                                      | \$(2,819,949)                                                                 |
| Net loss per common share(1).....       | --                                                                        | \$ (0.66)                             |                                                                           | \$ (.21)                                                         | \$ (.15)                                                         |                                                                               |

MARCH 31, 1997

(UNAUDITED)

| ACTUAL | AS ADJUSTED<br>FOR MINIMUM<br>OFFERING (2)(4) | AS ADJUSTED<br>FOR MAXIMUM<br>OFFERING (3)(4) |
|--------|-----------------------------------------------|-----------------------------------------------|
|--------|-----------------------------------------------|-----------------------------------------------|

BALANCE SHEET DATA:

|                                     |              |              |              |
|-------------------------------------|--------------|--------------|--------------|
| Working capital.....                | \$ (200,927) | \$13,639,229 | \$16,901,729 |
| Total assets.....                   | 1,118,753    | 13,897,920   | 17,160,420   |
| Total liabilities.....              | 1,136,546    | 239,046      | 239,046      |
| Stockholders' (deficit) equity..... | (17,793)     | 13,658,874   | 16,921,374   |

(1) For information concerning the computation of net loss per share, see Note 2 of Notes to Financial Statements.

(2) As adjusted to (i) give effect to the sale of 3,250,000 shares of Common Stock offered hereby in the Minimum Offering, net of \$2,462,500 of underwriting discounts and commissions and Offering expenses (\$163,489 of such Offering expenses have been incurred by the Company as of March 31, 1997), at an assumed initial offering price of \$5.00 per share of Common Stock, (ii) repayment of the Bridge Notes in the principal amount of \$1,000,000 and accrued but unpaid interest thereon and (iii) the recognition of the unamortized portion of the debt discount associated with the Bridge Notes as an expense.

(3) As adjusted to (i) give effect to the sale of 4,000,000 shares of Common Stock offered hereby in the Maximum Offering, net of \$2,950,000 of underwriting discounts and commissions and Offering expenses (\$163,489 of such Offering expenses have been incurred by the Company as of March 31, 1997), at an assumed initial offering price of \$5.00 per share of Common Stock, (ii) repayment of the Bridge Notes in the principal amount of \$1,000,000 and accrued but unpaid interest thereon and (iii) the recognition of the unamortized portion of the debt discount associated with the Bridge Notes as an expense.

(4) Does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."

## RISK FACTORS

The purchase of Common Stock is speculative and involves a high degree of risk including, but not necessarily limited to, the Risk Factors described below. Common Stock should not be purchased by investors who cannot afford the loss of their entire investment. Prospective investors should carefully review and consider the following risks as well as the other information contained in this Prospectus.

### BUSINESS RISKS

Limited Operating History; Accumulated Deficit; Operating Losses; Potential for Future Losses; Going Concern Explanatory Paragraph in Accountant's Report

The Company, a development stage, biopharmaceutical company, was incorporated in December 1995 and accordingly has a limited operating history. As of March 31, 1997, the Company had an accumulated deficit of \$2,820,000. The Company expects to incur substantial operating losses over the next several years and expects cumulative losses to increase as the Company's research and development and clinical efforts expand. In addition to increased research and development expenses, the Company also expects general and administrative expenses to increase due to increased staffing levels and increased costs, including patent and regulatory costs, necessary to support clinical trials, research and development and manufacturing. Revenues, if any, that the Company may receive in the next few years will be limited to payments under research or product development relationships that the Company may establish and payments under license agreements that the Company may enter into. There can be no assurance that the Company will be able to establish any such relationships, enter into any such license agreements or generate revenues. To achieve profitable operations, the Company, alone or with others, must successfully identify and develop pharmaceutical products, conduct clinical trials, obtain regulatory approvals and manufacture and market its pharmaceutical products or enter into license agreements with third parties on acceptable terms. The Company may never achieve significant revenues or profitable operations.

The report of independent accountants on the Company's financial statements included herein contains an explanatory paragraph stating that the Company's financial statements have been prepared assuming that the Company will continue as a going concern while expressing substantial doubt as to the Company's ability to do so. The Company's ability to continue as a going concern is dependent on its ability to generate sufficient cash flow to meet its obligations as they become due. The Company has suffered operating losses since inception and expects to incur substantial additional operating losses in the development and commercialization of its technologies. These and other factors discussed in Note 1 to the financial statements raise substantial doubt about the Company's ability to continue as a going concern. See "Plan of Operation" and Financial Statements and Notes thereto.

Early Stage of Development; Absence of Products; No Commercialization of Products Expected in Near Future

The Company's product candidates are in an early stage of development. The Company has not completed the development of any products and, accordingly, has not received any regulatory approvals, commenced marketing activities or generated revenues from the sale of products. The Company's product candidates will require significant additional development, pre-clinical and clinical trials, regulatory approval and additional investment prior to commercialization. The Company does not expect to market any products for at least four years. In addition, the Company's product candidates are subject to the risks of failure inherent in the development of products based on innovative technologies. Accordingly, there can be no assurance that the Company's research and development efforts will be successful, that any of the Company's product candidates will prove to be safe, effective and non-toxic in clinical trials, that any commercially successful products will be developed, that the proprietary or patent rights of others will not preclude the Company from marketing its product candidates or that others will not develop competitive or superior products. As a result of the early stage of development of product candidates and the extensive testing and regulatory review process that such product candidates must undergo, the Company cannot predict with certainty when it will be able to market any of its products, if at all. The failure to develop safe, commercially viable products would have a material adverse effect on the Company's business, operating results and financial condition.

## Uncertainty Due to Unproven Technology

The Company's drug discovery approach faces technical issues which have not been resolved and requires the development of multiple novel technologies to create successful product candidates. While the Company has demonstrated that it has several novel bacterial targets, the Company has not proven that drugs which inhibit these targets will be safe and effective in human trials. Furthermore, there can be no assurance that the drug inhibition activity already demonstrated in primary screening will continue to be encouraging in further screening or drug discovery studies. The Company has not tested any product candidates in humans, and there can be no assurance that there will be clinical benefits associated with any such product candidates. Furthermore, there can be no assurance that the Company will successfully address these technological challenges or others that may arise in the course of product development. Any failure of the Company to anticipate or respond adequately to technological developments will have a material adverse effect on the Company's business, operating results and financial condition. There can be no assurance that the Company's technology will lead to the discovery and development of any viable product candidates in the future or that the Company will be able to utilize its drug discovery approach successfully.

## Future Capital Needs; Uncertainty Of Availability Of Additional Funding

The Company will require substantial additional funds to conduct and sponsor research and development activities, to conduct pre-clinical and clinical testing, and to market its products. The Company's future capital requirements will depend on many factors, including continued scientific progress, progress with pre-clinical testing and clinical trials, the time and costs involved in obtaining regulatory approvals, the costs involved in filing, prosecuting and enforcing patent claims, competing technological and market developments, the ability of the Company to establish collaborative arrangements, effective commercialization activities and arrangements and the purchase or development of additional equipment and facilities. The Company expects the net proceeds of the Offering and the interest earned thereon will be sufficient to fund the Company's activities for at least 24 months if the minimum number of shares is sold and at least 30 months if the maximum number of shares is sold. There can be no assurance, however, that changes in the Company's research and development plans or other events affecting the Company's operating expenses will not result in the utilization of such proceeds prior to that time.

The Company has no other current sources of funding, apart from research payments and potential milestone payments from Wyeth-Ayerst. As a result, the Company will need to raise substantial additional funds before any of the Company's product candidates achieves regulatory approvals, if at all. The Company intends to seek such additional funding through collaborative arrangements and through public or private financings. There can be no assurance that additional financing will be available, or, if available, that such additional financing will be available on terms acceptable to the Company.

In addition, for a period of 12 months (6 months in the case of any public offering under the Securities Act) after the date of this Prospectus, the Underwriter's prior written consent is required if the Company seeks to raise additional funds through the issuance of equity. This may result in the Company being required to raise needed funding through the issuance of debt. If additional funds are raised by issuing debt, the Company will incur fixed payment obligations, which could delay the time, if any, when the Company may achieve positive cash flow. If adequate funds are not available, the Company may be required to delay, scale back or eliminate one or more of its principal product candidates or obtain funds through arrangements with collaborative partners or others that may require the Company to relinquish rights to certain of its technologies, product candidates or products that the Company would not otherwise relinquish. See "Use of Proceeds" and "Underwriting."

## Management's Broad Discretion in Application of Proceeds

The Company intends to use approximately \$1,000,000 (excluding accrued interest), or 7.3%, of the net proceeds of the Minimum Offering (5.9% of the net proceeds of the Maximum Offering) to repay outstanding indebtedness and the balance for the other purposes described under "Use of Proceeds." Although the Company's current estimate as to the amount of such net proceeds that will be used for each such other purpose is set forth under "Use of Proceeds," the Company reserves the right to change the amount of such net proceeds

that will be used for any purpose to the extent that management determines that such change is advisable. Accordingly, management of the Company will have broad discretion as to the application of the net proceeds of the Offering. See "Use of Proceeds" and "Plan of Operation."

#### Technologies Subject to Licenses

As a licensee of certain research technologies, the Company has a license agreement with Rockefeller pursuant to which the Company has acquired exclusive, worldwide rights to develop and commercialize such research technologies. Certain scientists at Oregon State and Emory are co-inventors of certain of such technologies and, therefore, Oregon State and Emory joined in Rockefeller's license grant to the Company. The agreement with Rockefeller generally requires the Company to pay royalties on sales of products developed from the licensed technologies and fees on revenues from sublicensees, where applicable, and the Company is responsible for certain milestone payments, of up to \$225,000 per product, for each product developed from the licensed technologies. The Company is also responsible for certain costs incurred by Rockefeller for filing and prosecuting patent applications. At March 31, 1997, amounts payable to Rockefeller for patent application costs were \$66,437. Should the Company default on its obligations to Rockefeller under the license agreement, its license would terminate, which would have a material adverse effect on the Company's operations and prospects. See "Business--Collaborative Research and Licenses."

#### No Assurance of Successful Development of Product Candidates

There can be no assurance that the Company's product candidates will be successfully developed into drugs that can be administered to humans or that any such drugs or therapies will prove to be safe and effective in clinical trials or cost-effective to manufacture. Further, any product candidates developed by the Company may prove to have adverse side effects.

#### Dependence on Others; Collaborations

The Company's strategy for the research, development and commercialization of its product candidates will require the Company to enter into various arrangements with corporate and academic collaborators, licensors, licensees and others, and may therefore be dependent upon the subsequent success of these outside parties in performing their responsibilities. The Company currently has a license and research agreement with Rockefeller, Emory and Oregon State; research support agreements with Emory, Oregon State and SUNY Buffalo; a consulting agreement with Dr. Vincent Fischetti; a clinical trials agreement with the National Institutes of Health, a collaborative research and license agreement with Wyeth-Ayerst; and a collaborative research agreement with Chiron. In addition, the Company has entered into a letter of intent with MedImmune regarding a technology transfer agreement pursuant to which the Company will acquire all of MedImmune's rights in gram-negative antibiotic targets, products, screens and services. There can be no assurance, however, that the Company will execute a final agreement with MedImmune on the terms described herein or at all. In addition, there can be no assurance that the Company will be able to establish other collaborative arrangements or license agreements that the Company deems necessary or acceptable to develop and commercialize its product candidates or that such collaborative arrangements or license agreements will be successful. Moreover, certain of the collaborative arrangements that the Company may enter into in the future may place responsibility for pre-clinical testing and clinical trials and for preparing and submitting applications for regulatory approval for product candidates on the collaborative partner. Should a collaborative partner fail to develop or commercialize successfully any product candidate to which the Company has rights, the Company's business may be adversely affected. See "Business--Collaborative Research and Licenses" and "Certain Transactions."

#### Lack of Manufacturing, Marketing or Sales Capabilities

The Company has not invested in the development of commercial manufacturing, marketing, distribution or sales capabilities for any of its product candidates. The Company currently lacks the facilities to manufacture its product candidates in accordance with current Good Manufacturing Practices as prescribed by the FDA or to produce an adequate supply of compounds to meet future requirements for clinical trials. If the Company is unable to develop or contract for manufacturing capabilities on acceptable terms, the Company's ability to

conduct pre-clinical and human clinical testing will be adversely affected, resulting in delays in the submission of products for regulatory approval and in the initiation of new development programs, which in turn could materially impair the Company's competitive position and the possibility of achieving profitability.

The Company will need to hire additional personnel skilled in clinical testing, regulatory compliance, marketing and sales as it develops products with commercial potential. There can be no assurance that the Company will be able to hire such personnel, or establish third-party relationships to provide any or all of these resources.

#### Dependence on Qualified Personnel and Consultants; Need for Additional Personnel

David de Weese is the President and Chief Executive Officer of the Company. Dr. Vincent Fischetti is the principal founding scientist and Chief Scientific Advisor of the Company. Dr. Dennis Hruby is also a scientific founder and the Company's Vice President of Research. Drs. Hruby and Fischetti, along with Mr. de Weese, have primary responsibility for directing the Company's research efforts. Mr. de Weese, along with, Dr. Joshua Schein and Judson Cooper, Executive Vice Presidents of the Company, have primary responsibility for directing the Company's strategic efforts. The Company's success is highly dependent on these individuals. The loss of the services of either Dr. Hruby or Dr. Fischetti or other personnel or consultants could have a material adverse effect on the Company's operations.

Drs. Hruby and Fischetti, pursuant to each of their contracts with their respective universities, may spend only 20% of their time on non-university projects; however, all of the research being conducted by each of them is research sponsored by the Company and the Company has exclusive license rights to all inventions and discoveries resulting from this research. See "Business--Collaborative Research and Licenses."

Mr. de Weese is the only full-time executive officer of the Company. Dr. Schein and Mr. Cooper, are also officers of Virologix Corporation and Callisto Pharmaceuticals, Inc., privately held, development stage, pharmaceutical companies, and devote substantial amounts of their time to the three companies on a substantially equal basis.

Although the Company has entered into employment agreements with each of its key management and scientific employees and consulting agreements with its key outside scientific advisors, any of such persons may terminate his or her employment or consulting arrangement with the Company at any time on short notice. Accordingly, there can be no assurance that these employees and consultants will remain associated with the Company. The loss of the services of any of the Company's key personnel or consultants may impede the Company's ability to commercialize its product candidates. The Company maintains and is the named insured under a \$1,000,000 life insurance policy on Dr. Fischetti and has an application pending for a \$1,000,000 policy on Mr. de Weese. This policy is conditionally in force pending final underwriting, which is expected to be completed by the end of July 1997. There can be no assurance that such insurance can be maintained or will be adequate to meet the Company's future needs.

The Company's planned activities may require additional expertise in areas such as pre-clinical testing, clinical trial management, regulatory affairs, manufacturing and marketing. Such activities may require the addition of new personnel and the development of additional expertise by existing management personnel. The Company faces intense competition for such personnel from other companies, academic institutions, government entities and other organizations, and there can be no assurance that the Company will be successful in hiring or retaining qualified personnel. The inability of the Company to develop additional expertise or to hire and retain such qualified personnel could have a material adverse effect on the Company's operations.

#### Lack of Research and Development Facilities

The Company does not maintain its own research and development facilities and does not intend to construct such facilities in the future. The Company sponsors research and development activities at Dr. Fischetti's laboratory at Rockefeller and Dr. Hruby's laboratory at Oregon State, and at Emory and SUNY Buffalo. The Company's research is conducted by its employees and employees of the aforementioned universities. The Company's research and development efforts, therefore, are dependent upon its continued



relationships with Dr. Fischetti, Dr. Hruby, Rockefeller, Oregon State, Emory and SUNY Buffalo. In the absence of such relationships, the Company would need to develop a new research and development arrangement with a third party, the availability of which there can be no assurance. Any delay in finding suitable research and development facilities would postpone commercialization of the Company's products. See "Business--Human Resources and Facilities."

#### Control by Management and Existing Stockholders

Upon consummation of the Offering, the Company's management and existing holders of the Company's stock will, in the aggregate, own beneficially shares having approximately 51% in the Minimum Offering and 46% in the Maximum Offering of the total voting power of the Company's outstanding stock (without giving effect to the exercise of the Underwriter's Warrants, options granted under the Plan, the de Weese Warrants, the Fischetti Warrants, the Directors/Advisors Warrants or the Bridge Warrants). As a result, these stockholders, acting together, would be able to effectively control most matters requiring approval by the stockholders of the Company, including the election of all of the directors. See "Principal Stockholders."

#### Potential Conflicts of Interest

Certain persons who are principal stockholders and executive officers of the Company are involved in various relationships that could result in conflicts between their interests and those of other stockholders of the Company. Dr. Schein and Mr. Cooper have employment arrangements with two other operating companies, which could force one or both of them to compromise or divert their business attention from the concerns of the Company from time to time. Additionally, Dr. Schein and Mr. Cooper are principals of CSO Ventures LLC ("CSO"), a privately held limited liability company which has a consulting agreement with the Company. Under the terms of Dr. Schein and Mr. Cooper's employment agreements with the Company, they are each entitled to the payment of certain fees in connection with any sale of the Company. This provision, together with lower prices paid by them for their shares of Common Stock relative to the prices paid by investors in this Offering, could result in a situation in which the purchase price paid in connection with any sale of the Company represents a gain on their investment in the Company while simultaneously representing a loss to investors in this Offering. See "Certain Transactions" and "Management."

#### INDUSTRY RISKS

##### No Assurance of Regulatory Approval; Need for Extensive Clinical Trials

The production and marketing of the Company's principal product candidates, as well as certain of its research and development activities, are subject to regulation by governmental agencies in the United States and other countries. Any drug developed by the Company will be subject to a rigorous approval process pursuant to regulations administered by the FDA, comparable agencies in other countries and, to a lesser extent, state regulatory authorities. The approval process for any one of the Company's product candidates is likely to take several years or more depending upon the type, complexity and novelty of the pharmaceutical product and will involve significant expenditures by the Company for which additional financing will be required.

The cost to the Company of conducting clinical trials for any potential product can vary dramatically based on a number of factors, including the order and timing of clinical indications pursued and the extent of development and financial support, if any, from collaborators. Because of the intense competition in the biopharmaceutical market and concern over the safety of participating in clinical trials, the Company may have difficulty obtaining sufficient patient populations or the support of clinicians to conduct its clinical trials as planned and may have to expend substantial additional funds to obtain access to such resources, or delay or modify its plans significantly. There can be no assurance that the Company will be able to obtain necessary clearances for clinical trials or approvals for the manufacturing or marketing of any of its product candidates, that the Company will have sufficient resources to complete the required regulatory review process or that the Company can survive the inability to obtain, or delays in obtaining, such approvals.

Even if regulatory approvals are obtained, they may provide for significant limitations on the indicated uses for which a product may be marketed. As with all investigational products, additional government regulations may be promulgated requiring that additional research data be submitted that could delay marketing approval of any of the Company's product candidates. The subsequent discovery of previously unknown complications or the failure to comply with applicable regulatory requirements may result in restrictions on the marketing, or the withdrawal, of products or possible civil or criminal liabilities. In addition, the Company cannot predict whether any adverse government regulation might arise from future administrative actions. See "Business--Government Regulation."

As part of the regulatory review process, the Company must sponsor and file, or obtain through others, an IND for each of its product candidates before the Company will be able to initiate the clinical trials necessary to generate safety and efficacy data for inclusion in an application for FDA marketing approval. The Company has not filed any INDs to date. Although the Company anticipates filing its first IND in 1997, the Company cannot predict with certainty when it might first submit any application for any product candidates for FDA or other regulatory review. There can be no assurance that clinical data from studies performed by the Company or others will be acceptable to the FDA or other regulatory agencies in support of any applications that may be submitted for regulatory approval and the FDA may, among other things, require the Company to collect additional data and conduct additional clinical studies prior to acceptance of any such applications.

#### Uncertainty Regarding Patents and Proprietary Information

The Company's ability to compete effectively will depend, in part, on its success in protecting its proprietary technology in the United States and abroad. The patent positions of biopharmaceutical firms generally are highly uncertain and involve complex legal and factual questions. No consistent policy has emerged regarding the breadth of claims covered in biopharmaceutical patents. As its research projects develop, the Company intends to file additional patent applications with the United States Patent and Trademark Office (the "PTO") and with corresponding foreign patent authorities. There can be no assurance that the PTO or any foreign jurisdictions will grant the Company's patent applications or that the Company will obtain any patents or other protection for which application for patent protection has been made. No assurance can be given that patents issued to or licensed by the Company will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide any competitive advantage. The Company will also rely on trade secrets, know-how and continuing technological advancement in seeking to achieve a competitive position. No assurance can be given that the Company will be able to protect its rights to its unpatented trade secrets or that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to the Company's trade secrets.

In addition to protecting its proprietary technology and trade secrets, the Company may be required to obtain additional licenses to patents or other proprietary rights from third parties. No assurance can be given that any additional licenses required under any patents or proprietary rights would be made available on acceptable terms, if at all. If the Company does not obtain required licenses, it could encounter delays in product development while it attempts to design around blocking patents, or it could find that the development, manufacture or sale of products requiring such licenses could be foreclosed.

The Company could also incur substantial costs in defending any patent infringement suits or in asserting any patent rights, including those granted by third parties. The PTO could institute interference proceedings against the Company in connection with one or more of the Company's patents or patent applications, and such proceedings could result in an adverse decision as to priority of invention. The PTO or others could also institute reexamination proceedings with the PTO against the Company in connection with one or more of the Company's patents or patent applications and such proceedings could result in an adverse decision as to the validity or scope of any patents that the Company may obtain or have the right to use. See "Business--Patents and Proprietary Rights."

## Technological Change; Competition and Market Risk

The biopharmaceutical industry is characterized by rapid and significant technological change. The Company's success will depend on its ability to develop and apply its technologies in the design and development of its product candidates and to establish and maintain a market for its product candidates. There also are many companies, both public and private, including major pharmaceutical and chemical companies, specialized biotechnology firms, universities and other research institutions engaged in developing pharmaceutical and biotechnology products. Many of these companies have substantially greater financial, technical, research and development, and human resources than the Company. Competitors may develop products or other technologies that are more effective than any that are being developed by the Company or may obtain FDA approval for products more rapidly than the Company. If the Company commences commercial sales of products, it still must compete in the manufacturing and marketing of such products, areas in which the Company has no experience. Many of these companies also have manufacturing facilities and established marketing capabilities that would enable such companies to market competing products through existing channels of distribution. See "Business--Competition."

## Uncertainty of Pharmaceutical Pricing; Healthcare and Related Matters

The levels of revenues and profitability of pharmaceutical companies may be affected by the continuing efforts of governmental and third party payors to contain or reduce the costs of healthcare through various means. For example, in certain foreign markets, pricing of prescription pharmaceuticals is subject to governmental control. In the United States, there have been, and the Company expects that there will continue to be, a number of federal and state proposals to implement similar government control. It is uncertain what legislative proposals will be adopted or what actions federal, state or private payors for healthcare goods and services may take in response to any healthcare reform or legislation.

The Company cannot predict the effect that healthcare reforms may have on its business, and there can be no assurance that any such reforms will not have a material adverse effect on the Company. Further, to the extent that such proposals or reforms have a material adverse effect on the business, financial condition and profitability of other pharmaceutical companies that are prospective collaborators for certain of the Company's potential products, the Company's ability to commercialize its product candidates may be adversely affected. In addition, in both the United States and elsewhere, sales of prescription medical products are dependent in part on the availability of reimbursement to the consumer from third party payors, such as government and private insurance plans. Third party payors can indirectly affect the pricing or the relative attractiveness of the Company's product candidates by regulating the maximum amount of reimbursement that they will provide for the Company's product candidates or by denying reimbursement. There can be no assurance that, if and when marketed, the Company's product candidates will be considered cost-effective by third party payors, that reimbursement will be available or, if available, that such third party payors' reimbursement policies will not adversely affect the Company's ability to sell its product candidates on a profitable basis. Limitations on, or failure to obtain, reimbursement for use of the Company's product candidates and changes in government and private third party payors' policies toward reimbursement could have a material adverse effect on the Company's ability to market its product candidates.

## Potential Product Liability and Availability of Insurance

The Company's business exposes it to potential liability risks that are inherent in the testing, manufacturing and marketing of pharmaceutical products. The use of the Company's product candidates in clinical trials may expose the Company to product liability claims and possible adverse publicity. These risks will expand with respect to the Company's product candidates, if any, that receive regulatory approval for commercial sale. Product liability insurance for the biotechnology industry is generally expensive, if available at all. The Company does not have product liability insurance but intends to obtain such coverage if and when its product candidates are tested in clinical trials. There can be no assurance, however, that the Company will be able to obtain

insurance coverage at acceptable costs or in a sufficient amount, if at all, or that a product liability claim would not adversely affect the Company's business, operating results or financial condition.

#### OFFERING/INVESTMENT RISKS

##### No Prior Public Market; Possible Volatility of Stock Price

Prior to this Offering, there has been no public market for the Company's Common Stock. Accordingly, there can be no assurance that an active trading market will develop or be sustained subsequent to this Offering. The initial public offering price of the Common Stock will be determined by negotiations between the Company and the Underwriter and may not be indicative of the prices that may prevail in the public market. The Company has applied to have the Common Stock quoted on Nasdaq, but there is no assurance that the Company's future operating results will enable it to remain eligible for quotation on Nasdaq. If the Company is unable to satisfy such listing criteria in the future, the Common Stock may be delisted from trading on Nasdaq and consequently an investor could find it more difficult to dispose of, or to obtain accurate quotations as to the price of, the Common Stock. The stock market generally, and the biotechnology sector in particular, have experienced and are likely in the future to experience significant price and volume fluctuations which could adversely affect the market price of the Common Stock without regard to the significant fluctuations in response to variations in quarterly operating results, shortfalls in sales or earnings below analyst estimates, stock market conditions and other factors. There can be no assurance that the market price of the Common Stock will not experience significant fluctuations or decline below the initial public offering price.

##### Underwriter's First Initial Public Offering

The Underwriter has not previously acted as an underwriter in connection with an initial public offering, though it has acted as a syndicate member, sole placement agent, co-placement agent, selected dealer or sole participating broker in more than 18 public and private offerings. As part of its due diligence function, the Underwriter makes such inquiries of management as it deems appropriate, reviews the accuracy of the Prospectus and establishes, with the qualified independent underwriter, the initial public offering price for the Common Stock. The Underwriter's limited experience may adversely affect the price and liquidity of the Common Stock. Prospective purchasers of shares of Common Stock offered hereby should consider the Underwriter's limited experience in evaluating an investment in the Common Stock. See "Underwriting."

##### No Market Making Activity by Underwriter

The Underwriter has indicated that it does not intend to act as a market maker in the Common Stock, which may adversely affect the price and liquidity of the Common Stock.

##### Shares Eligible for Future Sale

Upon completion of this Offering, the Company will have outstanding a minimum of 6,617,182 shares of Common Stock and a maximum of 7,367,182 shares of Common Stock, without giving effect to (a) shares of Common Stock issuable upon exercise of (i) the Underwriter's Warrants, (ii) options granted under the Plan, (iii) the de Weese Warrants, (iv) the Fischetti Warrants, (v) the Directors/Advisors Warrants or (vi) the Bridge Warrants or (b) the MedImmune Shares. (There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations.") Of such outstanding shares of Common Stock, all the shares to be sold by the Company in this Offering will be freely tradeable without restriction or further registration under the Act, except for any shares held by "affiliates" of the Company within the meaning of the Act which shares will be subject to the resale limitations of Rule 144 promulgated under the Act.

The remaining 3,367,182 shares (the "Restricted Shares") were issued by the Company in private transactions in reliance upon one or more exemptions contained in the Act. 1,288,012 of the Restricted Shares were issued in connection with two private placement transactions completed in March and September 1996,

respectively (the "Private Shares") and 2,079,170 of the Restricted Shares were issued to the founders of the Company in December 1995 (the "Founders' Shares"). The Restricted Shares are deemed to be "restricted securities" within the meaning of Rule 144 promulgated pursuant to the Act and may be publicly sold only if registered under the Act or sold pursuant to exemptions therefrom.

Because the Founders' Shares and 1,038,008 of the Private Shares acquired in the March 1996 private placement will have been held for more than one year as of the date of this Prospectus, such shares will be eligible for public sale in accordance with the requirements of Rule 144, as amended. In addition, the remaining 250,004 of the Private Shares will be eligible for public sale in September 1997. However, certain holders of the Private Shares and the holders of the Founders' Shares have agreed with the Underwriter not to sell or otherwise dispose of such shares for a period of six months and 24 months, respectively, after the date of the consummation of the Offering. See "Shares Eligible for Future Sale" and "Underwriting."

#### Dilution; Equity Securities Sold Previously at Below Offering Price

This Offering involves immediate dilution of \$2.94 per share if the minimum number of shares is sold and \$2.70 if the maximum number of shares is sold between the adjusted net tangible book value per share after the Offering and the per share public offering price of \$5.00 attributable to the Common Stock. Investors in the Offering will contribute 88% if the minimum number of shares is sold and 90% if the maximum number of shares is sold, of the aggregate consideration received for the aggregate number of shares of Common Stock outstanding after the Offering, but will only own 49% if the minimum number of shares is sold and 54% if the maximum number of shares is sold, of the aggregate number of shares of Common Stock outstanding after the Offering. See "Dilution."

#### Lack of Dividends

The Company has not paid any dividends and does not contemplate paying dividends in the foreseeable future. It is currently anticipated that earnings, if any, will be retained by the Company to finance the development and expansion of the Company's business. See "Dividend Policy."

#### Antitakeover Effect of Certificate of Incorporation

The Company's Certificate of Incorporation authorizes the Board of Directors to determine the rights, preferences, privileges and restrictions of unissued series of preferred stock, \$.0001 par value per share (the "Preferred Stock"), and to fix the number of shares of any series of Preferred Stock and the designation of any such series, without any vote or action by the Company's stockholders. Thus, the Board of Directors can authorize and issue up to 10,000,000 shares of Preferred Stock with voting or conversion rights that could adversely affect the voting or other rights of holders of the Company's Common Stock. In addition, the issuance of Preferred Stock may have the effect of delaying, deferring or preventing a change of control of the Company, since the terms of the Preferred Stock that might be issued could potentially prohibit the Company's consummation of any merger, reorganization, sale of substantially all of its assets, liquidation or other extraordinary corporate transaction without the approval of the holders of the outstanding shares of the Common Stock. The Company, however, has no intention of adopting a stockholder rights plan ("poison pill") in the foreseeable future. See "Description of Securities--Preferred Stock."

#### Best-Efforts Offering; Escrow of Investors' Funds

This Offering is being made on a "best-efforts" basis. There can be no assurance that any or all of the shares of Common Stock will be sold. The Underwriter is offering the shares of Common Stock for a period of 30 days expiring on [September 1, 1997], which may be extended up to an additional 30 days to [October 1, 1997] by mutual agreement between the Company and the Underwriter. Pending the sale of a minimum of 3,250,000 shares and a maximum of 4,000,000 shares offered hereby, all proceeds will be held in an escrow account at United States Trust Company of New York. No commitment exists by anyone to purchase all or any

of the shares of Common Stock offered hereby. Consequently, subscribers' funds may be held in escrow for as long as 60 days and returned without interest or deduction in the event a minimum of 3,250,000 shares is not sold within the offering period. Investors, therefore, will not have the use of any subscription funds during the subscription period. See "Underwriting."

#### Possible Delisting of Securities from Nasdaq

Following the Offering, the Company's Common Stock will meet the current Nasdaq listing requirements and is expected to be initially included on Nasdaq. There can be no assurance, however, that the Company will meet the criteria for continued listing. Continued inclusion on Nasdaq generally requires that (i) the Company maintain at least \$2,000,000 in total assets and \$1,000,000 in capital and surplus, (ii) the minimum bid price of the Common Stock be \$1.00 per share, (iii) there be at least 100,000 shares in the public float valued at \$200,000 or more, (iv) the Common Stock have at least two active market makers and (v) the Common Stock be held by at least 300 holders. The Nasdaq Stock Market has recently announced proposals which would increase the listing standards for inclusion on Nasdaq. If the listing standards are increased, the Company may be unable to satisfy the listing requirements for inclusion on Nasdaq.

If the Company is unable to satisfy Nasdaq's listing standards, its securities may be delisted from Nasdaq. In such event, trading, if any, in the Common Stock would thereafter be conducted in the over-the-counter market on the so-called "pink sheets" or the NASD's "Electronic Bulletin Board." Consequently, the liquidity of the Company's securities could be impaired, not only in the number of securities which could be bought and sold, but also through delays in the timing of transactions, reduction in security analysts' and the news media's coverage of the Company and lower prices for the Company's securities than might otherwise be attained.

#### Risks of Low-Priced Stock; "Penny Stock" Restrictions

If the Company's securities were delisted from Nasdaq (See "--Possible Delisting of Securities from Nasdaq"), they could become subject to Rule 15c-2 under the Exchange Act, which imposes additional sales practice requirements on broker-dealers which sell such securities to persons other than established customers and "accredited investors" (generally, individuals with net worths in excess of \$1,000,000 or annual incomes exceeding \$200,000, or \$300,000 together with their spouses). For transactions covered by this rule, a broker-dealer must make a special suitability determination for the purchaser and have received the purchaser's written consent to the transaction prior to sale. Consequently, such rule may adversely affect the ability of broker-dealers to sell the Company's securities and may adversely affect the ability of purchasers in the Offering to sell in the secondary market any of the securities acquired hereby.

Commission regulations define a "penny stock" to be any non-Nasdaq equity security that has a market price (as therein defined) of less than \$5.00 per share or with an exercise price of less than \$5.00 per share, subject to certain exceptions. For any transaction involving a penny stock, unless exempt, the rules require delivery, prior to any transaction in a penny stock, of a disclosure schedule prepared by the Commission relating to the penny stock market. Disclosure is also required to be made about commissions payable to both the broker-dealer and the registered representative and current quotations for the securities. Finally, monthly statements are required to be sent disclosing recent price information for the penny stock held in the account and information on the limited market in penny stocks.

The foregoing required penny stock restrictions will not apply to the Company's securities if such securities are listed on Nasdaq and have certain price and volume information provided on a current and continuing basis or meet certain minimum net tangible assets or average revenue criteria. There can be no assurance that the Company's securities will qualify for exemption from these restrictions. In any event, even if the Company's securities were exempt from such restrictions, it would remain subject to Section 15(c)(2) of the Exchange Act, which gives the Commission the authority to prohibit any person that is engaged in unlawful conduct while participating in a distribution of a penny stock from associating with a broker-dealer or participating in a distribution of a penny stock, if the Commission finds that such a restriction would be in the public interest. If the Company's securities were subject to the rules on penny stocks, the market liquidity for the Company's securities could be severely adversely affected.

USE OF PROCEEDS

The net proceeds to the Company from the sale of the shares of Common Stock offered hereby are estimated to be \$13,787,500 in the Minimum Offering and \$17,050,000 in the Maximum Offering after deducting the underwriting discount and estimated offering expenses payable by the Company and assuming an initial public offering price of \$5.00 per share.

The Company expects to use the net proceeds as follows:

| APPLICATION OF PROCEEDS                                       | MINIMUM OFFERING          |                                        | MAXIMUM OFFERING          |                                        |
|---------------------------------------------------------------|---------------------------|----------------------------------------|---------------------------|----------------------------------------|
|                                                               | APPROXIMATE DOLLAR AMOUNT | APPROXIMATE PERCENTAGE OF NET PROCEEDS | APPROXIMATE DOLLAR AMOUNT | APPROXIMATE PERCENTAGE OF NET PROCEEDS |
| Research and development.....                                 | \$ 4,500,000              | 32.6%                                  | \$ 4,500,000              | 26.4%                                  |
| General and administrative.....                               | 4,350,000                 | 31.6                                   | 4,350,000                 | 25.5                                   |
| Repayment of Bridge Notes and accrued interest thereon(1).... | 1,008,333                 | 7.3                                    | 1,008,333                 | 5.9                                    |
| Working capital.....                                          | 3,929,167                 | 28.5                                   | 7,191,667                 | 42.2                                   |
| TOTAL.....                                                    | \$13,787,500              | 100.0%                                 | \$17,050,000              | 100.0%                                 |

(1) Represents the repayment of the outstanding principal amount of \$1,000,000 plus estimated accrued interest thereon at the rate of 10% per annum as of March 31, 1997, on indebtedness incurred in the Bridge Financing. The proceeds of the Bridge Financing, in the amount of \$1,000,000, were used for research and development, working capital and other general corporate purposes.

The Company anticipates, based on currently proposed plans and assumptions relating to its operations, that the proceeds of this Offering will be sufficient to satisfy the Company's contemplated cash requirements for at least 24 months if the minimum number of shares is sold and 30 months if the maximum number of shares is sold, following the consummation of the Offering. In the event the Company's plans change or its assumptions change or prove to be inaccurate or the proceeds of the Offering prove to be insufficient to fund operations (due to unanticipated expenses, delays, problems or otherwise), the Company could be required to seek additional financing sooner than currently anticipated. The Company has no current arrangements with respect to, or sources of, additional financing, apart from research payments and potential milestone payments from Wyeth-Ayerst and there can be no assurance that additional financing will be available to the Company when needed on commercially reasonable terms or at all. Any inability to obtain additional financing when needed would have a material adverse effect on the Company, including possibly requiring the Company to significantly curtail or cease its operations.

Until required for operations, the Company's policy is to invest its cash reserves in bank deposits, certificates of deposit, commercial paper, corporate notes, U.S. government instruments and other investment-grade quality instruments.

CAPITALIZATION

The following table sets forth as of March 31, 1997 (i) the actual capitalization of the Company; and (ii) the pro forma capitalization of the Company as adjusted to give effect to the receipt and anticipated use of the estimated net proceeds of this Offering. This table should be read in conjunction with the Company's Financial Statements and Notes thereto, "Selected Financial Data" and "Plan of Operation" included elsewhere in this Prospectus.

|                                                                                                                                                                                                                    | HISTORICAL<br>-----<br>(UNAUDITED) | AS ADJUSTED<br>FOR MINIMUM<br>OFFERING(1)<br>----- | AS ADJUSTED<br>FOR MAXIMUM<br>OFFERING(2)<br>----- |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------|----------------------------------------------------|
| Bridge Notes(3).....                                                                                                                                                                                               | \$ 889,167                         | --                                                 | --                                                 |
| Stockholders' equity:                                                                                                                                                                                              |                                    |                                                    |                                                    |
| Preferred Stock (\$0.0001 par value,<br>10,000,000 shares authorized, none<br>issued and outstanding.....                                                                                                          | --                                 | --                                                 | --                                                 |
| Common Stock (\$0.0001 par value,<br>25,000,000 shares authorized,<br>3,367,182 shares issued and<br>outstanding; 6,617,182 and 7,367,182<br>shares issued and outstanding as<br>adjusted, respectively(4)(5)..... | \$ 337                             | \$ 662                                             | \$ 737                                             |
| Additional paid-in capital.....                                                                                                                                                                                    | 2,801,819                          | 16,588,994                                         | 19,851,419                                         |
| Accumulated deficit(6).....                                                                                                                                                                                        | (2,819,949)                        | (2,930,782)                                        | (2,930,782)                                        |
| Total stockholders' equity (deficit)..<br>-----                                                                                                                                                                    | (17,793)                           | 13,658,874                                         | 16,921,374                                         |
| Total capitalization.....<br>=====                                                                                                                                                                                 | \$ 871,374                         | \$13,658,874                                       | \$16,921,374                                       |

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- (1) As adjusted to reflect the sale of 3,250,000 shares of Common Stock offered hereby in the Minimum Offering. See "Use of Proceeds."
- (2) As adjusted to reflect the sale of 4,000,000 shares of Common Stock offered hereby in the Maximum Offering. See "Use of Proceeds."
- (3) Represents principal amount of \$1,000,000, net of unamortized debt discount of \$110,833 as of March 31, 1997.
- (4) Assumes (i) no exercise of the Underwriter's Warrants; (ii) no exercise of options granted under the Plan; (iii) no exercise of the de Weese Warrants; (iv) no exercise of the Fischetti Warrants; (v) no exercise of the Directors/Advisors Warrants; and (vi) no exercise of the Bridge Warrants. See "Plan of Operation--Bridge Financing," "Management--1996 Incentive and Non-Qualified Stock Option Plan" and "--Employment Agreements," "Description of Securities," "Underwriting" and "Certain Transactions."
- (5) Does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."
- (6) As adjusted to give effect to the recognition of the unamortized portion of debt discount associated with the Bridge Financing as an expense.



DILUTION

As of March 31, 1997, the Company had a negative net tangible book value equal to (\$181,282). See "Selected Financial Data." After giving effect to the sale of 3,250,000 shares of Common Stock offered in the Minimum Offering (4,000,000 shares of Common Stock offered in the Maximum Offering) by the Company pursuant to this Prospectus at an assumed initial offering price per share of \$5.00 per share, net of underwriting discounts and commissions and estimated expenses of the Offering payable by the Company, and application of a portion of the estimated net proceeds to repay the Bridge Notes as set forth under "Use of Proceeds," the pro forma net tangible book value at such date would have been \$13,658,874 (\$16,921,374 in the Maximum Offering) or \$2.06 per share (\$2.30 per share in the Maximum Offering) to the existing stockholders and an immediate dilution of \$2.94 per share (\$2.70 per share in the Maximum Offering) or 59% (54% in the Maximum Offering) to purchasers of Common Stock offered hereby ("New Investors"). If the initial public offering price is higher or lower, the dilution to New Investors will be, respectively, greater or less. The following tables illustrate the dilution per share:

|                                                                        | MINIMUM OFFERING | MAXIMUM OFFERING |
|------------------------------------------------------------------------|------------------|------------------|
| Assumed public offering price(1).....                                  | \$5.00           | \$5.00           |
| Net tangible book value per share at March 31, 1997(2)..               | \$(.05)          | \$(.05)          |
| Increase per share attributable to New Investors.....                  | 2.11             | 2.35             |
| Pro forma net tangible book value per share after the Offering(3)..... | \$2.06           | \$2.30           |
| Dilution per share to New Investors.....                               | \$2.94           | \$2.70           |

- (1) Before deduction of underwriting discounts and commissions and estimated offering expenses payable by the Company.
- (2) Net tangible book value per share represents the Company's total tangible assets less its total liabilities divided by the number of shares of Common Stock outstanding.
- (3) Does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."

The following tables set forth, with respect to existing stockholders and New Investors, a comparison of the number of shares of Common Stock acquired from the Company, the percentage ownership of such shares, the total consideration paid and the average price per share.

|                                                    | MINIMUM OFFERING |         |                          |         |                         |
|----------------------------------------------------|------------------|---------|--------------------------|---------|-------------------------|
|                                                    | SHARES PURCHASED |         | TOTAL CONSIDERATION PAID |         | AVERAGE PRICE PER SHARE |
|                                                    | NUMBER           | PERCENT | AMOUNT                   | PERCENT |                         |
| Officers, Directors, Promoters and Affiliates..... | 2,212,504        | 33.4%   | \$ 201,248               | 1.1%    | \$0.09                  |
| Unaffiliated Existing Stockholders.....            | 1,154,678        | 17.4%   | 2,107,000                | 11.4%   | 1.82                    |
| New Investors.....                                 | 3,250,000        | 49.2%   | 16,250,000               | 87.5%   | 5.00                    |
| Total.....                                         | 6,617,182        | 100.0%  | \$18,558,248             | 100.0%  | \$2.80                  |

|                                                    | MAXIMUM OFFERING |         |                          |         |                         |
|----------------------------------------------------|------------------|---------|--------------------------|---------|-------------------------|
|                                                    | SHARES PURCHASED |         | TOTAL CONSIDERATION PAID |         | AVERAGE PRICE PER SHARE |
|                                                    | NUMBER           | PERCENT | AMOUNT                   | PERCENT |                         |
| Officers, Directors, Promoters and Affiliates..... | 2,212,504        | 30.0%   | \$ 201,248               | 0.9%    | \$0.09                  |
| Unaffiliated Existing Stockholders.....            | 1,154,678        | 15.7%   | 2,107,000                | 9.4%    | 1.82                    |
| New Investors.....                                 | 4,000,000        | 54.3%   | 20,000,000               | 89.7%   | 5.00                    |
| Total.....                                         | 7,367,182        | 100.0%  | \$22,308,248             | 100.0%  | \$3.03                  |

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The information contained in the above table does not give effect to the exercise of (i) the Underwriter's Warrants, (ii) options granted and outstanding under the Plan to purchase 60,001 shares of Common Stock at exercise prices ranging from \$1.50 to \$5.00 per share, (iii) the de Weese Warrants, (iv) the Fischetti Warrants, (v) the Directors/Advisors Warrants or (vi) the Bridge Warrants. Exercise of such options and/or warrants would result in further dilution to New Investors. If all warrants and options eligible for exercise at March 31, 1997 (50,001 options and 265,254 warrants) were exercised, per share dilution to the New Investors would be \$2.93 (\$2.71 in the Maximum Offering). The information in the above table also does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaboration."

#### DIVIDEND POLICY

The Company currently anticipates that it will retain any future earnings for use in its business and does not anticipate paying any cash dividends in the foreseeable future. The payment of any future dividends will be at the discretion of the Board of Directors and will depend, among other things, upon the Company's future earnings, operations, capital requirements and financial condition, general business conditions and contractual restrictions on payment of dividends, if any.

SELECTED FINANCIAL DATA

The following selected financial data as of December 31, 1996 and 1995 and for each of the periods then ended shown below have been derived from the Company's audited financial statements. The balance sheet data as of March 31, 1997 and the statement of operations data for the three month periods ended March 31, 1997 and 1996 have been derived from unaudited financial statements. In the opinion of management, the unaudited financial statements include all material adjustments (consisting only of normal recurring adjustments) necessary for a fair presentation of the financial position and results of operations for the periods presented. This data should be read in conjunction with the "Plan of Operation" and with the Company's Financial Statements and the Notes thereto included elsewhere in this Prospectus.

|                                            | DECEMBER 28,<br>1995 (DATE<br>OF<br>INCEPTION)<br>TO<br>DECEMBER 31,<br>1995 | YEAR ENDED<br>DECEMBER 31,<br>1996 | DECEMBER 28,<br>1995 (DATE<br>OF<br>INCEPTION)<br>TO<br>DECEMBER 31,<br>1996 | THREE<br>MONTHS<br>ENDED MARCH<br>31, 1996 | THREE<br>MONTHS<br>ENDED MARCH<br>31, 1997 | DECEMBER 28,<br>1995 (DATE<br>OF<br>INCEPTION)<br>TO MARCH 31,<br>1997 |
|--------------------------------------------|------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|------------------------------------------------------------------------|
|                                            |                                                                              |                                    |                                                                              |                                            | (UNAUDITED)                                | (UNAUDITED)                                                            |
| <b>STATEMENT OF OPERATIONS DATA:</b>       |                                                                              |                                    |                                                                              |                                            |                                            |                                                                        |
| Operating expenses:                        |                                                                              |                                    |                                                                              |                                            |                                            |                                                                        |
| General and administrative.....            | \$ 1,000                                                                     | \$ 787,817                         | \$ 788,817                                                                   | \$ 257,635                                 | \$ 300,962                                 | \$ 1,089,779                                                           |
| Research and development.....              | --                                                                           | 662,205                            | 662,205                                                                      | 98,169                                     | 203,959                                    | 866,164                                                                |
| Patent preparation fees.....               | --                                                                           | 452,999                            | 452,999                                                                      | 258,896                                    | 15,462                                     | 468,461                                                                |
| Stock option and warrant compensation..... | --                                                                           | 367,461                            | 367,461                                                                      | --                                         | --                                         | 367,461                                                                |
| Total operating expenses.....              | 1,000                                                                        | 2,270,482                          | 2,271,482                                                                    | 614,700                                    | 520,383                                    | 2,791,865                                                              |
| Interest income/(expense).....             | --                                                                           | 2,306                              | 2,306                                                                        | --                                         | (30,390)                                   | (28,084)                                                               |
| Net loss .....                             | \$(1,000)                                                                    | \$(2,268,176)                      | \$(2,269,176)                                                                | \$(614,700)                                | \$(550,773)                                | \$(2,819,949)                                                          |
| Net loss per common share(1).....          | --                                                                           | \$ (0.66)                          |                                                                              | \$ (0.21)                                  | \$ (0.15)                                  |                                                                        |

|                               | DECEMBER 31,<br>1995 | DECEMBER 31,<br>1996 | MARCH 31,<br>1997 |
|-------------------------------|----------------------|----------------------|-------------------|
|                               |                      |                      | (UNAUDITED)       |
| Working capital(deficit)..... | \$(7,937)            | \$232,050            | \$ (200,927)      |
| Total assets.....             | 6,937                | 580,918              | 1,118,753         |
| Total liabilities.....        | 7,937                | 180,938              | 1,136,546         |
| Stockholders' equity.....     | (1,000)              | 399,980              | (17,793)          |

(1) For information concerning the computation of net loss per share, see Note 2 of Notes to Financial Statements.

## PLAN OF OPERATION

The following discussion and analysis should be read in conjunction with the financial statements and notes thereto appearing elsewhere in this Prospectus.

### RESULTS OF OPERATIONS

The Company is a development stage, biopharmaceutical company. Since its inception in December 1995, the Company's efforts have been principally devoted to research and development, securing patent protection and raising capital. From inception through March 31, 1997, the Company has sustained cumulative losses of \$2,819,949, including non-cash charges in the amount of \$367,461 for stock option and warrant compensation expense. These losses have resulted primarily from expenditures incurred in connection with research and development, patent preparation and prosecution and general and administrative activities. From inception through March 31, 1997, research and development expenses amounted to \$866,164, patent preparation and prosecution expenses amounted to \$468,461 and general and administrative expenses amounted to \$1,089,779.

The Company expects to continue to incur substantial research and development costs in the future resulting from ongoing research and development programs, manufacturing of products for use in clinical trials and pre-clinical and clinical testing of the Company's products. The Company also expects that general and administrative costs, including patent and regulatory costs, necessary to support clinical trials, research and development, manufacturing and the creation of a marketing and sales organization, if warranted, will increase in the future. Accordingly, the Company expects to incur increasing operating losses for the foreseeable future. There can be no assurance that the Company will ever achieve profitable operations.

To date, the Company has not marketed, or generated revenues from the commercialization of, any products. The Company's current product candidates are not expected to be commercially available for several years.

General and administrative expenses from inception through March 31, 1997, were \$1,089,779, primarily due to personnel costs and associated operating costs. The Company anticipates that general and administrative expenses will increase substantially during the next 12 months as the Company increases its staffing levels.

Research and development expenditures consist primarily of payments for sponsored research, payments to its scientific consultants and the salaries of its research staff. Research and development expenses from inception through March 31, 1997 were \$866,164. As of March 31, 1997, the Company had made advance payments of \$302,083 for research support to Rockefeller for the period ending January 31, 1998. The Company has research support agreements with both Emory and Oregon State pursuant to which the Company is obligated to fund research through January 31, 1998 in the aggregate annual amount of \$183,320. The Company anticipates that its research and development expenses will increase during the next 12 months as the Company continues to fund research programs and pre-clinical and clinical testing for its product candidates and technologies under development. See "--Product Research and Development Plan."

During the year ended December 31, 1996, the Company recorded non-cash compensation expense in the amount of \$367,461 related to the issuance of compensatory stock options and warrants to the President of the Company and the consultant who serves as the Company's Chief Scientific Advisor. The warrants issued to the consultant were to compensate him for his efforts in introducing the Company to potential collaborative partners.

### LIQUIDITY AND CAPITAL RESOURCES

#### 1996 Private Placement Transactions

In March 1996, the Company completed a private placement transaction in which it sold 1,038,008 shares of Common Stock for an aggregate gross consideration of \$1,557,000. In September 1996, the Company completed a private placement transaction in which it sold 250,004 shares of Common Stock for an aggregate gross consideration of \$750,000.

## Bridge Financing

On February 28, 1997, the Company completed the Bridge Financing pursuant to which the Company issued Bridge Notes in the aggregate principal amount of \$1,000,000 and Bridge Warrants to purchase an estimated 100,000 shares in aggregate of the Company's Common Stock (the actual number of shares will be determined by dividing one-half the principal of the Bridge Notes (\$500,000) by the actual initial offering price per share) at an exercise price equal to the actual initial offering price per share. In the event an initial public offering of the Common Stock is not completed prior to the maturity date of the Bridge Notes, the holders of the Bridge Notes will receive Bridge Warrants to purchase an aggregate of 100,000 shares of Common Stock at an exercise price of \$5.00 per share. The Bridge Notes bear interest at the rate of 10% per annum and are due on the earlier of six months subsequent to the date of issuance or the closing of the Offering. As of July 8, 1997 the maturity date of Bridge Notes in the principal amount of \$250,000, which had maturity dates of July 1997 had been extended to the earlier of October 1, 1997 or completion of the Offering. The Company is currently seeking extensions of the remaining Bridge Notes to the earlier of October 1, 1997 or completion of the Offering. The Bridge Warrants, which are exercisable from February 28, 1998 until February 28, 2002, were issued to the Bridge Investors because the interest rate on the Bridge Notes did not provide the Bridge Investors with a sufficient rate of return given the risks associated with their investment in the Bridge Notes. None of the Bridge Investors are affiliates of the Company. The Company intends to use a portion of the proceeds of the Offering to repay the Bridge Notes and the interest accrued thereon and will recognize an expense upon completion of the Offering relating to the unamortized portion of the debt discount associated with the Bridge Financing which amounted to \$110,833 at March 31, 1997.

## Collaborative Research and License Agreement

In July 1997 the Company entered into a collaborative research and license agreement with Wyeth-Ayerst. Under the terms of the agreement, the Company has granted Wyeth-Ayerst an exclusive worldwide license to develop, make, use and sell products derived from specified technologies. The agreement requires Wyeth-Ayerst to sponsor further research by the Company for the development of the licensed technologies for a period of two years from the effective date of the agreement, in return for payments to the Company totaling \$1,200,000. An initial sponsored research payment in the amount of \$300,000 is due to the Company within 30 days of the execution of the agreement. The remaining sponsored research payments are payable in equal quarterly installments over the two years. In consideration of the license grant, the Company is entitled to receive royalties equal to specified percentages of net sales of products incorporating the licensed technologies. The royalty percentages increase as certain cumulative and annual net sales amounts are attained. The Company could receive milestone payments, up to \$13,750,000 for the initial product and up to \$3,250,000 for the second product developed from a single compound derived from the licensed technologies. The Company could also receive, under certain circumstances, additional milestone payments, for an additional compound, as defined in the agreement, developed from the licensed technologies.

## Current Resources

The Company anticipates that its current resources, together with the net proceeds of the Offering, will be sufficient to finance the Company's currently anticipated needs for operating and capital expenditures for at least 24 months, if the minimum number of shares is sold in the Offering and at least 30 months if the maximum number of shares is sold, from the consummation of this Offering. (If this Offering is not consummated until [October 1, 1997], the Company's current resources are sufficient to fund its operations through such date.) In addition, the Company will attempt to generate additional working capital through a combination of collaborative agreements, strategic alliances and equity and debt financings. However, no assurance can be provided that additional capital will be obtained through these sources. In addition, for a period of 12 months (6 months in the case of any public offering under the Securities Act) after the date of this Prospectus, the Underwriter's prior written consent is required if the Company seeks to raise additional funds through the issuance of equity. If the Company is not able to obtain continued financing the Company may cease operation and purchasers of the Common Stock will, in all likelihood, lose their entire investment. See "Underwriting."

The Company's working capital and capital requirements will depend upon numerous factors, including progress of the Company's research and development programs; pre-clinical and clinical testing; timing and cost of obtaining regulatory approvals; levels of resources that the Company devotes to the development of manufacturing and marketing capabilities; technological advances; status of competitors; and ability of the Company to establish collaborative arrangements with other organizations.

Until required for operations, the Company's policy is to invest its cash reserves in bank deposits, certificates of deposit, commercial paper, corporate notes, U.S. government instruments and other investment-grade quality instruments.

At March 31, 1997, the Company had \$587,741 in cash and cash equivalents, and a working capital deficit of \$200,927. In accordance with the terms of the Bridge Notes, the Company will utilize proceeds of approximately \$1,000,000 upon completion of the Offering to repay the principal of, and accrued interest through consummation of the Offering on, the Bridge Notes. See "Use of Proceeds" and Note 9 of Notes to Financial Statements.

#### PRODUCT RESEARCH AND DEVELOPMENT PLAN

The Company's plan of operation for the 12 months following completion of this Offering will consist primarily of research and development and related activities including:

- . formulation and further pre-clinical development of the Company's vaccine candidate for strep throat, and if successful, the initiation of clinical trials. See "Business--The Company's Product Candidates and Research and Discovery Programs--Mucosal Vaccines."
- . further development of the Company's anti-infectives programs aimed at blocking the function or expression of certain bacterial surface proteins. See "Business--The Company's Product Candidates and Research and Discovery Programs--Anti-Infectives."
- . continuing the funding of the research on mucosal vaccine delivery systems, mucosal vaccine candidates and novel anti-infectives currently being conducted at Rockefeller, Oregon State, Emory and SUNY Buffalo. See "Business--Collaborative Research and Licenses."
- . continuing the prosecution and filing of patent applications. See "Business--Patents and Proprietary Rights."
- . hiring additional employees, including filling senior positions in the areas of finance, product development and regulatory and clinical affairs.
- . establishing a research facility.

The actual research and development and related activities of the Company may vary significantly from current plans depending on numerous factors, including changes in the costs of such activities from current estimates, the results of the Company's research and development programs, the results of clinical studies, the timing of regulatory submissions, technological advances, determinations as to commercial potential and the status of competitive products. The focus and direction of the Company's operations will also be dependent upon the establishment of collaborative arrangements with other companies, and other factors.

## BUSINESS

The Company is a development stage, biopharmaceutical company focused on the discovery, development and commercialization of vaccines, antibiotics and novel anti-infectives for serious infectious diseases. The Company's lead vaccine candidate is for the prevention of "strep throat." The Company is developing a technology for the mucosal delivery of its vaccines which may allow those vaccines to activate the immune system at the mucus-lined surfaces of the body--the mouth, the nose, the lungs and the gastrointestinal and urogenital tracts--the sites of entry for most infectious agents. The Company's anti-infectives programs, aimed at the increasingly serious problem of drug resistance, are designed to block the ability of bacteria to attach to human tissue, the first step in the infection process.

### SUMMARY

#### Vaccine Candidates

The Company's lead vaccine candidate is for the prevention of group A streptococcal pharyngitis or "strep throat," a recurrent infection affecting between seven and 20 million children in the United States each year. Strep throat remains the most common childhood disease for which there is no vaccine available, and, if ineffectively treated, can progress to rheumatic fever. No vaccine has been developed because more than 100 different serotypes of group A streptococcus are known to cause the disease. In order to be effective, a vaccine would have to be based upon an antigen (a molecule that triggers an immune response) common to most of the important serotypes. The high incidence of the disease, the potentially serious consequences of inadequate treatment and the recent emergence of drug-tolerant types of group A streptococcus create an important medical need for an effective vaccine.

The Company's proprietary antigen addresses the challenge of multiple serotypes in that this antigen is common to most types of the bacteria that cause strep throat, including types that have been associated with rheumatic fever. When a vaccine incorporating this antigen was orally administered to animals, it was shown to provide protection against multiple types of group A streptococcal infection. The Company's vaccine candidate for strep throat utilizes this antigen.

The Company is collaborating with the National Institutes of Health and the University of Maryland Center for Vaccine Development on the clinical development of this vaccine candidate and expects to file an IND with the FDA in the fall of 1997.

In addition to its strep throat vaccine, the Company is also collaborating with Chiron on research toward the development of vaccines against two sexually transmitted diseases and is testing a vaccine to prevent periodontal disease in a collaboration with SUNY Buffalo.

#### Mucosal Vaccine Delivery System

The Company is also developing a proprietary mucosal vaccine delivery system which is a component of the Company's vaccine candidates and which the Company intends to license to other vaccine developers. Mucosally-delivered vaccines are considered attractive because such vaccines may mobilize an immune response concentrated at the site of infection and because they may activate both a mucosal IgA antibody response as well as a systemic (IgG and T cell) response. The Company's mucosal vaccine delivery system utilizes commensal bacteria (harmless bacteria that live in and on the body) that have been genetically engineered to continually present disease-associated antigens which stimulate an immune response at the body's mucosal surfaces thereby preventing infection at the earliest possible stage. The Company believes that mucosal vaccines developed using its proprietary commensal delivery technology could provide a number of potential advantages over conventional vaccines, including: more complete protection; fewer side effects; the potential for single dose administration; non-injectable administration; the potential for combination vaccine delivery; and lower cost production. The Company's mucosal vaccine delivery technology is potentially applicable to any infectious disease that begins at a mucosal surface.



## Anti-Infectives and Antibiotics Therapy Candidates

The Company's anti-infectives program is targeted principally toward drug-resistant bacteria and hospital-acquired infections. According to estimates from the Centers for Disease Control, approximately two million hospital-acquired infections occur each year in the United States. According to the Pharmaceutical Manufacturer's Association, the United States and worldwide antibiotic markets are \$7 billion and \$22 billion, respectively.

The Company's anti-infectives approaches aim to block the ability of bacteria to attach to and colonize human tissue, thereby blocking infection at the first stage in the infection process. By comparison, antibiotics available today act by interfering with either the structure or the metabolism of a bacterial cell, affecting its ability to survive and to reproduce. No currently available antibiotics target the attachment of a bacterium to its target tissue. By preventing attachment, the bacteria would be readily cleared by the body's immune system.

The Company's lead anti-infectives program is based on a novel target for antibiotic therapy. The Company's founding scientists have identified an enzyme, a selective protease, utilized by most gram-positive bacteria to anchor certain proteins to the bacterial cell wall. These surface proteins are the means by which certain bacteria recognize, adhere to and colonize specific tissue. The Company's strategy is to develop protease inhibitors. The Company believes protease inhibitors will have wide applicability to gram-positive bacteria in general, including antibiotic resistant staphylococcus and a broad range of serious infectious diseases including meningitis and respiratory tract infections. The Company has entered into a collaborative research and license agreement with Wyeth-Ayerst to identify and develop protease inhibitors as novel antibiotics.

The Company has entered into a letter of intent with MedImmune regarding a technology transfer agreement pursuant to which the Company will acquire all of MedImmune's rights in gram-negative antibiotic targets, products, screens and services. The Company and MedImmune plan to collaborate in the development of antibiotics against gram-negative pathogens. These bacteria utilize structures called pili to adhere to target tissue, and the Company plans to exploit the assembly and export of these essential infective structures as novel anti-infective targets. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."

### SURFACE PROTEIN EXPRESSION SYSTEM

The Company is developing proprietary protein production systems based on its understanding of the mechanisms used by gram-positive bacteria to export and anchor surface proteins. Methods have been developed to engineer gram-positive bacteria to produce and secrete commercially useful proteins such as antigens or enzymes into the culture medium in a form requiring minimal purification. The Company believes that this technology provides a cost-effective alternative to E. coli, yeast and mammalian cell culture systems.

### BACKGROUND

#### Infectious Diseases

Infectious diseases are the leading cause of death in the world. For most of the twentieth century, the incidence of infectious disease has decreased dramatically due to the use of antibiotics and the development of effective vaccines to prevent many common diseases. In recent years, however, this trend has reversed with the emergence of many new infectious diseases or the re-emergence or increased incidence of known infectious diseases worldwide, a public health issue which has become "a threat to global health and security." There are many reasons for this emergence, including: (i) the intrusion of humans into formerly unpopulated or isolated populations has provided exposure to organisms previously unknown (e.g. Lyme disease, hantavirus, Ebola virus); (ii) the spread of disease-causing organisms has increased due to the ease of worldwide transportation; (iii) changes in human behavior, such as increased sexual activity and intravenous drug abuse, have contributed to the spread of diseases like human immunodeficiency virus ("HIV"), hepatitis, and chlamydia; (iv) the

widespread use of day care facilities has exposed a larger number of children to infectious diseases and, as a result, their families; (v) the use of immunosuppressive drugs, particularly for cancer treatment, has rendered susceptible an ever growing number of people subject to infectious diseases which in otherwise healthy individuals would be benign; (vi) past complacency of public health officials has resulted in lowered surveillance of and reduced prevention programs for infectious diseases leading to an inability to react quickly to newly arising infectious threats; and (vii) increased antibiotic resistance has resulted in a major threat from organisms which were effectively and easily treated in the past.

As a result of these and other factors, the Centers for Disease Control and Prevention has estimated that between 1980 and 1992, in the United States, the mortality rate due to infectious diseases rose by 58%. Alarmingly, the age group most affected, ages 25 to 44 years, has experienced over a six-fold increase in infectious disease-related deaths during this period. Due to this increase, infectious diseases are now the third leading cause of death in the United States, following only cardiovascular and cancer-related deaths. The financial burden to the public to treat or prevent infectious diseases has been conservatively estimated to exceed \$120 billion annually. The problem of emergent infections, combined with the need to provide quality healthcare at a reasonable cost, have led to a reexamination of the approaches used to combat infectious diseases.

#### Immune System

The human immune system is a complex system of checks and balances, coupled with an intricate network of cells and effector molecules, which has evolved to stave off the intrusion of foreign elements into the body. To accomplish this the body has developed a means to determine the difference between self and non-self ("foreign"). Foreign substances include elements such as dust particles, pollen grains, infectious agents and antigens (the surface of these other structures generally are covered with antigens, or secrete them). Once the determination has been made that a foreign intruder exists, the body's defenses are triggered, beginning a cascade of events known collectively as the immune response. The end result, in a healthy person, is the successful clearance or elimination of the offending material. The immune response has been divided into two arms based principally on the ultimate effector mechanism which will fight the initial insult; these arms are known as the humoral and cellular immune responses. The humoral immune system employs a family of molecules circulating in the blood stream known as immunoglobulins, or antibodies, which are secreted by immune cells called lymphocytes. In terms of infectious diseases, these antibodies are very effective at combating invasions by bacteria, protozoan parasites, and some viruses, as well as specific proteins produced by these infectious agents. In contrast, a cellular immune response, as the name implies, uses effector cells of the immune system to generally target certain viruses and cancer cells.

A different delineation also exists within the immune system in terms of the site of the induction and the response of the immune system. The systemic immune system is generally regarded as that which is internal to the body, including the antibodies in the blood stream and lymphatic system and the cellular immune response in the tissues where foreign agents have encroached. The other active site, and the focus of the Company's vaccine efforts, is the mucosal immune system. This portion of the immune system is spread over the tissues lining the cavities of the body and those involved in the secretions which ultimately find their way to these cavities. Included in this vast network are the linings of the oral and nasopharyngeal cavity, the respiratory tract, the gastrointestinal tract, and the urogenital tract. There are a number of physical barriers present which can prevent the invasion of infectious agents into the mucosal lining. Among these physical factors are: (i) the mucus which covers the lining of mucosal tissues; (ii) the production of protein degrading enzymes which digest proteins either free in the mucosal environment or attached to infectious organisms, thereby decreasing their ability to invade the mucosal tissues; (iii) the peristaltic motion of the walls beneath the mucosa which function in moving digested food and, consequently, infectious agents which are present, through the digestive tract and out of the body; (iv) the motion of the cilia lining the mucosal cavities which carry infectious organisms through the body; and (v) the specialized cells which line the mucosa coupled with the tight junctions between them also provide a strong barrier to the penetration of infectious organisms into the deeper tissues.

The specific response which occurs in the mucosal immune system begins with the uptake of the infectious agent or antigen generally by a specialized cell lining the mucosa called an M cell. This cell facilitates the movement of the antigen to cells underlying the epithelial layer which can efficiently prepare the antigen and present it to cells of the immune system. Once stimulated, these cells can migrate to various parts of the mucosal system where they can either produce antibodies or induce effector cells specific for the offending (or, in the case of vaccines, immunizing) agent. Due to this migratory nature of the immune cells of the mucosal immune system, the entire system has been termed the common mucosal immune system. As a result of this trafficking of immune cells, induction of a mucosal immune response at one site results in the expression of that specific response at multiple sites within the mucosal system; i.e. induction of an immune response in the oral cavity would lead to an immune response there, but also in the gut. The weakness of this common mucosal system is that generally the immune response is greater at the site of stimulation than at distant sites within the system, a problem which the Company hopes to circumvent using the site-specific aspects of its commensal vaccine delivery system.

The primary effector molecule of the mucosal immune response is an antibody known as secretory immunoglobulin A (sIgA), which is found in saliva, tears, and other secretions of the respiratory, gastrointestinal ("GI"), and urogenital tracts. Given that the mucosal surface covers such a large area, it is not surprising that the sIgA produced there accounts for greater than 75% of all the antibodies produced in the body. sIgA performs a variety of important functions, including: (i) neutralization of viruses, toxins, and enzymes; (ii) inhibition of adherence of microorganisms to mucosal surfaces; (iii) immune exclusion of macromolecules and bacterial toxins; (iv) suppression of antibody-mediated inflammatory responses at mucosal surfaces; (v) synergism with nonspecific antibacterial factors, such as lactoferrin, peroxidase, and lysozyme; (vi) clearance of adsorbed antigen from the circulation; and (vii) interference with other infectious determinants. These factors, coupled with the non-specific barriers described above, form a formidable obstacle to invading infectious organisms.

#### Vaccines

Vaccines prevent disease by stimulating the body to produce a protective immune response to particular disease-causing organisms, or pathogens. Conventional vaccines consist of killed microorganisms (e.g. pertussis vaccine), live attenuated microorganisms (e.g. polio or smallpox vaccines) or components of microorganisms, called subunit vaccines (e.g. hepatitis B vaccine). These types of vaccines have been successful in many cases, as evidenced by the global eradication of smallpox through immunization. However, conventional vaccines can have significant limitations. For example, killed vaccines and component vaccines can have variable efficacy and may require boosters to maintain immunity. Attenuated vaccines, while generally more effective, can be associated with certain medical complications, such as neurological damage, allergic reaction, bleeding and infection. There are also a number of diseases for which conventional approaches have not been able to evoke a protective immune response. Aside from the oral polio vaccine, all of these vaccines are administered via the systemic route, i.e. through a needle. The World Health Organization has recently reported that in Eastern Europe 50% of the vaccine centers gave unsafe vaccines or used vaccines of doubtful potency. While clearly there are many factors contributing to this problem, one of the solutions is to alter the manner in which vaccines are delivered.

Most infectious agents enter the host's body through and initiate infection at one of the mucosal surfaces--the mouth, the nose, the lungs or the GI or urogenital tracts. For example, the influenza virus usually enters the body through the mouth or nose, salmonella through the GI tract and chlamydia through the urogenital tract. The body's mucosal surfaces present a physical barrier to pathogens and also possess a specific local immune system, which provides a primary line of defense against invading organisms. While conventional vaccines are designed to produce an effective systemic (internal) immune response, they are relatively ineffective at stimulating the mucosal immune system. It is now well recognized in the scientific and medical communities that the mucosal immune system represents an important target for immunization and that vaccines designed to activate the mucosal immune system may prevent a variety of diseases for which conventional vaccines provide only limited protection or do not exist.

## Anti-infectives and Drug Resistance

Since their introduction in the 1940s, antibiotics have been the first line of defense against bacterial infections. Over the past few decades, however, bacterial resistance to existing antibiotics has been increasing, rendering some previously innocuous infections virtually untreatable. All current classes of antibiotics function by interfering with either the structure or the metabolism of a bacterial cell, affecting its ability to survive and to reproduce. For example, penicillin prevents production of new bacterial cell walls, tetracycline inhibits the synthesis of new bacterial proteins, fluoroquinolones inhibit nucleic acid synthesis, and polymyxin B disrupts the integrity of bacterial membranes. Within any given population of infectious organisms, there are generally some cells which are not susceptible to the antibiotic selected for treatment. Because this population is so small, the host can usually remove the remainder of the resistant cells by its normal clearance mechanisms. If, however, a population of pathogens is given the opportunity to increase the percentage of resistant organisms within its number, then eventually the resistant organisms will predominate. There are several reasons for the recent emergence of antibiotic resistance in microorganisms: (i) indiscriminate prescribing of antibiotics by physicians to patients who do not require antibiotic treatment; (ii) non-compliance of dosing regimens by patients leading to incomplete clearance of the infectious agent; (iii) transfer of resistance genes from one organism to another; and (iv) the widespread use of antibiotics in cattle, which ultimately enters the human food chain.

Antibiotic resistance has become a problem with many medically important bacteria, but has become particularly dangerous with respect to *Mycobacterium tuberculosis* (which causes TB), *Neisseria gonorrhoeae* (gonorrhea), *Pseudomonas aeruginosa* (infections in immunocompromised patients), *S. aureus* (hospital-acquired and other infections), *Streptococcus pneumoniae* (pneumonia, otitis media, meningitis), and *Enterococcus* spp. (bacteremia and GI tract infections). While new generations of antibiotics have been developed with broad spectrum activity, only one new class of antibiotics has been developed in the last two decades. The need for new classes of antibiotics and new targets for their action has become crucial to the health of the nation and the world.

## THE COMPANY'S TECHNOLOGIES

### Vaccine Technologies: Mucosal Immunity and Vaccine Delivery

Using proprietary technology licensed from Rockefeller, the Company is developing certain commensal bacteria ("commensals") as a means to deliver mucosal vaccines. Commensals are harmless bacteria that naturally inhabit the body's surfaces--with different commensals inhabiting different surfaces, particularly the mucosal surfaces. The Company's vaccine candidates utilize genetically engineered commensals to deliver antigens from a variety of pathogens to the mucosal immune system. When administered, the genetically engineered ("recombinant") commensals colonize the mucosal surface and replicate. By activating a local mucosal immune response, the Company's vaccine candidates are designed to prevent infection and disease at the earliest possible stage. By comparison, most conventional vaccines are designed to act after infection has already occurred.

The Company's commensal vaccine candidates utilize gram-positive bacteria, one of two major classes of bacteria. Rockefeller scientists have identified a protein region that is used by gram-positive bacteria to anchor proteins to their surfaces. The Company is using the proprietary technology licensed from Rockefeller to fuse antigens from a wide range of infectious organisms, both viral and bacterial, to the surface protein anchor region of a variety of commensal organisms. By combining a specific antigen with a specific commensal, vaccines can be tailored to both the target pathogen and its mucosal point of entry.

To target an immune response to a particular mucosal surface, a vaccine would employ a commensal organism that naturally inhabits that surface. For example, vaccines targeting sexually transmitted diseases could employ *Lactobacillus acidophilus*, a commensal colonizing the female urogenital tract. Vaccines targeting GI diseases could employ *Lactobacillus casei*, a commensal colonizing the GI tract. The Company has conducted initial experiments using *Streptococcus gordonii* ("*S. gordonii*"), a commensal that colonizes the oral cavity and that can potentially be used in vaccines targeting pathogens that enter through the upper respiratory tract, such as the influenza virus.

By using an antigen unique to a given pathogen, the technology can potentially be applied to any infectious agent that enters the body through a mucosal surface. The Company's founding scientists have expressed and anchored a variety of viral and bacterial antigens on the outside of *S. gordonii*, including the M6 protein from group A streptococcus, a group of organisms that cause a range of diseases, including strep throat, necrotizing fasciitis, impetigo and scarlet fever. In addition, proteins from other infectious agents, such as HIV and human papilloma virus have also been expressed using this system. The Company believes this technology will enable the expression of essentially any antigen regardless of size or shape. In animal studies, the Company has shown that the administration of a recombinant *S. gordonii* vaccine prototype induces both a local mucosal immune response and a systemic immune response.

The Company believes that mucosal vaccines developed using its proprietary commensal delivery technology could provide a number of advantages, including:

**More complete protection than conventional vaccines:** Mucosal vaccines in general may be more effective than conventional parenteral (injectable) vaccines, due to their ability to produce both a systemic and local (mucosal) immune response. By stopping infectious organisms at the earliest stage, the immune response has no need to eliminate pathogens which have already become established in the host.

**Potential single dose administration:** The commensal delivery has the potential to allow for long term colonization of the host, eliminating the need for boosters, while providing an extended exposure to the selected vaccine candidate(s).

**Safety advantage over other live vectors:** A number of bacterial pathogens have been genetically rendered less infectious, or attenuated, for use as live vaccine vectors. Commensals, by virtue of their harmless nature, offer a safer delivery vehicle without fear of genetic reversion to the infectious state inherent in attenuated pathogens.

**Non-injection administration:** Oral, nasal, rectal or vaginal administration of the vaccine eliminates the need for painful injections with their potential adverse reactions.

**Potential for combined vaccine delivery:** The Children's Vaccine Initiative has called for the development of combined vaccines, specifically to reduce the number of needle sticks per child by combining several vaccines into one injection, thereby increasing compliance and decreasing disease. The Company believes its commensal delivery technology can be an effective method of delivery of multi-component vaccines within a single commensal organism that address multiple diseases or diseases caused by multiple strains of an infectious agent.

**Eliminating need for refrigeration:** One of the problems confronting the effective delivery of parenteral vaccines is the need for refrigeration at all stages prior to injection. The stability of the commensal organisms in a freeze-dried state would, for the most part, eliminate the need for special climate conditions, a critical consideration, especially for the delivery of vaccines in developing countries.

**Low cost production:** By using a live bacterial vector, extensive downstream processing is eliminated, leading to considerable cost savings in the production of the vaccine. The potential for eliminating the need for refrigeration would add considerably to these savings by reducing the costs inherent in refrigeration for vaccine delivery.

#### Anti-Infectives Technology: Prevention of Attachment and Infectivity

The bacterial infectious process generally includes three steps: colonization, invasion and disease. The adherence of bacteria to a host's surface is crucial to establishing colonization. Bacteria cells adhere through a number of mechanisms, but generally by using highly specialized surface structures which, in turn, bind to specific structures or molecules on the host's cells or, as discussed below, to inanimate objects residing in the host. Once adhered, many bacteria will invade the host's cells and either establish residence or continue invasion into deeper tissues. During any of these stages, the invading bacteria can produce the molecules (toxins) which result in the outward manifestations of the disease. The severity of disease, while dependent on a large combination of factors, is often the result of the ability of the bacteria to persist in the host. These bacteria accomplish this persistence by using surface molecules which can alter the host's non-specific mechanisms or its highly specific immune responses to clear or destroy the organisms.

Unlike conventional antibiotics, as discussed above, the Company's anti-infectives approaches aim to block the ability of pathogenic bacteria to attach to and colonize human tissue, thereby preventing infection at its earliest stage. The Company is pursuing two anti-infective strategies: (i) inhibiting the expression of bacterial surface proteins required for bacterial infectivity and (ii) blocking the tissue binding sites on bacterial surface proteins. The Company believes that these approaches have promise in the areas of hospital-acquired drug-resistant infections and a broad range of other diseases caused by bacteria.

Many special surface proteins used by bacteria to infect the host are anchored in the bacterial cell wall. Scientists at Rockefeller have identified an amino acid sequence and related enzyme, a selective protease, that are essential for anchoring proteins to the surface of most gram-positive bacteria. Published information indicates that this amino acid sequence is shared by more than 50 different surface proteins found on a variety of gram-positive bacteria. This commonality suggests that this protease represents a promising target for the development of a new class of antibiotic products for the treatment of a wide range of infectious diseases. Experiments by the Company's founding scientists at Rockefeller have shown that without this sequence, proteins cannot become anchored to the bacterial surface and thus the bacteria are no longer capable of attachment, colonization or infection. Such "disarmed" bacteria should be readily cleared by the body's immune system. The Company is using a combination of structure-based drug design and high throughput screening procedures to identify compounds that inhibit the protease, thereby blocking the anchoring process. If successful, this strategy should provide relief from many gram-positive bacterial infections, but may prove particularly important in combating diseases caused by the emerging antibiotic resistance of the gram-positive organisms *S. aureus*, *Streptococcus pneumoniae*, and the enterococci.

#### Surface Protein Expression System ("SPEX")

The ability to overproduce many bacterial and human proteins has been made possible through the use of recombinant DNA technology. The introduction of DNA molecules into *E. coli* has been the method of choice to express a variety of gene products, because of this bacteria's rapid reproduction and well-understood genetics. Yet despite the development of many efficient *E. coli*-based gene expression systems, the most important concern continues to be associated with subsequent purification of the product. Recombinant proteins produced in this manner do not readily cross *E. coli*'s outer membrane, and as a result, proteins must be purified from the bacterial cytoplasm or periplasmic space. Purification of proteins from these cellular compartments can be very difficult. Frequently encountered problems include low product yields, contamination with potentially toxic cellular material (i.e., endotoxin) and the formation of large amounts of partially folded polypeptide chains in non-active aggregates termed inclusion bodies.

To overcome these problems, the Company has taken advantage of its knowledge of gram-positive bacterial protein expression and anchoring pathways. This pathway has evolved to handle the transport of surface proteins that vary widely in size, structure and function. Modifying the approach used to create commensal mucosal vaccines, the Company has developed methods which, instead of anchoring the foreign protein to the surface of the recombinant gram-positive bacteria, result in it being secreted into the surrounding medium in a manner which is readily amenable to simple batch purification. The Company believes the advantages of this approach include the ease and lower cost of gram-positive bacterial growth, the likelihood that secreted recombinant proteins will be folded properly, and the ability to purify recombinant proteins from the culture medium without having to disrupt the bacterial cells and liberating cellular contaminants. Gram-positive bacteria may be grown simply in scales from those required for laboratory research up to commercial mass production.

#### THE COMPANY'S PRODUCT CANDIDATES AND RESEARCH AND DISCOVERY PROGRAMS

The following table lists the potential indications and current status of the Company's product candidates and research and discovery programs. A more detailed description of these product candidates and research and discovery programs follows this table. The Company's product candidates are subject to the risks of failure inherent in the development of products based on innovative technologies. See "Risk Factors--Early Stage of Development; Absence of Products; No Commercialization of Products Expected in Near Future."

| PRODUCT CANDIDATES/PROGRAM<br>----- | INDICATION<br>-----                | STAGE OF DEVELOPMENT*<br>----- |
|-------------------------------------|------------------------------------|--------------------------------|
| <b>MUCOSAL VACCINES</b>             |                                    |                                |
| Streptococcal vaccine               | Strep throat                       | Pre-clinical                   |
| STD vaccines                        | Herpes, HIV, HPV                   | Research                       |
| Periodontal vaccine                 | Periodontal disease                | Pre-clinical                   |
| <b>DELIVERY SYSTEM</b>              |                                    |                                |
| Mucosal vaccine delivery system     | Infectious diseases                | Pre-clinical                   |
| <b>ANTI-INFECTIVES</b>              |                                    |                                |
| Protease inhibitor                  | Gram-positive bacterial infections | Research                       |
| <b>PROTEIN EXPRESSION SYSTEM</b>    |                                    |                                |
| SPEX                                | Protein production                 | Research                       |

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 \* "Research" activities include initial research and development related to specific vaccine or antibiotic compounds or formulations and their delivery. "Pre-clinical" indicates that the Company is conducting pharmacology testing, toxicity testing, formulation process development and/or development of the manufacturing process prior to possible submission of an IND. "Discovery" indicates that the Company is conducting studies to validate proof of concept and identify potential lead compounds.

**Mucosal Vaccines**

Development of the Company's mucosal vaccine candidates involves: (i) identifying a suitable immunizing antigen from a pathogen; (ii) selecting a commensal that naturally colonizes the mucosal point of entry for that pathogen; and (iii) genetically engineering the commensal to express the antigen on its surface for subsequent delivery to the target population.

Strep Throat Vaccine Candidate. Until the age of 15, many children suffer recurrent strep throat infections. Up to five percent of ineffectively treated strep throat cases progress to rheumatic fever, a debilitating heart disease which worsens with each succeeding streptococcal infection. Since the advent of penicillin therapy, rheumatic fever in the United States has experienced a dramatic decline. However, in the last decade, rheumatic fever has experienced a resurgence in the United States. Part of the reason for this is the latent presence of this organism in children who do not display symptoms of a sore throat, and, therefore, remain untreated and at risk for development of rheumatic fever. Based on data from the Centers for Disease Control and Prevention, there are seven to 20 million cases of pharyngitis due to group A streptococcus in the United States each year. There are over 32 million children in the principal age group targeted by the Company for vaccination. Worldwide, it is estimated that one percent of all school age children in the developing world have rheumatic heart disease. Despite the relative ease of treating strep throat with antibiotics, the specter of antibiotic resistance is always present. In fact, resistance to erythromycin, the second line antibiotic in patients allergic to penicillin, has appeared in a large number of cases.

No vaccine for strep throat has been developed because of the problems associated with identifying an antigen that is common to the more than 100 different serotypes of group A streptococcus, the bacterium that causes the disease. The Company has licensed from Rockefeller a proprietary antigen which is common to most types of group A streptococcus, including types that have been associated with rheumatic fever. When this antigen was orally administered to animals, it was shown to provide protection against multiple types of group A streptococcal infection. Utilizing this antigen, the Company is developing a mucosal vaccine for strep throat.

The Company's technology expresses the strep throat antigen on the surface of the commensal, *S. gordonii*, which lives on the surface of the teeth and gums. The Company believes that a single oral dose of the vaccine may be adequate to provide protection. Indeed, investigators at other institutions have shown that organisms of this type can safely colonize in the human oral cavity for up to two years. The Company is currently completing pre-clinical development of its strep throat vaccine candidate. Pre-clinical research in mice and rabbits has

established the ability of this vaccine candidate to colonize and induce both a local and systemic immune response. The Company is collaborating with the National Institutes of Health and the University of Maryland Center for Vaccine Development on the clinical development of this vaccine candidate and expects to file an IND with the FDA in the fall of 1997.

**STD Vaccine Candidates.** One of the great challenges in vaccine research remains the development of effective vaccines to prevent sexually transmitted viral diseases. The three principal viral pathogens which are transmitted via this route are Herpes simplex, type 2 ("HSV-2") which causes recurrent genital ulcers, HIV, the causative agent of AIDS, and human papilloma virus (HPV) which is linked to both genital warts and cervical carcinoma. To date, a great deal of effort has been expended, without appreciable success, to develop effective injectable prophylactic vaccines versus these pathogens. Given that each of these viruses enters the host through the mucosa, the Company believes that induction of a vigorous mucosal response to viral antigens may protect against acquisition of the initial infection. To test this hypothesis, the Company is expressing known immunodominant antigens from each of these viral pathogens in its proprietary mucosal vaccine delivery system. These live recombinant vaccines will be delivered to animals and tested for local and systemic immune response induction, and whether these responses can block subsequent viral infections. The Company is collaborating with Chiron on research toward the development of vaccines against two sexually transmitted diseases.

**Periodontal Vaccine Candidate.** Periodontal disease is characterized by acute soft tissue inflammation and subsequent alveolar bone loss. It is estimated that this condition afflicts up to 50% of the adult population by the time they reach age 65. Current treatments include mechanical debridement, tissue resection and/or antibiotic therapy. It is believed that periodontal disease is the result of an interaction between the immune system or the host and a number of oral bacterial pathogens, principally *Porphyromonas gingivalis* ("P. gingivalis"). The Company has entered into a research agreement with SUNY Buffalo to develop a mucosal vaccine to prevent periodontal disease. The vaccine, as currently constructed, features a surface antigen, fimbriin, from *P. gingivalis* delivered to the oral cavity via the Company's proprietary mucosal vaccine delivery system. In pre-clinical trials, mucosal immunization with, or direct delivery of, fimbriin-derived peptides to the oral cavity of germ-free rats blocked the ability of *P. gingivalis* to colonize in the rats upon subsequent challenge and dramatically reduced associated periodontal disease and bone loss. Two vaccine candidates are currently being studied in pre-clinical animal colonization and challenge experiments.

#### Mucosal Vaccine Delivery System

The Company's commensal vaccine candidates utilize gram-positive bacteria as vectors for the presentation of antigens. Scientists at Rockefeller have identified a protein region used by gram-positive bacteria to anchor proteins to their surfaces. The Company is using proprietary technology licensed from Rockefeller to fuse antigens from a wide range of infectious organisms, both viral and bacterial, to the surface protein anchor region of a variety of commensal organisms. By combining a specific antigen with a specific commensal, the Company believes that vaccines can be tailored to both the target pathogen and its mucosal point of entry.

The Company has developed several genetic methods for recombining foreign sequences into the genome of gram-positive bacteria at a number of non-essential sites. Various parameters have been tested and optimized to improve the level of foreign protein expression and its immunogenicity. In pre-clinical studies, recombinant commensals have been implanted into the oral cavities of several animal species with no deleterious effects. The introduced vaccine strains have taken up residence for prolonged periods of time and induce both a local mucosal (IgA) as well as a systemic immune response (IgG and T-cell).

#### Anti-Infectives

More than two million nosocomial infections occur each year. Of these, a large number are due to the pathogenic gram-positive bacteria. Many of these bacteria have acquired antibiotic resistance and have become an increasing problem. The gram-positive bacteria principally involved in these nosocomial infections include: *S. aureus*, coagulase-negative staphylococci and enterococci. *S. aureus* has been described above. The coagulase-



negative staphylococci have become the leading cause of nosocomial bacteremia and, alarmingly, have shown a higher percentage of methicillin resistant strains (up to 78%) than *S. aureus* (up to 22%). The enterococci have shown a disturbing propensity toward resistance to the antibiotic of last resort, vancomycin. Even more alarming is the fact that in certain cases where the last antibiotic of choice to treat a *S. aureus* or coagulase-negative infection is vancomycin, some strains of enterococci have evolved that may actually thrive on vancomycin, rendering the treatment potentially life threatening. Another important gram-positive organism with an increasing presence of antibiotic resistance is *Streptococcus pneumoniae*, an organism responsible for pneumonia and meningitis, and which is the leading cause of middle ear infections in children.

Scientists at Rockefeller have determined that many different surface proteins from a variety of gram-positive bacteria are attached to the bacterial surface via a common anchoring mechanism. These surface proteins are responsible for a wide variety of functions essential to the successful establishment of infection by the organism, including adherence, binding to serum proteins, resistance to phagocytosis (ingestion and destruction by the host's cells), cross-signaling between the bacterium and the host's cells, and various enzymatic processes. The Company has identified an enzyme, a selective protease, utilized by most gram-positive bacteria to anchor certain proteins to the bacterial cell wall. The Company will attempt to identify compounds that will inhibit this protease, thereby blocking the anchoring process and the ability of the bacteria to initiate or prolong infection. In this process, the Company is using molecular modeling to identify possible structures of the anchor region. Once these structures are identified, natural and synthetic molecules that may inhibit the anchoring process will be screened using an existing high throughput assay developed by Rockefeller and licensed to the Company. The Company believes that this approach represents a departure from conventional antibiotics and therefore may afford a method to circumvent the resistance mechanisms already established in many gram-positive organisms. The Company has entered into an agreement with Wyeth-Ayerst to identify and develop protease inhibitors as novel antibiotics.

#### SPEX

The Company's proprietary SPEX protein expression uses the protein export and anchoring pathway of gram-positive bacteria as a means to facilitate the production and purification of biopharmaceutical proteins. The Company has developed vectors which allow foreign genes to be inserted into the chromosome of gram-positive bacteria in a manner such that the encoded protein is synthesized, transported to the cell surface and secreted into the medium. This system has been used to produce milligram quantities of soluble antigenically-authentic protein that can be easily purified from the culture medium by affinity chromatography. The Company believes this technology can be extended to a variety of different antigens and enzymes.

#### MedImmune Technology

The Company has entered into a letter of intent with MedImmune regarding a technology transfer agreement pursuant to which the Company will acquire all of MedImmune's rights in gram-negative antibiotic targets, products, screens and services. Such rights include MedImmune's rights to technology developed by scientists at Washington University. Research carried out by these scientists has demonstrated that assembly of type P pili on gram-negative bacteria requires the participation of both a periplasmic molecular chaperone and an outer membrane usher. Since the gram-negative pili are the primary mechanism by which these organisms adhere to and colonize host tissue, inhibition of their assembly should effectively inhibit disease caused by this class of organisms. Detailed structural data is available on the molecular chaperone and scientists at Washington University are developing the same for the usher protein. This information will be used in concert with molecular modeling techniques to identify potential structures that will bind to the conserved residues of the chaperone and usher proteins. Once these structures are identified, natural and synthetic molecules that inhibit chaperone/usher function will be screened using high throughput assays developed by scientists at Washington University. The Company believes that this approach is a departure from conventional antibiotics and therefore may afford a method to circumvent the resistance mechanisms already established in many gram-negative bacteria. There can be no assurance that the Company will enter into a final agreement with MedImmune, and, therefore, there can be no assurance that the Company will acquire the rights to the technology described above. See "Risk Factors--Dependence on Others; Collaborations."

## COLLABORATIVE RESEARCH AND LICENSES

The Company sponsors research and development activities in laboratories at Rockefeller, Emory, Oregon State, and SUNY Buffalo and does not maintain its own research and development facilities. The Company's research is conducted by its employees and employees of the aforementioned universities. The Company's two principal research scientists, Dr. Vincent Fischetti, whose laboratory is at Rockefeller, and Dr. Dennis Hruby, whose laboratory is at Oregon State, work together to coordinate the Company's research projects. The majority of the Company's molecular biology and genetic research is conducted at Oregon State and the bulk of its bacteriology and immunology research is conducted at Rockefeller. The Company has entered into the following license agreements and collaborative research arrangements:

Rockefeller University. The Company and Rockefeller have entered into an exclusive worldwide license and research agreement whereby the Company has obtained the right and license to make, use and sell mucosal vaccines based on gram-positive organisms and products for the therapy, prevention and diagnosis of diseases caused by streptococcus, staphylococcus and other organisms. The license covers two issued United States patents and one issued European patent as well as 11 pending United States patent applications and corresponding foreign patent applications. The issued United States patents expire in 2005 and 2014, respectively. The agreement generally requires the Company to pay royalties on sales of products developed from the licensed technologies and fees on revenues from sublicensees, where applicable, and the Company is responsible for certain milestone payments and for the costs of filing and prosecuting patent applications. Pursuant to the agreement, the Company has provided funding to Rockefeller for sponsored research through January 31, 1998, with exclusive license rights to all inventions and discoveries resulting from this research.

Emory. Emory is a party to the Company's license agreement with Rockefeller whereby the Company has obtained the right and license to make, use and sell products for the therapy, prevention and diagnosis of diseases caused by streptococcus. Because the license relates to the same United States patent covered by the Rockefeller license, the Company has agreed to reimburse Rockefeller for Emory's patent expenses and Rockefeller will remit such amounts to Emory. Pursuant to a separate research support agreement with Emory, the Company is providing funding for sponsored research through January 31, 1998, with a right of first refusal to acquire exclusive license rights to all inventions and discoveries resulting from this research.

Oregon State. Oregon State is also a party to the Company's license agreement with Rockefeller whereby the Company has obtained the right and license to make, use and sell products for the therapy, prevention and diagnosis of diseases caused by streptococcus. Because the license relates to the same United States patent covered by the Rockefeller license, the Company has agreed to reimburse Rockefeller for Oregon State's patent expenses and Rockefeller will remit such amounts to Oregon State. Pursuant to a separate research support agreement with Oregon State, the Company is providing funding for sponsored research through January 31, 1998, with exclusive license rights to all inventions and discoveries resulting from this research.

National Institutes of Health. The Company has entered into a clinical trials agreement with the National Institute of Allergy and Infectious Diseases, National Institutes of Health ("NIH") pursuant to which NIH, with the cooperation of the Company, will submit an IND for the Company's strep throat vaccine and conduct a clinical trial of the Company's strep throat vaccine.

SUNY Buffalo. The Company has entered into a research agreement with SUNY Buffalo to develop a mucosal vaccine to prevent periodontal disease. Pursuant to the agreement, the Company is providing funding for sponsored research through June 30, 1998 and has an exclusive option to license all inventions and discoveries resulting from this research.

Wyeth-Ayerst. The Company has entered into a collaborative research and license agreement with Wyeth-Ayerst in connection with the discovery and development of anti-infectives for the prevention and treatment of gram-positive bacterial infections. Pursuant to the agreement, Wyeth-Ayerst is providing funding for a joint research and development program through June 30, 1999 and is responsible for additional milestone payments. Under the terms of the agreement, the Company could receive up to \$18.2 million in research and milestone

payments for products developed from a single compound, or up to \$25.5 million if products are developed from an additional compound. Wyeth-Ayerst has exclusive license rights in the field (as defined in the agreement) to any product resulting from this research and is required to make royalty payments based on sales of any product developed from the licensed technologies.

Chiron. The Company has entered into a collaborative research agreement with Chiron regarding research toward the development of vaccines against two sexually transmitted diseases. The agreement was entered into as of July 1, 1997 and expires on July 1, 1998. Pursuant to the agreement, each company retains sole rights to any technology invented solely by such company and the companies will jointly own any technology jointly developed by the companies.

In addition, the Company has entered into a letter of intent with MedImmune regarding a technology transfer agreement pursuant to which the Company will acquire all of MedImmune's rights in gram-negative antibiotic targets, products, screens and services. The Company and MedImmune plan to collaborate in the development of antibiotics against gram-negative pathogens. The Company and MedImmune contemplate that upon the execution of the technology transfer agreement, MedImmune will receive 335,530 shares of Common Stock. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described above or at all. See "Risk Factors--Dependence on Others; Collaborations."

#### MANUFACTURING

The Company does not intend to invest in large scale manufacturing facilities unless and until its product candidates pass significant developmental hurdles. The Company believes that all of its existing products under development can be made using well understood manufacturing methods. Nevertheless, the Company has no manufacturing experience and it may not be able to develop reproducible and effective manufacturing processes at a reasonable cost. In such event, the Company will have to rely on third party manufacturers whose availability and cost are presently unknown. The Company plans to contract with third party manufacturers to produce pre-clinical and clinical lots of its biological products. No assurances can be given that the Company will establish such relationships or manufacture its product candidates successfully. See "Risk Factors--Lack of Manufacturing, Marketing or Sales Capabilities."

#### MARKETING

The Company currently has no internal marketing and sales resources and personnel. The Company recognizes the challenges associated with marketing and sales in the pharmaceutical industry and anticipates undertaking these activities only for products that address large but focused therapeutic markets in which a small marketing organization can compete effectively. It is, however, the Company's present intention to seek marketing partners to assist it in later stages of regulatory and clinical development, process scale up, production and marketing. No assurances can be given that the Company will establish such relationships or market its product candidates successfully. See "Risk Factors--Lack of Manufacturing, Marketing or Sales Capabilities."

#### PATENTS AND PROPRIETARY RIGHTS

Protection of the Company's proprietary compounds and technology is essential to the Company's business. The Company's policy is to seek, when appropriate, protection for its lead compounds and certain other proprietary technology by filing patent applications in the United States and other countries. The Company has licensed the rights to two issued United States patents and one issued European patent. The Company has also licensed the rights to 11 pending United States patent applications as well as corresponding foreign patent applications. The two issued United States patents expire in 2005 and 2014, respectively.

The patents and patent applications licensed by the Company relate to all of the core technology used in the development of the Company's leading product candidates, including the mucosal vaccine delivery system, the SPEX protein expression system for producing biopharmaceutical products, the protective streptococcal antigens and the antibiotic development target, as well as a variety of early stage research projects. Each of the Company's products represented by each of the patents is in a very early stage in its development process.

The Company also relies upon trade secret protection for its confidential and proprietary information. No assurance can be given that other companies will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to the Company's trade secrets or that the Company can meaningfully protect its trade secrets.

The Company requires its employees, consultants, outside scientific collaborators and sponsored researchers and certain other advisors to enter into confidentiality agreements with the Company. These agreements will provide that all confidential information developed or made known to the individual during the course of the individual's relationship with the Company will be kept confidential and will not be disclosed to third parties except in specific circumstances. In the case of employees, such agreements will provide that all inventions conceived by the employee are the exclusive property of the Company. There can be no assurance, however, that these agreements will provide meaningful protection or adequate remedies for the Company's trade secrets in the event of unauthorized use or disclosure of such information.

#### GOVERNMENT REGULATION

Regulation by governmental authorities in the United States and other countries will be a significant factor in the production and marketing of any products that may be developed by the Company. The nature and the extent to which such regulation may apply to the Company will vary depending on the nature of any such products. Virtually all of the Company's potential products will require regulatory approval by governmental agencies prior to commercialization. In particular, human therapeutic products are subject to rigorous pre-clinical and clinical testing and other approval procedures by the FDA and similar health authorities in foreign countries. Various federal statutes and regulations also govern or influence the manufacturing, safety, labeling, storage, record keeping and marketing of such products. The process of obtaining these approvals and the subsequent compliance with appropriate federal and foreign statutes and regulations requires the expenditure of substantial resources.

In order to test clinically, produce and market products for diagnostic or therapeutic use, a company must comply with mandatory procedures and safety standards established by the FDA and comparable agencies in foreign countries. Before beginning human clinical testing of a potential new drug, a company must file an IND and receive clearance from the FDA. This application is a summary of the pre-clinical studies that were conducted to characterize the drug, including toxicity and safety studies, as well as an in-depth discussion of the human clinical studies that are being proposed.

The pre-marketing program required for approval of a new drug typically involves a time-consuming and costly three-phase process. In Phase I, trials are conducted with a small number of patients to determine the early safety profile, the pattern of drug distribution and metabolism. In Phase II, trials are conducted with small groups of patients afflicted with a target disease in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In Phase III, large scale, multi-center comparative trials are conducted with patients afflicted with a target disease in order to provide enough data for statistical proof of efficacy and safety required by the FDA and others.

The FDA closely monitors the progress of each of the three phases of clinical testing and may, in its discretion, reevaluate, alter, suspend or terminate the testing based on the data that have been accumulated to that point and its assessment of the risk/benefit ratio to the patient. Estimates of the total time required for carrying out such clinical testing vary between two and ten years. Upon completion of such clinical testing, a company typically submits a New Drug Application ("NDA") or Product License Application ("PLA") to the FDA that summarizes the results and observations of the drug during the clinical testing. Based on its review of the NDA or PLA, the FDA will decide whether or not to approve the drug. This review process can be quite lengthy, and approval for the production and marketing of a new pharmaceutical product can require a number of years and substantial funding, and there can be no assurance that any approvals will be granted on a timely basis, if at all.

Once the product is approved for sale, FDA regulations govern the production process and marketing activities, and a post-marketing testing and surveillance program may be required to monitor continuously a product's usage and its effects. Product approvals may be withdrawn if compliance with regulatory standards is not maintained. Other countries in which any products developed by the Company may be marketed impose a similar regulatory process.

#### COMPETITION

The biotechnology and pharmaceutical industries are characterized by rapidly evolving technology and intense competition. The Company's competitors include most of the major pharmaceutical companies, which have financial, technical and marketing resources significantly greater than those of the Company. Biotechnology and other pharmaceutical competitors include Cubist Pharmaceuticals, Inc., Microcide Pharmaceuticals, Inc., Oravax, Inc., Maxim Pharmaceuticals, Inc., and Vaxcel, Inc. Academic institutions, governmental agencies and other public and private research organizations are also conducting research activities and seeking patent protection and may commercialize products on their own or through joint venture. There can be no assurance that the Company's competitors will not succeed in developing products that are more effective or less costly than any which are being developed by the Company or which would render the Company's technology and future products obsolete and noncompetitive.

#### HUMAN RESOURCES AND FACILITIES

The Company currently has seven employees. In addition, the Company has a consulting agreement with Dr. Vincent Fischetti, the principal founding scientist and Chief Scientific Advisor of the Company and a Professor and Co-Chairman of the Laboratory of Bacterial Pathogenesis and Immunology and Co-Director of the Protein Sequence/Biopolymer Facility at Rockefeller. In addition, the Company and CSO have entered into a consulting agreement under which CSO has agreed to provide certain business services to the Company, including business development, licensing, strategic alliances and administrative support. See "Certain Transactions."

The Company's President and Chief Executive Officer is David de Weese. Dr. Dennis Hruby is the Company's Vice President of Research. Drs. Fischetti and Hruby, along with Mr. de Weese, have primary responsibility for directing the Company's research efforts. Mr. de Weese, along with, Dr. Joshua Schein and Judson Cooper, Executive Vice Presidents of the Company, have primary responsibility for directing the Company's strategic efforts.

The Company sponsors research and development activities in laboratories at Rockefeller, Emory, Oregon State and SUNY Buffalo and does not maintain its own research and development facilities. The Company leases office space at 666 Third Avenue, New York, New York, 10017. See "Risk Factors--Lack of Research and Development Facilities."

#### PRODUCT LIABILITY INSURANCE

The Company's business exposes it to potential liability risks that are inherent in the testing, manufacturing and marketing of pharmaceutical products. The Company does not have product liability insurance but intends to obtain such coverage if and when its product candidates are tested in clinical trials. There can be no assurance, however, that the Company will be able to obtain insurance coverage at acceptable costs or in a sufficient amount, if at all, or that a product liability claim would not adversely affect the Company's business, operating results or financial condition. See "Risk Factors--Potential Product Liability and Availability of Insurance."

#### LEGAL PROCEEDINGS

The Company is not a party to any legal proceedings.

MANAGEMENT

DIRECTORS, EXECUTIVE OFFICERS, KEY PERSONNEL AND CONSULTANTS

The following table sets forth information concerning each of the directors, executive officers, key personnel and consultants of the Company.

| NAME                            | AGE | POSITION                                                                     |
|---------------------------------|-----|------------------------------------------------------------------------------|
| David H. de Weese.....          | 54  | Chairman, President and Chief Executive Officer                              |
| Joshua D. Schein,<br>Ph.D. .... | 36  | Executive Vice President, Chief Financial Officer,<br>Secretary and Director |
| Judson A. Cooper.....           | 37  | Executive Vice President, Director                                           |
| Donald S. Howard*.....          | 68  | Director                                                                     |
| Terence E. Downer.....          | 58  | Director                                                                     |
| Dennis E. Hruby,<br>Ph.D. ....  | 45  | Vice President of Research                                                   |
| Kevin F. Jones, Ph.D. ..        | 44  | Director of Bacterial Research                                               |
| Vincent A. Fischetti....        | 56  | Consultant                                                                   |

\* Subject to the consummation of the Offering

All Directors hold office until the next annual meeting of stockholders and the election and qualification of their successors. Directors receive no cash compensation for serving on the Board of Directors other than reimbursement of reasonable expenses incurred in attending meetings. Officers are elected annually by the Board of Directors and serve at the discretion of the Board, subject to the provisions of certain employment agreements. See "--Employment and Consulting Agreements."

David H. de Weese has served as Chairman of the Board of Directors, President and Chief Executive Officer of the Company since November 1996. Prior to joining the Company, Mr. de Weese served as a director and a consultant to Biovector Therapeutics, S.A., a developer of drug delivery technology based in France, and as an advisor to Paul Capital Partners, L.P., a private equity investment manager with whom he maintains a consulting relationship. From 1993 to 1995, Mr. de Weese was President, Chief Executive Officer and a Director of M6 Pharmaceuticals, Inc, a biopharmaceutical company. From 1986 to 1992, Mr. de Weese was the President, Chief Executive Officer, a Director and a founder of Cygnus Therapeutic Systems (now Cygnus, Inc.), a developer and manufacturer of transdermal drug delivery systems. Prior to that, Mr. de Weese co-founded Medical Innovations Corporation, a medical device business currently a division of Ballard Medical Products, Inc., and was Chairman of the Board, President and Chief Executive Officer of Machine Intelligence Corporation, a developer of computer software and hardware. Mr. de Weese is a director of Bioject Medical Technologies, Inc., a publicly traded biotechnology company. Mr. de Weese received his M.B.A. from the Harvard University Graduate School of Business.

Joshua D. Schein, Ph.D. has served as an Executive Vice President of the Company since December 1996 and Chief Financial Officer, Secretary and a Director of the Company since December 1995. Dr. Schein also serves as President and Director of Virologix Corporation, a private biotechnology company ("Virologix"). Additionally, Dr. Schein serves as Chief Financial Officer and a Director of Callisto Pharmaceuticals, Inc., a privately held, development stage, pharmaceutical company ("Callisto"). Dr. Schein devotes substantial amounts of his time to the Company, Virologix and Callisto on a substantially equal basis. Dr. Schein has served as a Director of DepoMed, Inc., a private biotechnology company, since January 1996. From October 1994 to December 1995, Dr. Schein served as a Vice President of Investment Banking at Josephthal, Lyon and Ross, Incorporated, an investment banking firm. From June 1991 to September 1994, Dr. Schein was a Vice President at D. Blech & Company, Incorporated, a merchant bank that invested in the biopharmaceutical industry. Dr. Schein received a Ph.D. in neuroscience from the Albert Einstein College of Medicine and an MBA from the Columbia Graduate School of Business. Dr. Schein is a principal of CS0 Ventures LLC ("CS0"), a privately held limited liability company. See "Certain Transactions."

Judson A. Cooper has served as Executive Vice President of the Company since November 1996 and a Director of the Company since December 1995 and served as President from December 1995 until November

1996. Mr. Cooper also serves as Chief Financial Officer and Director of Virologix. Additionally, Mr. Cooper serves as President and a Director of Callisto. Mr. Cooper devotes substantial amounts of his time to the Company, Virologix and Callisto on a substantially equal basis. Mr. Cooper has also served as a Director of DepoMed, Inc. since November 1995. Mr. Cooper had been a private investor from September 1993 to December 1995. From 1991 to 1993, Mr. Cooper served as a Vice President of D. Blech & Company, Incorporated. Mr. Cooper is a graduate of the Kellogg School of Management. Mr. Cooper is a principal of CSO. See "Certain Transactions."

Donald S. Howard has agreed to serve as a Director of the Company beginning on the date of the consummation of the Offering. Mr. Howard has served as a consultant to a number of financial institutions since 1993. Mr. Howard served as Executive Vice President and Chief Financial Officer and a Managing Director of Salomon Brothers from 1988 to 1993. From 1980 to 1988, Mr. Howard served as Executive Vice President and Chief Financial Officer of Citicorp, Inc. Prior to that time, Mr. Howard held numerous positions at Citicorp, Inc. Mr. Howard is currently a director of Green Garden Inc., Consolidated Purchasing Services and Bank Leumi New York Trust Co.

Terence E. Downer has served as a Director of the Company since July 1, 1997. Mr. Downer served as Vice President, Corporate Development of Janssen Pharmaceutica, Inc., an affiliate of Johnson & Johnson, from 1991 to June 1997. Mr. Downer has worked in the pharmaceutical industry for Johnson & Johnson and its affiliates for over 30 years and has held senior positions in sales, marketing, research and business development. In addition to Janssen Pharmaceutica, Inc., Mr. Downer was also involved in starting up two other companies for Johnson & Johnson, Cyclex, Inc. and Critikon, Inc. Mr. Downer is on the Board of the National Organization of Orthopaedic Nurses and is the New Jersey Program Chair for the Licensing Executive Society.

Dennis E. Hruby, Ph.D. has served as Vice-President of Research of the Company since April 1, 1997. From January 1996 through March 1997, Dr. Hruby served as a senior scientific advisor to the Company. Dr. Hruby is a Professor of Microbiology at Oregon State University, and from 1990 to 1993 was Director of the Molecular and Cellular Biology Program and Associate Director of the Center for Gene Research and Biotechnology. From 1993 to 1995, Dr. Hruby served as Vice-President of Research for M6 Pharmaceuticals, Inc. Dr. Hruby specializes in virology and cell biology research, and the use of viral and bacterial vectors to produce recombinant vaccines. Dr. Hruby has published more than 100 research, review articles and book chapters. He is a member of the American Society of Virology, the American Society for Microbiology and a fellow of the American Academy of Microbiology. Dr. Hruby received a Ph.D. in microbiology from the University of Colorado Medical Center and a B.S. in microbiology from Oregon State University.

Kevin F. Jones, Ph.D. has been the Company's Director of Bacterial Research since January 1996. From 1992 to 1995, Dr. Jones served as Director of Bacterial Research for M6 Pharmaceuticals, Inc. From 1990 until joining the Company, Dr. Jones was a Senior Research Scientist at Lederle-Praxis Biologicals, Inc., a vaccine company and division of American Cyanamid. Dr. Jones has written numerous articles on the pathogenesis of group A streptococcal infection. Dr. Jones is currently Adjunct Professor at Rockefeller. Dr. Jones received a Ph.D. and an M.S. in immunology from Cornell University.

Vincent A. Fischetti, Ph.D. has served as a consultant to the Company since January 1996. Dr. Fischetti is a Professor and Co-Chairman of the Laboratory of Bacterial Pathogenesis and Immunology and Co-Director of the Protein Sequence/Biopolymer Facility at Rockefeller. Dr. Fischetti specializes in the research of group A streptococcus and streptococcal diseases. Dr. Fischetti is the chairman of the Microbial Pathogenesis Division of the American Society of Microbiology and was recently elected a fellow of the American Academy of Microbiology. Dr. Fischetti is the editor-in-chief of Infection and Immunity, is an editor of the Journal of Immunology and serves on the editorial board of the Journal of Experimental Medicine. Dr. Fischetti has published approximately 100 research articles and is a contributing author to 60 textbooks. Dr. Fischetti received a Ph.D. in microbiology from New York University.

## BOARD OF DIRECTORS

The number of directors on the Board of Directors is determined from time to time by the Board of Directors and is currently fixed at four. Directors are elected at each annual meeting of stockholders by the holders of the Common Stock and hold office until their successors have been duly elected and qualified or until their resignation, removal from office or death. Officers of the Company are appointed by and may be removed by the Board of Directors. Upon the consummation of the Offering, Mr. Howard will become a director and the Company plans to appoint an additional person not otherwise affiliated with the Company as a director.

## COMMITTEES OF THE BOARD OF DIRECTORS

Upon the consummation of the Offering, the Company will form an Audit Committee and a Compensation Committee. The Audit Committee will be responsible for reviewing audit functions, including accounting and financial reporting practices of the Company, the adequacy of the Company's system of internal accounting control, the quality and integrity of the Company's financial statements and relations with its independent accountants. It is anticipated that the Audit Committee will consist of two non-employee directors. The Compensation Committee will be responsible for establishing the compensation of the Company's directors, officers and employees, including salaries, bonuses, commission, and benefit plans, administering the Plan, and other forms of or matters relating to compensation. It is anticipated that the Compensation Committee will consist of two non-employee directors.

## SCIENTIFIC ADVISORS

The Company's Scientific Advisory Board currently consists of advisors to the Company with experience in microbiology, immunology, protein chemistry and infectious disease. At the Company's request, the scientific advisors review and evaluate the Company's research programs and advise the Company with respect to technical matters in fields in which the Company is involved.

The table below sets forth the name and current position of each member of the Scientific Advisory Board:

| NAME<br>-----                      | POSITION<br>-----                                                                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vincent A. Fischetti,<br>Ph.D..... | Chief Scientific Advisor; Professor and Co-Chairman of the Laboratory of Bacterial Pathogenesis and Immunology and Co-Director of the Protein Sequence/Biopolymer Facility at Rockefeller |
| Richard M. Krause, Ph.D...         | Advisor; Senior Scientific Advisor, Fogarty International Center                                                                                                                          |
| Robert J. Genco, Ph.D.....         | Advisor; Distinguished Professor and Chair of Oral Biology, State University of New York at Buffalo                                                                                       |
| Scott Hultgren, Ph.D.....          | Advisor; Associate Professor of Molecular Microbiology, Washington University                                                                                                             |

Each of the scientific advisors are employed by other entities and may have consulting agreements with entities other than the Company. The Company has entered into written agreements with each of its scientific advisors.

Vincent A. Fischetti, Ph.D. has served as Chief Scientific Advisor and a consultant to the Company since January 1996 and is Chairman of the Scientific Advisory Board. Dr. Fischetti receives an annual consulting fee of \$75,000. See "--Directors, Executive Officers, Key Personnel and Consultants" and "--Employment and Consulting Agreements."

Richard M. Krause, Ph.D. has served as an advisor to the Company since June 1997. Dr. Krause spent over twenty years on the faculty of Rockefeller University working on the immune response to streptococcal infections. From 1975 to 1984, Dr. Krause served as the Director of the National Institute of Allergy and Infectious Disease at the National Institutes of Health where he directed efforts to combat emerging pathogens.



From 1984 to 1989, Dr. Krause was the Dean of the School of Medicine at Emory University. From 1989 to the present, Dr. Krause has served as a Senior Scientific Advisor at the Fogarty International Center. During his career, Dr. Krause has published numerous research papers and several books. In recognition of his pioneering work, Dr. Krause was elected to the National Academy of Sciences in 1977. In 1980 he received from President Sadat the Republic of Egypt Order of Gumburia Award, in 1985 he received the Robert Koch Medal in Gold and in 1997 he received the Order of Merit from the President of the Federal Republic of Germany. Dr. Krause receives an annual advisory fee of \$10,000 and received warrants to purchase 5,000 shares of Common Stock at the initial offering price per share (or \$5.00 per share if the Offering is not completed by November 1, 1997).

Robert J. Genco, Ph.D. has served as an advisor to the Company since May 1997. Dr. Genco has worked for over two decades on laboratory and clinical studies which have helped in understanding the causes, prevention and treatment of oral diseases including caries and periodontal disease. Dr. Genco is active in many professional organizations including the American Society of Microbiology, the American Society of Immunology, the International and American Association for Dental Research, the American Dental Association and the American Academy of Periodontology. Dr. Genco is a member of the Institute of Medicine and was awarded the Gold Medal for Excellence in Research by the American Dental Association, as well as the Gold Medal Award from the American Academy of Periodontology. Dr. Genco has published over 260 articles describing his research and edited several books including Contemporary Periodontics. Dr. Genco is currently Editor of the Journal of Periodontology and serves on the editorial board of several other journals. Dr. Genco receives an annual advisory fee of \$10,000 and received warrants to purchase 5,000 shares of Common Stock at the initial offering price per share (or \$5.00 per share if the Offering is not completed by November 1, 1997).

Scott Hultgren, Ph.D. has served as an advisor to the Company since July 1997. For the past decade Dr. Hultgren has conducted pioneering research aimed at elucidating the mechanisms by which type P pili are exported and assembled on the surface of gram-negative bacteria. As a result of his efforts the genetics and biochemistry of this process are now well-defined. Dr. Hultgren has published more than 50 research publications and numerous book chapters on these topics. Dr. Hultgren is a member of the American Society for Microbiology, the American Association for the Advancement of Science, The Protein Society, the Erlanger Society, and is a past recipient of a Markey Young Investigator Faculty Award. Dr. Hultgren receives an annual consulting fee of \$30,000 and received warrants to purchase 5,000 shares of Common Stock at the initial offering price per share (or \$5.00 per share if the Offering is not completed by November 1, 1997). See "--Employment and Consulting Agreements."

EXECUTIVE COMPENSATION

The following table sets forth certain information with respect to annual and long-term compensation paid by the Company to the Chief Executive Officer and the other executive officers of the Company (the "Named Executive Officers") whose 1996 compensation exceeded \$100,000:

SUMMARY COMPENSATION TABLE

| NAME AND PRINCIPAL POSITION                                                                       | ANNUAL COMPENSATION THROUGH 12/31/96 |               |         |                           | LONG TERM COMPENSATION            |                        |
|---------------------------------------------------------------------------------------------------|--------------------------------------|---------------|---------|---------------------------|-----------------------------------|------------------------|
|                                                                                                   | YEAR                                 | SALARY        | BONUSES | OTHER ANNUAL COMPENSATION | STOCK UNDERLYING OPTIONS/WARRANTS | ALL OTHER COMPENSATION |
| David H. de Weese.....<br>Chairman, President and Chief Executive Officer                         | 1996                                 | \$ 21,635(1)  | --      | -- (5)                    | 477,683(2)                        | --                     |
| Joshua D. Schein,<br>Ph.D. ....<br>Executive Vice President, Chief Financial Officer and Director | 1996                                 | \$ 153,116(3) | --      | -- (5)                    | 16,667                            | --                     |
| Judson A. Cooper.....<br>Executive Vice President and Director                                    | 1996                                 | \$ 153,116(4) | --      | -- (5)                    | 16,667                            | --                     |

- (1) Mr. de Weese became Chairman, President and Chief Executive Officer of the Company in November 1996. Mr. de Weese's annual salary is \$225,000. See "--Employment and Consulting Agreements."
- (2) Includes the 461,016 de Weese Warrants and options to purchase 16,667 shares of Common Stock held by Mr. de Weese. See "--Employment and Consulting Agreements."
- (3) Dr. Schein currently receives an annual salary of \$ 150,000. This amount does not include Dr. Schein's share (\$40,000) of payments made to CSO. See "Certain Transactions."
- (4) Mr. Cooper currently receives an annual salary of \$150,000. This amount does not include Mr. Cooper's share (\$40,000) of payments made to CSO. See "Certain Transactions."
- (5) Aggregate amount does not exceed the lesser of \$50,000 or 10% of the total annual salary and bonus for the named officer.

The following table sets forth certain information concerning all stock option grants to the Named Executive Officers during the year ended December 31, 1996.

OPTION GRANTS

| NAME                     | COMMON STOCK UNDERLYING OPTIONS GRANTED(1) | % OF TOTAL OPTIONS GRANTED TO EMPLOYEES | EXERCISE PRICE PER SHARE | FAIR VALUE AT DATE OF GRANT | EXPIRATION DATE |
|--------------------------|--------------------------------------------|-----------------------------------------|--------------------------|-----------------------------|-----------------|
| David H. de Weese (2)... | 16,667                                     | 33.3%                                   | \$3.00                   | \$3.50                      | 11/18/06        |
| Joshua D. Schein (3).... | 16,667                                     | 33.3%                                   | \$1.50                   | \$1.50                      | 1/1/01          |
| Judson A. Cooper (3).... | 16,667                                     | 33.3%                                   | \$1.50                   | \$1.50                      | 1/1/01          |

- (1) All options were granted pursuant to the Plan.
- (2) The options were granted on November 18, 1996.
- (3) The options were granted on January 1, 1996.

The following table sets forth certain information concerning option exercises and option holdings under the Plan as of December 31, 1996 with respect to each of the Named Executive Officers.

AGGREGATED OPTION EXERCISES AND VALUES AS OF 12/31/96

| NAME                     | SHARES<br>ACQUIRED<br>ON EXERCISE | VALUE<br>REALIZED | NUMBER OF SHARES<br>OF STOCK UNDERLYING<br>UNEXERCISED OPTIONS |               | VALUE OF UNEXERCISED<br>IN-THE-MONEY OPTIONS(1) |               |
|--------------------------|-----------------------------------|-------------------|----------------------------------------------------------------|---------------|-------------------------------------------------|---------------|
|                          |                                   |                   | EXERCISABLE                                                    | UNEXERCISABLE | EXERCISABLE                                     | UNEXERCISABLE |
| David H. deWeese(2)..... | --                                | --                | 16,667                                                         | --            | \$33,334                                        | --            |
| Joshua D. Schein, Ph.D.. | --                                | --                | 16,667                                                         | --            | \$58,335                                        | --            |
| Judson A. Cooper.....    | --                                | --                | 16,667                                                         | --            | \$58,335                                        | --            |

(1) Based upon the assumed initial public offering price of \$5.00 per share.  
(2) Excludes the 461,016 de Weese Warrants exercisable at \$3.00 per share.

EMPLOYMENT AND CONSULTING AGREEMENTS

David H. de Weese, President and Chief Executive Officer of the Company, has an employment agreement with the Company which expires in November 1999 and is cancelable by the Company only for cause, as defined in the agreement. Mr. de Weese currently receives an annual base salary of \$225,000 and 16,667 stock options per year, exercisable at the fair market value on the date of grant, and is eligible to receive additional stock options and bonuses at the discretion of the Board of Directors. In addition, Mr. de Weese will receive a cash payment equal to 1.5% of the total consideration received by the Company in a transaction resulting in a change of ownership of at least 50% of the outstanding Common Stock of the Company. The consummation of the Offering will not result in a change of ownership under the terms of the agreement. In connection with Mr. de Weese's employment agreement, Mr. de Weese received warrants to purchase 461,016 shares of Common Stock at \$3.00 per share. Warrants to purchase 25% of such shares are currently exercisable and the remaining warrants become exercisable on a pro rata basis on the first, second and third anniversaries of the agreement.

Dr. Joshua Schein, an Executive Vice President and Chief Financial Officer of the Company, has an employment agreement with the Company which expires in December 1998 and is cancelable by the Company only for cause, as defined in the agreement. Dr. Schein currently receives an annual base salary of \$150,000 and 16,667 stock options per year, exercisable at the fair market value on the date of grant, and is eligible to receive additional stock options and bonuses at the discretion of the Board of Directors. In addition, Dr. Schein will receive a cash payment equal to 1.5% of the total consideration received by the Company in a transaction resulting in a change of ownership of at least 50% of the outstanding Common Stock of the Company. The consummation of the Offering will not result in a change of ownership under the terms of the agreement.

Judson Cooper, an Executive Vice President of the Company, has an employment agreement with the Company which expires in December 1998 and is cancelable by the Company only for cause, as defined in the agreement. Mr. Cooper currently receives an annual base salary of \$150,000 and 16,667 stock options per year, exercisable at the fair market value on the date of grant, and is eligible to receive additional stock options and bonuses at the discretion of the Board of Directors. In addition, Mr. Cooper will receive a cash payment equal to 1.5% of the total consideration received by the Company in a transaction resulting in a change of ownership of at least 50% of the outstanding Common Stock of the Company. The consummation of the Offering will not result in a change of ownership under the terms of the agreement.

Dr. Dennis Hruby, Vice President of Research of the Company, has an employment agreement with the Company which expires April 1, 1998, but is automatically renewed each year unless either party notifies the other of its intention not to renew. Dr. Hruby currently receives an annual base salary of \$85,000, and in April 1997 received options to purchase 10,000 shares of Common Stock at the initial offering price (or \$5.00 if the Offering is not completed by November 1, 1997). Dr. Hruby is eligible to receive additional stock options and bonuses at the discretion of the Board of Directors.

Dr. Kevin F. Jones, Director of Bacterial Research of the Company, has an employment agreement with the Company which expires in December 1997 and is cancelable by the Company only for cause, as defined in the agreement. Dr. Jones currently receives an annual base salary of \$90,000 and is eligible to receive additional stock options and bonuses at the discretion of the Board of Directors.

Dr. Vincent A. Fischetti, the Chief Scientific Advisor of the Company, has entered into a consulting agreement with the Company under which Dr. Fischetti has agreed to provide certain research and development services to the Company. Pursuant to the terms of the agreement, Dr. Fischetti will receive an annual fee of \$75,000. The agreement expires December 31, 1998 and is cancelable by the Company only for cause as defined in the agreement.

Dr. Scott Hultgren, a Scientific Advisor of the Company since July 1997, has entered into a consulting agreement with the Company under which Dr. Hultgren has agreed to provide certain research and development services to the Company. Pursuant to the terms of the agreement, Dr. Hultgren receives an annual fee of \$30,000. The agreement expires in July 1998, but may be extended for up to four additional one year terms by mutual agreement. Dr. Hultgren also received warrants to purchase 5,000 shares of Common Stock at the initial offering price per share (or \$5.00 per share if the Offering is not completed by November 1, 1997).

#### 1996 INCENTIVE AND NON-QUALIFIED STOCK OPTION PLAN

As of January 1, 1996, the Company adopted its 1996 Incentive and Non-Qualified Stock Option Plan (the "Plan"), pursuant to which stock options may be granted to key employees, consultants and outside directors.

Following the completion of the Offering, the Plan will be administered by a committee (the "Committee") comprised of disinterested directors. The Committee will determine persons to be granted stock options, the amount of stock options to be granted to each such person, and the terms and conditions of any stock options as permitted under the Plan. The members of the Committee have not yet been appointed.

Both Incentive Options and Nonqualified Options may be granted under the Plan. An Incentive Option is intended to qualify as an incentive stock option within the meaning of Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"). Any Incentive Option granted under the Plan will have an exercise price of not less than 100% of the fair market value of the shares on the date on which such option is granted. With respect to an Incentive Option granted to an employee who owns more than 10% of the total combined voting stock of the Company or of any parent or Subsidiary of the Company, the exercise price for such option must be at least 110% of the fair market value of the shares subject to the option on the date the option is granted. A Nonqualified Option (i.e., an option to purchase Common Stock that does not meet the Code's requirements for Incentive Options) must have an exercise price of at least the fair market value of the stock at the date of grant.

The Plan provides for the granting of options to purchase 333,333 shares of Common Stock, of which 33,334 options are outstanding at an exercise price of \$1.50 per share, 16,667 options are outstanding at an exercise price of \$3.00 per share and 10,000 options are outstanding at an exercise price per share equal to the initial offering price (or \$5.00 if the Offering is not completed by November 1, 1997).

PRINCIPAL STOCKHOLDERS

The table below sets forth information as of the date of this Prospectus and, as adjusted, assumes the sale of the Common Stock offered pursuant to this Prospectus. The table also assumes, with respect to each individual stockholder, the exercise of all warrants, options or conversion of all convertible securities held by such stockholder. It does not assume the exercise or conversion of securities held by any other holder of securities. The table is based on information obtained from the persons named below with respect to the beneficial ownership of shares of Common Stock by (i) each person known by the Company to be the owner of more than 5% of the aggregate outstanding shares of Common Stock, (ii) each Named Executive Officer and director and (iii) all officers and directors as a group.

| NAMES AND ADDRESSES OF BENEFICIAL OWNER(1)                   | AMOUNT AND NATURE OF BENEFICIAL OWNERSHIP | PERCENTAGE OF OUTSTANDING SHARES OWNED |                           |                              |
|--------------------------------------------------------------|-------------------------------------------|----------------------------------------|---------------------------|------------------------------|
|                                                              |                                           | PRIOR TO OFFERING                      | AFTER MINIMUM OFFERING(2) | AFTER MAXIMUM OFFERING(2)(3) |
| David H. de Weese(4).....                                    | 477,683                                   | 12.4%                                  | 6.7%                      | 6.1%                         |
| Judson Cooper(5).....                                        | 477,683                                   | 14.1%                                  | 7.2%                      | 6.5%                         |
| Joshua D. Schein, Ph.D.(6).....                              | 477,683                                   | 14.1%                                  | 7.2%                      | 6.5%                         |
| Steven M. Oliveira(7).....                                   | 461,016                                   | 13.7%                                  | 7.0%                      | 6.3%                         |
| Richard B. Stone(8).....                                     | 414,915                                   | 12.3%                                  | 6.3%                      | 5.6%                         |
| 135 East 57th St., 11th FL<br>New York, NY 10022             |                                           |                                        |                           |                              |
| Vincent Fischetti, Ph.D.(9)....                              | 305,938                                   | 8.7%                                   | 4.5%                      | 4.1%                         |
| Nathan Low(10).....                                          | 179,436                                   | 5.3%                                   | 2.7%                      | 2.4%                         |
| 135 East 57th St., 11th FL<br>New York, NY 10022             |                                           |                                        |                           |                              |
| Terence E. Downer(11).....                                   | 10,000                                    | *                                      | *                         | *                            |
| All Officers and Directors as a<br>Group (five persons)..... | 1,503,049                                 | 38.6%                                  | 21.0%                     | 19.0%                        |

\* Less than 1% of the outstanding shares of Common Stock.

(1) Unless otherwise indicated the address of each beneficial owner identified is 666 Third Avenue, New York, NY 10017. Unless otherwise noted, the Company believes that all persons named in the table have sole voting and investment power with respect to all shares of Common Stock beneficially owned by them.

(2) Excludes (i) 325,000 shares of Common Stock reserved for issuance upon exercise of the Underwriter's Warrants; (ii) 333,333 shares of Common Stock reserved for issuance under the Plan, pursuant to which options to purchase 60,001 of such reserved shares have been granted; and (iii) 746,016 shares of Common Stock issuable upon the exercise of the de Weese, Fischetti, Directors/Advisors Warrants and Bridge Warrants.

(3) Does not include the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations."

(4) Includes shares underlying the 461,016 de Weese Warrants and 16,667 options held by Mr. de Weese.

(5) Includes shares underlying 16,667 options held by Mr. Cooper.

(6) Includes shares underlying 16,667 options held by Dr. Schein.

(7) Mr. Oliveira is a member of CSO. See "Certain Transactions."

(8) Mr. Stone is a managing director of the Underwriter. See "Underwriting."

(9) Includes shares underlying the 150,000 Fischetti Warrants.

(10) Mr. Low is a principal of the Underwriter. See "Underwriting."

(11) Consists of shares underlying warrants held by Mr. Downer.

## CERTAIN TRANSACTIONS

The Company and CSO have entered into a consulting agreement under which CSO has agreed to provide certain business services to the Company, including business development, licensing, strategic alliances and administrative support. Pursuant to the terms of the agreement, CSO receives an annual fee of \$120,000 and will be reimbursed for certain expenses. The agreement expires on January 15, 1998 and is cancelable by the Company only for cause as defined in the agreement. Mr. Cooper, Dr. Schein and Steven Oliveira are the members of CSO.

In March 1996, Dr. Fischetti and the Company entered into an agreement pursuant to which Dr. Fischetti was to receive options to purchase up to 150,000 shares of Common Stock upon the completion of collaborative agreements with certain pharmaceutical companies. On September 15, 1996, such agreement was cancelled and Dr. Fischetti received warrants to purchase 150,000 shares of Common Stock at \$1.50 per share as compensation for introducing the Company to certain potential collaborative pharmaceutical companies.

The Company believes that the terms of the transactions described above were no less favorable than the Company could have obtained from unaffiliated third parties. The Company has adopted a policy, effective following the consummation of this Offering, that all future transactions between the Company and its officers, directors and affiliates must (i) be approved by a majority of those members of the Company's Board of Directors that are not parties, directly or indirectly through affiliates, to such transactions and (ii) be on terms no less favorable to the Company than could be obtained from unrelated third parties.

## DESCRIPTION OF SECURITIES

The Company is authorized to issue 25,000,000 shares of Common Stock, par value \$.0001 per share, and 10,000,000 shares of Preferred Stock, par value \$.0001 per share. As of the date of this Prospectus, there are 3,367,182 shares of Common Stock outstanding and no shares of Preferred Stock outstanding.

The following summary description of the Company's Common Stock and Preferred Stock is qualified in its entirety by reference to the Articles and Bylaws, copies of which are included as exhibits to the Registration Statement of which this Prospectus is a part.

### COMMON STOCK

Holder of Common Stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Accordingly, holders of a majority of the shares of Common Stock entitled to vote in any election of directors may elect all of the directors standing for election. Holders of Common Stock are entitled to receive ratably such dividends, if any, as may be declared by the Board of Directors out of funds legally available therefor, subject to any preferential dividend rights of any outstanding Preferred Stock. Upon the liquidation, dissolution or winding up of the Company, the holders of Common Stock are entitled to receive ratably the net assets of the Company available after the payment of all debts and other liabilities and subject to the prior rights of any outstanding Preferred Stock. Holders of Common Stock have no preemptive, subscription, redemption or conversion rights. The outstanding shares of Common Stock are, and the shares offered by the Company in this Offering will be, when issued and paid for, fully paid and nonassessable. The rights, preferences and privileges of holders of Common Stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of Preferred Stock which the Company may designate and issue in the future.

### PREFERRED STOCK

The Board of Directors has the authority, without further action of the stockholders of the Company, to issue up to an aggregate of 10,000,000 shares of Preferred Stock in one or more series and to fix or alter the

designations, preferences, rights and any qualifications, limitations or restrictions of the shares of each such series thereof, including the dividend rights, dividend rates, conversion rights, voting rights, terms of redemption (including sinking fund provisions), redemption price or prices, liquidation preferences and the number of shares constituting any series or the designation of such series.

The Board of Directors, without stockholder approval, can issue Preferred Stock with voting and conversion rights that could adversely affect the voting power of holders of Common Stock. The issuance of Preferred Stock may have the effect of delaying, deferring or preventing a change in control of the Company. The Company has no present plans to issue any shares of Preferred Stock.

#### TRANSFER AGENT

The Company's transfer agent and registrar for the Common Stock is American Stock Transfer & Trust Company.

#### INDEMNIFICATION

The Certificate of Incorporation (the "Certificate") of the Company provides that, to the fullest extent permitted by applicable law, as amended from time to time, the Company will indemnify any person who was or is a party or is threatened to be made a party to an action, suit or proceeding (whether civil, criminal, administrative or investigative) by reason of the fact that such person is or was director, officer, employee or agent of the Company or serves or served any other enterprise at the request of the Company.

In addition, the Certificate provides that a director of the Company shall not be personally liable to the Company or its stockholders for monetary damages for breach of the director's fiduciary duty. However, the Certificate does not eliminate or limit the liability of a director for any of the following reasons: (i) a breach of the director's duty of loyalty to the Company or its stockholders; (ii) acts or omissions not in good faith or that involve intentional misconduct or knowing violation of law; or (iii) a transaction from which the director derived an improper personal benefit.

The Company will purchase and maintain Directors' and Officers' Insurance as soon as the Board of Directors determines practicable, in amounts which they consider appropriate, insuring the directors against any liability arising out of the director's status as a director of the Company regardless of whether the Company has the power to indemnify the director against such liability under applicable law.

The Company has been advised that it is the position of the Commission that insofar as the foregoing provisions may be invoked to disclaim liability for damages arising under the Securities Act, such provisions are against public policy as expressed in the Securities Act and are, therefore, unenforceable.

#### CERTAIN CERTIFICATE OF INCORPORATION AND BYLAW PROVISIONS

In addition, certain provisions of the Company's Certificate and Bylaws summarized in the following paragraphs may be deemed to have an anti-takeover effect and may delay, defer or prevent a tender offer or takeover attempt that a stockholder might consider in its best interest, including those attempts that might result in a premium over the market price for the shares held by stockholders.

##### Special Meeting of Stockholders

The Company's Bylaws provide that special meetings of stockholders of the Company may be called only by the President of the Company, the Board of Directors or holders of not less than 10% of the votes entitled to be cast at the special meeting.

## Authorized But Unissued Shares

The authorized but unissued shares of Common Stock and Preferred Stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions, poison pills and employee benefit plans. The existence of authorized but unissued and unreserved Common Stock and Preferred Stock may enable the Board of Directors to issue shares to persons friendly to current management which could render more difficult or discourage an attempt to obtain control of the Company by means of a proxy contest, tender, offer, merger or otherwise, and thereby protect the continuity of the Company's management.

## SHARES ELIGIBLE FOR FUTURE SALE

Upon completion of this Offering, the Company will have outstanding a minimum of 6,617,182 shares of Common Stock and a maximum of 7,367,182 shares of Common Stock, without giving effect to (a) shares of Common Stock issuable upon exercise of (i) the Underwriter's Warrants, (ii) options granted under the Plan, (iii) the de Weese Warrants, (iv) the Fischetti Warrants, (v) the Directors/Advisors Warrants or (vi) the Bridge Warrants or (b) the MedImmune Shares. There can be no assurance that the Company will enter into a final agreement with MedImmune on the terms described herein or at all. See "Risk Factors--Dependence on Others; Collaborations." Of such outstanding shares of Common Stock, all the shares to be sold by the Company in this Offering will be freely tradeable without restriction or further registration under the Act, except for any shares held by "affiliates" of the Company within the meaning of the Act which shares will be subject to the resale limitations of Rule 144 promulgated under the Act.

The remaining 3,367,182 Restricted Shares were issued by the Company in private transactions in reliance upon one or more exemptions contained in the Act. The 1,288,012 Private Shares were issued in connection with two private placement transactions completed in March and September 1996 and the 2,079,170 Founders' Shares were issued to the founders of the Company in December 1995. The Restricted Shares are deemed to be "restricted securities" within the meaning of Rule 144 promulgated pursuant to the Act and may be publicly sold only if registered under the Act or sold pursuant to exemptions therefrom. Because the Founders' Shares and 1,038,008 of the Private Shares acquired in the March 1996 private placement will have been held for more than one year as of the date of this Prospectus, such shares will be eligible for public sale in accordance with the requirements of Rule 144, as described below. In addition, the remaining 250,004 of the Private Shares will be eligible for public sale in September 1997. However, certain holders of the Private Shares and the holders of the Founders' Shares have agreed with the Underwriter not to sell or otherwise dispose of such shares for a period of six months and 24 months, respectively, after the date of the consummation of the Offering.

In general, under Rule 144, as amended, subject to the satisfaction of certain other conditions, a person, including an affiliate of the Company (or persons whose shares are aggregated with an affiliate), who has owned restricted shares of Common Stock beneficially for at least one year is entitled to sell, within any three-month period, a number of shares that does not exceed the greater of one per cent of the total number of outstanding shares of the same class or, if the common stock is quoted on Nasdaq, the average weekly trading volume during the four calendar weeks preceding the sale. A person who has not been an affiliate of the Company for at least three months immediately preceding the sale and who has beneficially owned shares of the Company for at least two years is entitled to sell such shares under Rule 144 without regard to any of the limitations described above.

The Company intends to file a registration statement under the Securities Act to register shares of Common Stock reserved for issuance under the Plan, thereby permitting the resale of such shares by non-affiliates in the public market without restriction under the Securities Act. The Company has reserved up to 333,333 shares of Common Stock for issuance under the Plan. As of the date of this Prospectus, options to purchase 60,001 of such reserved shares of Common Stock were outstanding under the Plan. See "Management--1996 Incentive and Non-Qualified Stock Option Plan."

Prior to this Offering, there has been no public market for the Common Stock, and no predictions can be made as to the effect, if any, that sales of the Common Stock will have on the market price of such securities



from time to time. Sales of substantial amounts of the Company's securities in the public market could have a significant adverse effect on prevailing market prices and could impair the Company's future ability to raise capital through the sale of its equity securities. See "Risk Factors--Shares Eligible for Future Sale."

#### UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement between the Company and the Underwriter (the "Underwriting Agreement"), the Underwriter has agreed to use its best efforts to offer a minimum of 3,250,000 shares of Common Stock and a maximum of 4,000,000 shares of Common Stock to the public at a purchase price of \$5.00 per share. The shares of Common Stock are offered on a "best-efforts" basis. The Underwriter has made no commitment to purchase or take down all or any part of the shares of Common Stock offered hereby. The Underwriter is offering the shares of Common Stock for a period of 30 days expiring on [September 1, 1997], which may be extended by mutual agreement between the Company and the Underwriter for an additional 30 days ending [October 1, 1997] (and an additional period of 10 business days thereafter to permit clearance of the funds in escrow). The Underwriter will promptly send to each subscriber confirmation of the subscriber's subscription with instructions to forward funds to the order of United States Trust Company of New York. All proceeds will be held in an escrow account at United States Trust Company of New York. If a minimum of 3,250,000 shares of Common Stock is not sold by [September 1, 1997] (or [October 1, 1997], if extended) and the offering is canceled, all funds held in the escrow account will be promptly returned to the subscribers without interest or deduction. During the escrow period, subscribers will not be entitled to a refund of their subscription. Upon completion of the sale of at least 3,250,000 shares of Common Stock offered hereby, all funds in the escrow account will be released to the Company. No affiliate of the Company will purchase any shares of Common Stock in this Offering.

The Underwriter proposes to offer the shares of Common Stock at the offering price set forth on the cover page. The Underwriter has advised the Company that the Underwriter does not intend to confirm sales to any accounts over which it exercises discretionary authority.

The Underwriting Agreement provides further that the Underwriter will receive from the Company a non-accountable expense allowance of three per cent of the gross proceeds of the Offering, of which \$45,000 has been paid by the Company to date. The Company has also agreed to pay all expenses in connection with qualifying the shares of Common Stock offered hereby for sale under the laws of such states as the Underwriter may designate, including expenses of counsel retained for such purpose by the Underwriter.

The Company has agreed to sell to the Underwriter, for nominal consideration, the Underwriter's Warrants to purchase up to 400,000 shares of Common Stock. The Underwriter's Warrants will be nonexercisable for one year after the date of this Prospectus. Thereafter, for a period of four years, the Underwriter's Warrants will be exercisable at an amount equal to 110% of the offering price of the Common Stock sold in this Offering. The Underwriter's Warrants are not transferable for a period of one year after the date of this Prospectus, except to officers and directors of the Underwriter, members of the selling group and their officers and partners. The Company has also granted certain demand and "piggyback" registration rights to the holders of the Underwriter's Warrants.

For the life of the Underwriter's Warrants, the holders thereof are given, at a nominal cost, the opportunity to profit from a rise in the market price of the Common Stock with a resulting dilution in the interest of other stockholders. Further, such holders may be expected to exercise the Underwriter's Warrants at a time the Company would in all likelihood be able to obtain equity capital on terms more favorable than those provided in the Underwriter's Warrants.

Nathan Low, President of the Underwriter, beneficially owns an aggregate of 179,436 shares of Common Stock (representing 5.3% of the outstanding Common Stock) of the Company. In addition, Richard Stone, a managing director of the Underwriter, beneficially owns an aggregate of 414,915 shares of Common Stock (representing 12.3% of the outstanding Common Stock) of the Company. As a result, this Offering is being

conducted in accordance with the applicable provisions of Section 2720 of the NASD Rules of Conduct. Accordingly, the initial public offering price can be no higher than that recommended by a "qualified independent underwriter" meeting certain standards. M.H. Meyerson & Co. served as qualified independent underwriter in connection with this Offering. M.H. Meyerson & Co. has assumed the responsibilities of acting as qualified independent underwriter in pricing the Offering, has performed due diligence with respect to the information contained herein and has participated in preparing the Registration Statement. In its role as qualified independent underwriter, M.H. Meyerson & Co. will receive an aggregate fee from the Underwriter of \_\_\_\_\_, of which has been paid and \_\_\_\_\_ of which is to be paid upon consummation of the Offering. In addition, M.H. Meyerson & Co. will be reimbursed by the Underwriter for up to \_\_\_\_\_ for certain expenses incurred in connection with its services, including its independent counsel.

The Underwriting Agreement provides for reciprocal indemnification between the Company and the Underwriter against liabilities in connection with the Offering, including liabilities under the Securities Act.

The initial public offering price of the shares of Common Stock offered hereby has been determined by negotiation between the Company and the Underwriter, and within the parameters set forth above, and does not necessarily bear any direct relationship to the Company's assets, earnings, book value per share or other generally accepted criteria of value. Factors considered in determining the offering price of the shares of Common Stock included the business in which the Company is engaged, the Company's financial condition, an assessment of the Company's management, the general condition of the securities markets and the demand for similar securities of comparable companies.

During and after the Offering, the Underwriter may purchase and sell Common Stock in the open market. These transactions may include stabilizing transactions and purchases to cover short positions created in connection with the Offering. The Underwriter also may impose a penalty bid, whereby selling concessions allowed to broker-dealers in respect of the Common Stock sold in the Offering for their account may be reclaimed if such shares are repurchased by the Underwriter in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the Common Stock which may be higher than the price that might otherwise prevail in the open market. Neither the Company nor the Underwriter makes any representation or prediction as to the discretion or magnitude of any effect that the transactions described above may have on the price of the Common Stock.

The foregoing includes a summary of the principal terms of the Underwriting Agreement and does not purport to be complete. Reference is made to the copy of the Underwriting Agreement filed as an exhibit to the Registration Statement of which this Prospectus is a part.

#### LEGAL MATTERS

The validity of the securities offered by this Prospectus will be passed upon for the Company by Eilenberg & Zivian, New York, New York. Eilenberg & Zivian owns 4,668 shares of Common Stock and has from time to time represented CSO and its members. Squadron, Ellenoff, Plesent & Sheinfeld, LLP, New York, New York, has acted as counsel to the Underwriter with respect to certain legal matters related to this Offering.

#### EXPERTS

The financial statements of the Company as of December 31, 1995 and 1996, for the period from inception (December 28, 1995) through December 31, 1995, for the year ended December 31, 1996, and for the period from inception through December 31, 1996 included in this Prospectus have been so included in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to such financial statements) of Price Waterhouse LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

#### AVAILABLE INFORMATION

The Company has filed a Registration Statement on Form SB-2 under the Act with the Securities and Exchange Commission with respect to the Common Stock offered hereby. This Prospectus does not contain all of the information set forth in the Registration Statement and the exhibits thereto: certain portions have been omitted pursuant to rules and regulations of the Commission. Statements contained in this Prospectus as to the contents of any contract or other document are not necessarily complete, however all material terms of such contract or document are reflected in this Prospectus. In each instance, reference is made to the copy of such contract or document filed as an exhibit to the Registration Statement, each such statement being qualified in all respects by such reference. The Registration Statement, including the exhibits and schedules thereto, may be inspected without charge, at the Public Reference Facilities maintained by the Commission at 450 Fifth Street, N.W., Washington, D.C. 20549, 1400 Citicorp Center, 500 West Madison, Chicago, Illinois 60661; and 7 World Trade Center, New York, New York 10048 and copies of all or any part thereof may be obtained upon payment of the fees prescribed by the Commission. Electronic registration statements made through the Electronic Data Gathering, Analysis and Retrieval System are publicly available through the Commission's World Wide Web site at <http://www.sec.gov>.

## GLOSSARY

**ANTIBIOTIC.** A substance, such as penicillin or streptomycin, produced by or derived from certain fungi, bacteria, and other organisms, that can destroy or inhibit the growth of other microorganisms. Antibiotics are widely used in the prevention and treatment of infectious diseases.

**ANTIGEN.** A substance that when introduced into the body stimulates the production of an antibody. Antigens include toxins, bacteria, foreign blood cells, and the cells of transplanted organs.

**COMMENSAL.** An organism participating in a symbiotic relationship in which one species derives some benefit while the other is unaffected.

**EFFECTOR.** A small molecule that when bound to the allosteric site of an enzyme causes either a decrease or an increase in the activity of the enzyme.

**ENTEROCOCCUS.** A usually nonpathogenic streptococcus that inhabits the intestine.

**ENZYME.** Any of numerous proteins or conjugated proteins produced by living organisms and functioning as biochemical catalysts.

**FLUOROQUINOLONE.** Chemical analogs of nalidixic acid, fluoroquinolones exert their anti-microbial activity by inhibition of bacterial DNA gyrase (involved in DNA coiling) and, generally, have a wide spectrum of antibiotic activity.

**HUMORAL IMMUNITY.** The component of the immune response involving the transformation of B-lymphocytes into plasma cells that produce and secrete antibodies to a specific antigen.

**IMMUNE RESPONSE.** An integrated bodily response to an antigen, especially one mediated by lymphocytes and involving recognition of antigens by specific antibodies or previously sensitized lymphocytes.

**IMMUNE SYSTEM.** The integrated body system of organs, tissues, cells, and cell products such as antibodies that differentiates self from nonself and neutralizes potentially pathogenic organisms or substances.

**IMMUNOGLOBULIN.** Any of a group of large glycoproteins secreted by plasma cells in vertebrates that function as antibodies in the immune response by binding the specific antigens. Immunoglobulins are found along the respiratory and intestinal tracts, on mucosal surfaces, and in milk, saliva, tears, and blood serum.

**IMMUNOSUPPRESSION.** Suppression of the immune response, as by drugs or radiation, in order to prevent the rejection of grafts or transplants or control autoimmune diseases. Also called immunodepression.

**LACTOFERRIN.** An iron-binding glycoprotein found in mucosal secretions and blood neutrophils, which has antimicrobial activity.

**LYMPHOCYTE.** Any of the nearly colorless cells formed in lymphoid tissue, as in the lymph nodes, spleen, thymus, and tonsils, constituting between 22 and 28 percent of all white blood cells in the blood of a normal adult human being. Lymphocytes function in the development of immunity and include two specific types, B cells and T cells.

**LYSOZYME.** An enzyme occurring naturally in egg white, human tears, saliva, and other body fluids, capable of destroying the cell walls of certain bacteria and thereby acting as a mild antiseptic.

**METHICILLIN.** A synthetic antibiotic, C<sub>17</sub>H<sub>19</sub>N<sub>2</sub>O<sub>6</sub>NaS, related to penicillin and most commonly used in treatment of infections caused by penicillinase-producing staphylococci.

**MUCOUS MEMBRANE.** A membrane lining all body passages that communicate with the air, such as the respiratory and alimentary tracts, and having cells and associated glands that secrete mucus.

**PATHOGEN.** An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

**PENICILLIN.** Any of a group of broad-spectrum antibiotic drugs obtained from penicillium molds or produced synthetically, most active against gram-positive bacteria and used in the treatment of various infections and diseases.

**PEROXIDASE.** Any of a group of enzymes that occur especially in plant cells and catalyze the oxidation of a substance by a peroxide.

**PHARYNGITIS.** Inflammation of the pharynx, the section of the alimentary canal that extends from the mouth and nasal cavities to the larynx, where it becomes continuous with the esophagus.

**RHEUMATIC FEVER.** A severe infectious disease occurring chiefly in children, characterized by fever and painful inflammation of the joints and frequently resulting in permanent damage to the valves of the heart.

**SEROTYPE.** A group of closely related microorganisms distinguished by a characteristic set of antigens.

**STREPTOCOCCUS.** A round to ovoid, gram-positive, often pathogenic bacterium of the genus *Streptococcus* that occurs in pairs or chains, many species of which destroy red blood cells and cause various diseases in human beings, including erysipelas, scarlet fever, and septic sore throat.

**SUBUNIT VACCINE.** A vaccine consisting of purified or semi-purified components of an infectious organism for which protection is desired.

**SYSTEMIC.** Of, relating to, or affecting the entire body or an entire organism.

**TETRACYCLINE.** A yellow crystalline compound,  $C_{22}H_{24}N_2O_8$ , synthesized or derived from certain microorganisms of the genus *Streptomyces* and used as a broad-spectrum antibiotic.

**TOXIN.** A poisonous substance, especially a protein, that is produced by living cells or organisms and is capable of causing disease when introduced into the body tissues but is often also capable of inducing neutralizing antibodies or antitoxins.

**VACCINE.** A preparation of a weakened or killed pathogen, such as a bacterium or virus, or of a portion of the pathogen's structure that upon administration stimulates antibody production against the pathogen but is incapable of causing severe infection.

**VANCOMYCIN.** An antibiotic,  $C_{66}H_{75}Cl_2W_9O_{24}$ , produced by the actinomycete *Streptomyces orientalis*, found in Indonesian and Indian soil, and effective against staphylococci and spirochetes.

**VIRUS.** Any of various simple submicroscopic parasites of plants, animals, and bacteria that often cause disease and that consist essentially of a core of RNA or DNA surrounded by a protein coat. Unable to replicate without a host cell, viruses are typically not considered living organisms.

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)  
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REPORT OF INDEPENDENT ACCOUNTANTS

To the Board of Directors and Stockholders  
of SIGA Pharmaceuticals, Inc.

In our opinion, the accompanying balance sheet and related statements of operations, of cash flows and of changes in stockholders' equity present fairly, in all material respects, the financial position of SIGA Pharmaceuticals, Inc. (a development stage company) at December 31, 1995 and 1996, and the results of its operations for the period from inception (December 28, 1995) through December 31, 1995, for the year ended December 31, 1996 and for the period from inception through December 31, 1996, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for the opinion expressed above.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company is a development stage company and has suffered operating losses since inception. These and other factors, as discussed in Note 1, raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Price Waterhouse LLP

New York, New York

March 3, 1997

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

BALANCE SHEET

|                                                                                                                                                                                                                                 | DECEMBER 31,<br>1995 | DECEMBER 31,<br>1996 | MARCH 31,<br>1997 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|-------------------|
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
|                                                                                                                                                                                                                                 |                      |                      | (Unaudited)       |
| <b>ASSETS</b>                                                                                                                                                                                                                   |                      |                      |                   |
| Current assets                                                                                                                                                                                                                  |                      |                      |                   |
| Cash and cash equivalents.....                                                                                                                                                                                                  | --                   | \$ 42,190            | \$ 587,741        |
| Prepaid sponsored research (Note 7)...                                                                                                                                                                                          | --                   | 370,798              | 329,128           |
| Prepaid expenses.....                                                                                                                                                                                                           | --                   | --                   | 18,750            |
| Deferred offering costs (Note 2).....                                                                                                                                                                                           | --                   | 115,688              | 163,489           |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Total current assets.....                                                                                                                                                                                                       | --                   | 528,676              | 1,099,108         |
| Prepaid sponsored research (Note 7)...                                                                                                                                                                                          | --                   | 30,208               | --                |
| Equipment, net (Note 3).....                                                                                                                                                                                                    | --                   | 21,425               | 19,036            |
| Other assets.....                                                                                                                                                                                                               | \$ 6,937             | 609                  | 609               |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Total assets.....                                                                                                                                                                                                               | \$ 6,937             | \$ 580,918           | \$ 1,118,753      |
|                                                                                                                                                                                                                                 | =====                | =====                | =====             |
| <b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>                                                                                                                                                                                     |                      |                      |                   |
| Current liabilities                                                                                                                                                                                                             |                      |                      |                   |
| Accounts payable.....                                                                                                                                                                                                           | \$ 7,937             | \$ 92,241            | \$ 107,205        |
| Accrued expenses.....                                                                                                                                                                                                           | --                   | 22,260               | 73,737            |
| Patent preparation fees payable (Note 7).....                                                                                                                                                                                   | --                   | 66,437               | 66,437            |
| Bridge notes (Note 9).....                                                                                                                                                                                                      | --                   | --                   | 889,167           |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Total liabilities.....                                                                                                                                                                                                          | 7,937                | 180,938              | 1,136,546         |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Commitments and contingencies (Notes 6, 7, 8 and 9)                                                                                                                                                                             |                      |                      |                   |
|                                                                                                                                                                                                                                 | --                   | --                   | --                |
| Stockholders' equity                                                                                                                                                                                                            |                      |                      |                   |
| Preferred stock (\$.0001 par value, 10,000,000 shares authorized, none issued and outstanding).....                                                                                                                             | --                   | --                   | --                |
| Common stock (\$.0001 par value, 25,000,000 shares authorized, 2,079,170, 3,367,182 and 3,367,182 shares issued and outstanding at December 31, 1995, December 31, 1996, and March 31, 1997, respectively) (Notes 4 and 9)..... | 208                  | 337                  | 337               |
| Additional paid-in capital.....                                                                                                                                                                                                 | 1,040                | 2,668,819            | 2,801,819         |
| Stock subscriptions outstanding.....                                                                                                                                                                                            | (1,248)              | --                   | --                |
| Deficit accumulated during the development stage.....                                                                                                                                                                           | (1,000)              | (2,269,176)          | (2,819,949)       |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Total stockholders' equity (deficit).....                                                                                                                                                                                       | (1,000)              | 399,980              | (17,793)          |
|                                                                                                                                                                                                                                 | -----                | -----                | -----             |
| Total liabilities and stockholders' equity.....                                                                                                                                                                                 | \$ 6,937             | \$ 580,918           | \$ 1,118,753      |
|                                                                                                                                                                                                                                 | =====                | =====                | =====             |

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



SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

STATEMENT OF OPERATIONS

|                                                                                                                                                                                                                       | DECEMBER 28,<br>1995 (INCEPTION)<br>TO DECEMBER<br>31, 1995 | YEAR<br>ENDED<br>DECEMBER<br>31, 1996 | DECEMBER 28,<br>1995 (INCEPTION)<br>TO DECEMBER<br>31, 1996 | THREE MONTHS<br>ENDED MARCH<br>31, 1996 | THREE MONTHS<br>ENDED MARCH<br>31, 1997 | DECEMBER 28,<br>1995 (INCEPTION)<br>TO MARCH<br>31, 1997 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------------------------------------|
|                                                                                                                                                                                                                       |                                                             |                                       |                                                             | (Unaudited)                             | (Unaudited)                             | (Unaudited)                                              |
| Operating expenses                                                                                                                                                                                                    |                                                             |                                       |                                                             |                                         |                                         |                                                          |
| General and administrative (including amounts to related parties of \$444,000 for the year ended December 31, 1996 and \$116,423 and \$113,605 for the three months ended March 31, 1996 and 1997, respectively)..... | \$ 1,000                                                    | \$ 787,817                            | \$ 788,817                                                  | \$ 257,635                              | \$ 300,962                              | \$ 1,089,779                                             |
| Research and development (including amounts to related parties of \$75,000 for the year ended December 31, 1996 and \$18,750 for each of the three months ended March 31, 1996 and 1997).....                         | --                                                          | 662,205                               | 662,205                                                     | 98,169                                  | 203,959                                 | 866,164                                                  |
| Patent preparation fees.....                                                                                                                                                                                          | --                                                          | 452,999                               | 452,999                                                     | 258,896                                 | 15,462                                  | 468,461                                                  |
| Stock option and warrant compensation..                                                                                                                                                                               | --                                                          | 367,461                               | 367,461                                                     | --                                      | --                                      | 367,461                                                  |
| Total operating expenses.....                                                                                                                                                                                         | 1,000                                                       | 2,270,482                             | 2,271,482                                                   | 614,700                                 | 520,383                                 | 2,791,865                                                |
| Interest income/(expense).....                                                                                                                                                                                        | --                                                          | 2,306                                 | 2,306                                                       | --                                      | (30,390)                                | (28,084)                                                 |
| Net loss.....                                                                                                                                                                                                         | <u>\$(1,000)</u>                                            | <u>\$(2,268,176)</u>                  | <u>\$(2,269,176)</u>                                        | <u>\$(614,700)</u>                      | <u>\$(550,773)</u>                      | <u>\$(2,819,949)</u>                                     |
| Net loss per common share.....                                                                                                                                                                                        | --                                                          | \$ (0.66)                             |                                                             | \$ (0.21)                               | \$ (0.15)                               |                                                          |
| Weighted average number of shares outstanding.....                                                                                                                                                                    | <u>2,498,581</u>                                            | <u>3,413,531</u>                      |                                                             | <u>2,886,408</u>                        | <u>3,686,589</u>                        |                                                          |

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

SIGA PHARMACEUTICALS, INC.

(A DEVELOPMENT STAGE COMPANY)

STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY

|                                                               | COMMON STOCK |           | ADDITIONAL      | STOCK                     | DEFICIT                                  | TOTAL                          |
|---------------------------------------------------------------|--------------|-----------|-----------------|---------------------------|------------------------------------------|--------------------------------|
|                                                               | SHARES       | PAR VALUE | PAID-IN CAPITAL | SUBSCRIPTIONS OUTSTANDING | ACCUMULATED DURING THE DEVELOPMENT STAGE | STOCKHOLDERS' EQUITY (DEFICIT) |
| Issuance of common stock at inception....                     | 2,079,170    | \$208     | \$ 1,040        | \$(1,248)                 | --                                       | --                             |
| Net loss.....                                                 | --           | --        | --              | --                        | \$ (1,000)                               | \$ 1,000                       |
| Balance at December 31, 1995.....                             | 2,079,170    | 208       | 1,040           | (1,248)                   | (1,000)                                  | (1,000)                        |
| Net proceeds from issuance and sale of common stock.....      | 1,038,008    | 104       | 1,551,333       | --                        | --                                       | 1,551,437                      |
| Net proceeds from issuance and sale of common stock.....      | 250,004      | 25        | 748,985         | --                        | --                                       | 749,010                        |
| Receipt of stock subscriptions outstanding.....               | --           | --        | --              | 1,248                     | --                                       | 1,248                          |
| Issuance of compensatory options and warrants.....            | --           | --        | 367,461         | --                        | --                                       | 367,461                        |
| Net loss.....                                                 | --           | --        | --              | --                        | (2,268,176)                              | (2,268,176)                    |
| Balance at December 31, 1996.....                             | 3,367,182    | 337       | 2,668,819       | --                        | (2,269,176)                              | 399,980                        |
| Issuance of warrants with bridge notes (Note 9) (unaudited).. | --           | --        | 133,000         | --                        | --                                       | 133,000                        |
| Net loss (unaudited)...                                       | --           | --        | --              | --                        | (550,773)                                | (550,773)                      |
| Balance at March 31, 1997 (unaudited).....                    | 3,367,182    | \$337     | \$2,801,819     | --                        | \$ 2,819,949                             | \$ (17,793)                    |

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

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

STATEMENT OF CASH FLOWS

|                                                                             | DECEMBER 28,<br>1995<br>(INCEPTION) TO<br>DECEMBER 31,<br>1995 | YEAR ENDED<br>DECEMBER 31,<br>1996 | DECEMBER 28,<br>1995<br>(INCEPTION) TO<br>DECEMBER 31,<br>1996 | THREE<br>MONTHS<br>ENDED<br>MARCH 31,<br>1996<br><br>(Unaudited) | THREE<br>MONTHS<br>ENDED<br>MARCH 31,<br>1997<br><br>(Unaudited) | DECEMBER 28,<br>1995<br>(INCEPTION) TO<br>MARCH 31, 1997<br><br>(Unaudited) |
|-----------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Cash flows from operating activities:                                       |                                                                |                                    |                                                                |                                                                  |                                                                  |                                                                             |
| Net loss.....                                                               | \$(1,000)                                                      | \$(2,268,176)                      | \$(2,269,176)                                                  | \$ (614,700)                                                     | \$ (550,773)                                                     | \$(2,819,949)                                                               |
| Adjustments to reconcile net loss to net cash used in operating activities: |                                                                |                                    |                                                                |                                                                  |                                                                  |                                                                             |
| Depreciation.....                                                           | --                                                             | 7,249                              | 7,249                                                          | 1,016                                                            | 2,389                                                            | 9,638                                                                       |
| Stock option and warrant compensation.....                                  | --                                                             | 367,461                            | 367,461                                                        | --                                                               | --                                                               | 367,461                                                                     |
| Amortization of debt discount.....                                          | --                                                             | --                                 | --                                                             | --                                                               | 22,167                                                           | 22,167                                                                      |
| Changes in assets and liabilities:                                          |                                                                |                                    |                                                                |                                                                  |                                                                  |                                                                             |
| Prepaid sponsored research.....                                             | --                                                             | (401,006)                          | (401,006)                                                      | (684,130)                                                        | 71,878                                                           | (329,128)                                                                   |
| Prepaid expenses.....                                                       | --                                                             | --                                 | --                                                             | --                                                               | (18,750)                                                         | (18,750)                                                                    |
| Other assets.....                                                           | (6,937)                                                        | 6,328                              | (609)                                                          | --                                                               | --                                                               | (609)                                                                       |
| Accounts payable and accrued expenses....                                   | 7,937                                                          | 173,001                            | 180,938                                                        | (8,412)                                                          | 66,441                                                           | 247,379                                                                     |
| Net cash used in operating activities.....                                  | --                                                             | (2,115,143)                        | (2,115,143)                                                    | (1,306,226)                                                      | (406,648)                                                        | (2,521,791)                                                                 |
| Cash flows from investing activities:                                       |                                                                |                                    |                                                                |                                                                  |                                                                  |                                                                             |
| Capital expenditures...                                                     | --                                                             | (28,674)                           | (28,674)                                                       | (24,377)                                                         | --                                                               | (28,674)                                                                    |
| Net cash used in investing activities.....                                  | --                                                             | (28,674)                           | (28,674)                                                       | (24,377)                                                         | --                                                               | (28,674)                                                                    |
| Cash flows from financing activities:                                       |                                                                |                                    |                                                                |                                                                  |                                                                  |                                                                             |
| Net proceeds from issuance of common stock.....                             | --                                                             | 2,300,447                          | 2,300,447                                                      | 1,556,999                                                        | --                                                               | 2,300,447                                                                   |
| Receipt of stock subscriptions outstanding.....                             | --                                                             | 1,248                              | 1,248                                                          | --                                                               | --                                                               | 1,248                                                                       |
| Deferred offering costs.....                                                | --                                                             | (115,688)                          | (115,688)                                                      | --                                                               | (47,801)                                                         | (163,489)                                                                   |
| Proceeds from bridge notes.....                                             | --                                                             | --                                 | --                                                             | --                                                               | 1,000,000                                                        | 1,000,000                                                                   |
| Net cash provided from financing activities.....                            | --                                                             | 2,186,007                          | 2,186,007                                                      | 1,556,999                                                        | 952,199                                                          | 3,138,206                                                                   |
| Net increase in cash and cash equivalents.....                              | --                                                             | 42,190                             | 42,190                                                         | 226,396                                                          | 545,551                                                          | 587,741                                                                     |
| Cash and cash equivalents, beginning of period.....                         | --                                                             | --                                 | --                                                             | --                                                               | 42,190                                                           | --                                                                          |
| Cash and cash equivalents, end of period.....                               | --                                                             | \$ 42,190                          | \$ 42,190                                                      | \$ 226,396                                                       | \$ 587,741                                                       | \$ 587,741                                                                  |

There were no cash payments for interest or income taxes for the periods ended December 31, 1995 and 1996 and the period ended March 31, 1997.

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

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

1. ORGANIZATION AND BASIS OF PRESENTATION

Organization

SIGA Pharmaceuticals, Inc. (the "Company") was incorporated in the State of Delaware on December 28, 1995. The Company is engaged in the discovery, development and commercialization of vaccines, antibiotics, and novel anti-infectives for the prevention and treatment of infectious diseases. The Company's technologies are licensed from third parties and the Company depends on third parties to conduct research on its behalf pursuant to research and consulting agreements.

Basis of presentation

The Company's activities since inception have consisted primarily of sponsoring research and development, performing business and financial planning, preparing and filing patent applications, and raising capital. Accordingly, the Company is considered to be a development stage company and will require additional financing to achieve commercialization of its technologies.

The accompanying financial statements have been prepared assuming the Company will continue as a going concern. Since inception, the Company has incurred cumulative net operating losses and expects to incur substantial additional losses to complete the commercialization of its technologies. These conditions raise substantial doubt about the Company's ability to continue as a going concern. The Company's ability to continue as a going concern is dependent upon its ability to generate sufficient cash flow to meet its obligations as they come due. Management is actively pursuing various options which include securing additional equity financing through an initial public offering and believes that sufficient funding will be available to meet its planned business objectives. The Company has entered into a non-binding letter of intent with an underwriter to sell shares of the Company's common stock in an initial public offering (the "IPO") pursuant to the Securities Act of 1933. The financial statements do not include any adjustments relating to the recoverability of the carrying amount of recorded assets or the amount of liabilities that might result from the outcome of these uncertainties.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash equivalents

Cash equivalents consist of short term, highly liquid investments, with original maturities of less than three months when purchased and are stated at cost. Interest is accrued as earned.

Equipment

Equipment is stated at cost. Depreciation is provided on the straight-line method over the estimated useful lives of the respective assets, none of which exceeds three years.

Deferred offering costs

In connection with the Company's proposed IPO, the Company has incurred certain costs which have been deferred. In the event the proposed IPO is not consummated the deferred offering costs will be expensed.

Research and development

Research and development costs are expensed as incurred and include costs of third parties who conduct research and development, pursuant to development and consulting agreements, on behalf of the Company. Costs related to the acquisition of technology rights, for which development work is still in process, and that have no alternative future uses, are expensed as incurred and considered a component of research and development costs.

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

Income taxes

Income taxes are accounted for under the asset and liability method prescribed by Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes." Deferred income taxes are recorded for temporary differences between financial statement carrying amounts and the tax basis of assets and liabilities. Deferred tax assets and liabilities reflect the tax rates expected to be in effect for the years in which the differences are expected to reverse. A valuation allowance is provided if it is more likely than not that some or all of the deferred tax asset will not be realized.

Net loss per common share

Net loss per common share is computed using the weighted average number of common shares and common share equivalents assumed to be outstanding during the period. Common share equivalents consist of the Company's common shares issuable upon exercise of stock options and outstanding warrants. Pursuant to the requirements of the Securities and Exchange Commission, stock options, warrants and shares issued by the Company within one year of the date of the initial public offering at prices below the proposed offering price have been included in the calculation of weighted average shares outstanding as if they were outstanding for all periods presented using the treasury stock method.

Accounting estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. Actual results could differ from those estimates.

Fair value of financial instruments

The carrying value of cash and cash equivalents, and accounts payable and accrued expenses approximates fair value due to the relatively short maturity of these instruments.

3. EQUIPMENT

Equipment consisted of the following at December 31, 1996 and March 31, 1997:

|                                     | DECEMBER 31,<br>1996 | MARCH 31,<br>1997 |
|-------------------------------------|----------------------|-------------------|
|                                     | -----                | -----             |
| Computer equipment.....             | \$28,674             | \$28,674          |
| Less--Accumulated depreciation..... | (7,249)              | (9,638)           |
|                                     | -----                | -----             |
| Equipment, net.....                 | \$21,425             | \$19,036          |
|                                     | =====                | =====             |

4. STOCKHOLDERS' EQUITY

In March 1996, the Company completed a private offering of 1,038,008 shares of its common stock at the price of \$1.50 per share, providing gross proceeds of \$1,557,000, and net proceeds, after deducting expenses, of \$1,551,437. In September 1996, the Company completed a second private offering of 250,004 shares of common stock at a price of \$3.00 per share providing gross proceeds of \$750,000 and net proceeds, after deducting expenses, of \$749,010.

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

Reverse stock split

Effective December 1996, the Company implemented a one for six reverse stock split (without changing the par value thereof) applicable to all issued and outstanding shares of the Company's common stock. All fractional shares resulting from such stock split were rounded up to the next whole share. All common shares, stock options, warrants and related per share data, reflected in the accompanying financial statements and notes thereto, have been presented as if such change had occurred at December 28, 1995.

Stock option plan and warrants

In January 1996, the Company implemented its 1996 Incentive and Non-Qualified Stock Option Plan (the "Plan") whereby options to purchase up to 333,333 shares of the Company's common stock may be granted to employees, consultants and outside directors of the Company. The exercise period for options granted under the Plan, except those granted to outside directors, is determined by a committee of the Board of Directors. Stock options granted to outside directors pursuant to the Plan must have an exercise price equal to or in excess of the fair market value of the Company's common stock at the date of grant and become exercisable over a period of three years with a third of the grant being exercisable at the completion of each year of service subsequent to the grant. The fair market value of the Company's common stock is determined by a committee of the Board of Directors. The committee is comprised entirely of employees who receive stock options under the Plan. During the year ended December 31, 1996, the Company granted options under the Plan to employees to purchase 33,334 shares of its common stock at an exercise price of \$1.50 per share and options to purchase 16,667 shares at an exercise price of \$3.00 per share. These options expire on January 1, 2001 and November 18, 2006, respectively. All such grants were outstanding at December 31, 1996 and were eligible for exercise. There were no grants to outside directors during the year ended December 31, 1996.

In November 1996, the Company entered into an employment agreement with its President and Chief Executive Officer. Under the terms of the agreement, the employee received warrants to purchase 461,016 shares of common stock at \$3.00 per share. Warrants to purchase 25% of such shares were exercisable upon issuance and the remaining warrants are exercisable on a pro rata basis on the first, second and third anniversaries of the agreement (see Note 8). These warrants expire on November 18, 2006.

The Company applies Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations in accounting for warrants issued to employees and stock options granted under the Plan. During the year ended December 31, 1996, compensation expense of \$57,627 has been recognized for warrants issued to employees and \$8,334 for options issued pursuant to its stock-based compensation plan calculated based upon the difference between the exercise price of the warrant or option and the fair market value of the Company's common stock on the date of grant. Had compensation cost for warrants issued and stock options granted been determined based upon the fair value at the grant date for awards consistent with the methodology prescribed under Statement of Financial Accounting Standards No. 123 ("FAS 123"), "Accounting for Stock-Based Compensation," the Company's net loss and loss per share would have been increased by approximately \$73,000, or approximately \$.02 per share.

In March 1996, the Company entered into an agreement with a consultant, who is a stockholder, whereby the consultant would be granted options to purchase 150,000 shares of the Company's common stock, at an exercise price of \$1.50 per share, contingent upon completion of collaborative agreements with specified pharmaceutical companies. In September 1996, such agreement was terminated and the consultant was issued

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

warrants to purchase 150,000 shares of its common stock, at an exercise price of \$1.50 per share. The warrants were exercisable upon issuance and expire on the twentieth anniversary of the date of issuance. The Company has recognized non-cash compensation expense of \$301,500 for the year ended December 31, 1996, based upon the fair value of such warrants on the date of grant (see Note 6).

The fair value of the options and warrants granted to employees and the warrants issued to the consultant during 1996 ranged from \$.22 to \$2.01 on the date of the respective grant using the Black-Scholes option-pricing model assuming (a) no dividend yield, (b) a risk-free interest rate ranging from 5.26% to 6.26% based on the date of the respective grant, (c) no forfeitures, and (d) an expected life of three years. As permitted under the provisions of FAS 123, and based on the historical lack of a public market for the Company's common stock, no factor for volatility has been reflected in the option and warrant pricing calculation.

#### 5. INCOME TAXES

The Company has incurred losses since inception which have generated net operating loss carryforwards of approximately \$1,901,000 and \$2,451,000, respectively, at December 31, 1996 and March 31, 1997 for federal and state income tax purposes. These carryforwards are available to offset future taxable income and expire in 2011 and 2012 for federal income tax purposes. These losses are subject to limitation on future years' utilization should certain ownership changes occur.

The net operating loss carryforwards and temporary differences, arising primarily from noncash compensation expense, result in a noncurrent deferred tax benefit at December 31, 1996 and March 31, 1997 of approximately \$877,000 and \$1,097,000, respectively. In consideration of the Company's accumulated losses and the uncertainty of its ability to utilize this deferred tax benefit in the future, the Company has recorded a valuation allowance of an equal amount on such dates to fully offset the deferred tax benefit amount.

For the year ended December 31, 1996 and the three months ended March 31, 1997, the Company's effective tax rate differs from the federal statutory rate principally due to net operating losses and other temporary differences for which no benefit was recorded, state taxes and other permanent differences.

#### 6. RELATED PARTIES

##### Consulting agreements

The Company has entered into a consulting agreement, expiring January 15, 1998, with CSO Ventures LLC ("CSO") under which CSO provides the Company with business development, operations and other advisory services. Pursuant to the agreement CSO is paid an annual consulting fee of \$120,000. Two Executive Vice Presidents of the Company are principals of CSO. The agreement is only cancelable by the Company for cause, as defined in the agreement. During the year ended December 31, 1996 and the three months ended March 31, 1997, the Company incurred expense of \$120,000 and \$30,000, respectively, pursuant to the agreement.

In connection with the development of its licensed technologies the Company has entered into a consulting agreement with the scientist who developed such technologies, under which the consultant serves as the Company's Chief Scientific Advisor. The scientist, who is a stockholder, shall be paid an annual consulting fee of \$75,000. The agreement, which commenced in January 1996 and is only cancelable by the Company for cause, as defined in the agreement, has an initial term of two years and provides for automatic renewals of three additional one year periods unless either party notifies the other of its intention not to renew. Research and

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

development expense incurred under the agreement amounted to \$75,000 and \$18,750 for the year ended December 31, 1996 and the three month period ended March 31, 1997, respectively. During the year ended December 31, 1996, the scientist was issued warrants to purchase 150,000 shares of the Company's common stock at an exercise price of \$1.50 per share (see Note 4).

Employment agreements

The Company has employment agreements, expiring in December 1998, with its two Executive Vice Presidents ("EVPs"), who are principal shareholders of the Company and CSO, under which the EVPs are each to be paid minimum annual compensation of \$150,000. In addition, the Company granted each of the EVPs options to purchase 16,667 shares of the Company's common stock, at an exercise price of \$1.50 per share, upon execution of the respective agreements. During the term of the agreements the EVPs are each to receive annual stock option grants to purchase 16,667 common shares exercisable at the fair market value at the date of grant. Under the provisions of the agreements the EVPs will each receive a cash payment equal to 1.5% of the total consideration received by the Company in a transaction resulting in a greater than 50% change in ownership of the outstanding common stock of the Company. The Company incurred \$324,000 and \$83,605 of expense for the year ended December 31, 1996 and the three months ended March 31, 1997, respectively, pursuant to these agreements.

Underwriting agreement

As discussed in Note 1, the Company has secured a nonbinding letter of intent with an underwriter to sell shares of the Company's common stock in an IPO. At December 31, 1996 and March 31, 1997, employees of the underwriter hold 594,351 shares or approximately 18% of the Company's outstanding common stock.

7. LICENSE AND RESEARCH SUPPORT AGREEMENT

In January 1996, the Company entered into a license and research support agreement with third parties. Under the terms of the agreement, the Company has been granted an exclusive world-wide license to make, use and sell products derived from the licensed technologies. In consideration of the license grant the Company is obligated to pay royalties equal to a specified percentage of net sales of products incorporating the licensed technologies. In the event the Company sublicenses any technologies covered by the agreement the third parties would be entitled to a significant percentage of the sublicense revenue received by the Company. In addition, the Company is required to make milestone payments, up to \$225,000 per product, for each product developed from the licensed technologies.

The Company has agreed to sponsor further research by the third parties for the development of the licensed technologies for a period of two years from the date of the agreement, in return for a payment of \$725,000 to such third parties. The period of sponsored research will automatically be renewed for additional one-year periods unless terminated by the Company. Amortization of prepaid sponsored research under this agreement was \$332,292 and \$71,878 for the year ended December 31, 1996 and the three months ended March 31, 1997, respectively. The Company also agreed to reimburse the third parties for costs associated with the preparation, filing and prosecution of patent rights for the licensed technologies incurred prior to the execution of the license and research support agreement. The agreement is only cancelable by the Company for cause, as defined in the agreement. The Company has expensed \$310,986 of reimbursable patent preparation costs pursuant to the agreement during the year ended December 31, 1996, of which \$66,437 remains accrued at December 31, 1996 and March 31, 1997.

In January 1996, the Company entered into research agreements with third parties. Under the terms of the agreements, the Company has agreed to fund two years of research in return for annual payments of \$183,320. Research and development expense under these agreements amounted to \$175,024 and \$45,830 for the year ended December 31, 1996 and the three months ended March 31, 1997, respectively.



SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

8. COMMITMENTS AND CONTINGENCIES

Employment agreement

The Company has an employment agreement with its Director of Bacterial Research which expires in December 1997. Under the terms of the agreement, the employee is to receive minimum annual compensation of \$90,000. The agreement is only cancelable by the Company for cause, as defined in the agreement. During the year ended December 31, 1996 and the three months ended March 31, 1997, the Company incurred \$90,000 and \$24,231, respectively, of expense pursuant to the agreement.

In November 1996, the Company entered into an employment agreement, expiring in November 1999, with its President and Chief Executive Officer. Under the terms of the agreement, the employee is to receive annual base compensation of \$225,000 and options to purchase 16,667 shares of the Company's common stock, exercisable at the fair market value on the date of grant. Upon execution of the agreement, the Company granted the employee options to purchase 16,667 shares of its common stock at an exercise price of \$3.00 per share. In addition, the employee was issued warrants to purchase 461,016 shares of common stock at \$3.00 per share (see Note 4). Under the provisions of the agreement, the President will receive a cash payment equal to 1.5% of the total consideration received by the Company in a transaction resulting in a greater than 50% change in ownership of the outstanding common stock of the Company. During the year ended December 31, 1996 and the three months ended March 31, 1997, the Company incurred \$28,435 and \$60,577, respectively, of expense pursuant to the agreement.

9. SUBSEQUENT EVENTS (UNAUDITED)

In January and February 1997, in contemplation of its proposed IPO, the Company issued bridge notes (the "Bridge Notes") in the principal amount of \$1,000,000. The Bridge Notes bear interest at 10% per annum and are due and payable together with accrued but unpaid interest, on the earlier of (a) the closing of an initial public offering of the Company's common stock, or (b) six months after the date of execution of the Bridge Notes. In conjunction with the issuance of the Bridge Notes, the Company entered into warrant agreements whereby to the purchasers of the Bridge Notes will be issued warrants to purchase a number of shares of common stock determined by dividing (i) one-half of the gross proceeds of the Bridge Notes (\$500,000) by (ii) the IPO price per share. The warrants will provide for an exercise price per share equal to the IPO price per share and will not be exercisable for a period of one year subsequent to issuance. In the event that prior to the maturity date of the Bridge Notes (i) the Company's proposed IPO is not consummated, or (ii) the Company is acquired by another corporation, the holders of the Bridge Notes will receive warrants to purchase an aggregate of 100,000 shares of common stock at an exercise price of \$5.00 per share. As of July 8, 1997 the maturity date of Bridge Notes in the principal amount of \$250,000, which had original maturity dates of July 1997, had been extended to the earlier of October 1, 1997 or completion of the IPO. The Company is currently seeking extensions of the maturity date of the remaining Bridge Notes to the earlier of October 1, 1997 or completion of the IPO.

The fair value of the warrants, in the amount of \$133,000, issued by the Company in connection with the bridge financing, has been recorded as debt discount and is being amortized over the six month term of the Bridge Notes. During the period ended March 31, 1997 the Company recognized \$22,167 of debt discount amortization as interest expense. Upon completion of the Company's planned IPO and repayment of the Bridge Notes from the net proceeds of the offering, the unamortized portion of the debt discount will be immediately expensed.

In July 1997 the Company entered into a collaborative research and license agreement with a large pharmaceutical company. Under the terms of the agreement, the Company has granted the pharmaceutical company an exclusive worldwide license to develop, make, use and sell products derived from specified

SIGA PHARMACEUTICALS, INC.  
(A DEVELOPMENT STAGE COMPANY)

NOTES TO FINANCIAL STATEMENTS--(CONTINUED)

(Unaudited with respect to March 31, 1996 and 1997 and for each three month period then ended)

technologies. The agreement requires the pharmaceutical company to sponsor further research by the Company for the development of the licensed technologies for a period of two years from the effective date of the agreement, in return for payments to the Company totaling \$1,200,000. In consideration of the license grant the Company is entitled to receive royalties equal to specified percentages of net sales of products incorporating the licensed technologies. The royalty percentages increase as certain cumulative and annual net sales amounts are attained. The Company could receive milestone payments, under the terms of the agreement of up to \$13,750,000 for the initial product and up to \$3,250,000 for the second product developed from a single compound derived from licensed technologies. The Company could also receive, under certain circumstances additional milestone payments for an additional compound, as defined in the agreement, developed from the licensed technologies.

In July 1997 the Company entered into a non-binding letter of intent with a third party pursuant to which the Company will acquire the third party's rights to certain technology, intellectual property and related rights in the field of gram negative antibiotics in exchange for 335,530 shares of the Company's common stock. There can be no assurance that the Company will enter into a final agreement with the third party on the terms described above or at all.

## SIGA'S FOCUS

### APPLYING CUTTING-EDGE SCIENCE TO FIGHT INFECTIOUS DISEASE

[Photo]

SIGA is engaged in the discovery, development and commercialization of novel products for the prevention and treatment of infectious diseases. The company has four lead programs in development, including gram positive commensal vectors for the delivery of mucosal vaccines; mucosal vaccines against strep throat and periodontal diseases; novel targets for new antibiotics; and Surface Protein Expression System (SPEX) for cost-effective mass production of proteins.

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NO DEALER, SALESPERSON OR OTHER PERSON IS AUTHORIZED TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATION OTHER THAN AS CONTAINED IN THIS PROSPECTUS AND, IF GIVEN OR MADE, SUCH INFORMATION OR REPRESENTATION MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORIZED BY THE COMPANY OR ANY UNDERWRITER. THIS PROSPECTUS DOES NOT CONSTITUTE AN OFFER TO SELL, OR A SOLICITATION OF AN OFFER TO BUY, BY ANY PERSON IN ANY JURISDICTION IN WHICH IT IS UNLAWFUL TO MAKE SUCH AN OFFER OR SOLICITATION. NEITHER THE DELIVERY OF THIS PROSPECTUS NOR ANY SALE MADE HEREUNDER SHALL, UNDER ANY CIRCUMSTANCES, CREATE AN IMPLICATION THAT THE INFORMATION CONTAINED HEREIN IS CORRECT AS OF ANY TIME SUBSEQUENT TO THE DATE HEREOF.

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UNTIL \_\_\_\_\_, 1997 (25 DAYS FROM THE DATE OF THIS PROSPECTUS), ALL DEALERS EFFECTING TRANSACTIONS IN THE REGISTERED SECURITIES, WHETHER OR NOT PARTICIPATING IN THIS DISTRIBUTION, MAY BE REQUIRED TO DELIVER A PROSPECTUS. THIS IS IN ADDITION TO THE OBLIGATION OF DEALERS TO DELIVER A PROSPECTUS WITH RESPECT TO THEIR SOLICITATIONS TO PURCHASE THE SECURITIES OFFERED HEREBY.

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MINIMUM OFFERING OF 3,250,000 SHARES OF COMMON STOCK AND MAXIMUM OFFERING OF 4,000,000 SHARES OF COMMON STOCK

SIGA

SIGA PHARMACEUTICALS, INC.

-----  
PROSPECTUS  
-----

SUNRISE SECURITIES CORP.

, 1997  
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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 24. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

The Certificate of Incorporation (the "Certificate") of the Company provides that, to the fullest extent permitted by applicable law, as amended from time to time, the Company will indemnify any person who was or is a party or is threatened to be made a party to an action, suit or proceeding (whether civil, criminal, administrative or investigative) by reason of the fact that such person is or was director, officer, employee or agent of the Company or serves or served any other enterprise at the request of the Company.

In addition, the Certificate provides that a director of the Company shall not be personally liable to the Company or its stockholders for monetary damages for breach of the director's fiduciary duty. However, the Certificate does not eliminate or limit the liability of a director for any of the following reasons: (i) a breach of the director's duty of loyalty to the Company or its stockholders; (ii) acts or omissions not in good faith or that involve intentional misconduct or knowing violation of law; or (iii) a transaction from which the director derived an improper personal benefit.

The Company will purchase and maintain Directors' and Officers' Insurance as soon as the Board of Directors determines practicable, in amounts which they consider appropriate, insuring the directors against any liability arising out of the director's status as a director of the Company regardless of whether the Company has the power to indemnify the director against such liability under applicable law.

ITEM 25. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

|                                         |           |
|-----------------------------------------|-----------|
| SEC Registration Fee.....               | \$ 6,879  |
| Nasdaq-SCM Listing Fee.....             | \$ 8,675  |
| NASD Filing Fee.....                    | \$ 2,354  |
| Accounting Fees and Expenses*.....      | \$100,000 |
| Printing and Engraving*.....            | \$ 75,000 |
| Legal Fees and Expenses*.....           | \$100,000 |
| Blue Sky Fees and Expenses.....         | \$ 46,000 |
| Transfer Agent and Registrar Fees*..... | \$ 2,000  |
| Miscellaneous Expenses*.....            | \$ 9,092  |
|                                         | -----     |
| Total.....                              | \$350,000 |
|                                         | =====     |

- - - - -  
\*Estimated.

ITEM 26. RECENT SALES OF UNREGISTERED SECURITIES.

The following discussion gives retroactive effect to the one for 6 reverse stock split effected on December 6, 1996. Since its organization in December 1995, the Company has sold and issued the following unregistered securities:

In December 1995, the Company issued 2,079,170 shares of Common Stock to Judson A. Cooper, Steven M. Oliveira, Joshua D. Schein, Vincent A. Fischetti, Kevin F. Jones, Dennis Hruby and Richard Stone for nominal consideration in connection with the formation of the Company.

In March 1996, the Company sold 1,038,008 shares of Common Stock to eighteen accredited investors for gross proceeds of \$1,557,000 in cash.

In September 1996, the Company issued 250,004 shares of Common Stock to twelve accredited investors and two non-accredited investors for \$750,000 in cash.

In February 1997, the Company entered into warrant agreements to issue warrants to purchase an estimated 100,000 shares of common stock to eight accredited investors in connection with a \$1,000,000 bridge financing completed on February 28, 1997.

ITEM 27. EXHIBITS.

| EXHIBIT<br>NUMBER<br>----- | DESCRIPTION OF EXHIBITS<br>-----                                                                                                                                                                                                                                    |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                          | Underwriting Agreement                                                                                                                                                                                                                                              |
| **1(a)                     | Form of Underwriting Agreement                                                                                                                                                                                                                                      |
| *1(b)                      | Form of Underwriter's Warrant                                                                                                                                                                                                                                       |
| *1(c)                      | Escrow Agreement by and among the Company, Sunrise Securities Corp. and United States Trust Company of New York, dated as of _____, 1997                                                                                                                            |
| *1(d)                      | Form of Subscription Agreement to purchase shares of Common Stock of the Company                                                                                                                                                                                    |
| 3                          | Certificate of Incorporation and By-Laws                                                                                                                                                                                                                            |
| *3(a)                      | Certificate of Incorporation of the Company, in effect as of the date hereof                                                                                                                                                                                        |
| *3(b)                      | Bylaws of the Company, in effect as of the date hereof                                                                                                                                                                                                              |
| 4                          | Instruments defining the rights of holders                                                                                                                                                                                                                          |
| *4(a)                      | Form of Common Stock Certificate                                                                                                                                                                                                                                    |
| *4(b)                      | 1996 Incentive and Non-Qualified Stock Option Plan(1)                                                                                                                                                                                                               |
| *4(c)                      | Warrant Agreement dated as of September 15, 1996 between the Company and Vincent A. Fischetti(1)                                                                                                                                                                    |
| *4(d)                      | Warrant Agreement dated as of November 18, 1996 between the Company and David de Weese(1)                                                                                                                                                                           |
| *4(e)                      | Form of Bridge Loan Letter Agreement for Bridge Investors                                                                                                                                                                                                           |
| *4(f)                      | Form of Promissory Note for Bridge Investors                                                                                                                                                                                                                        |
| *4(g)                      | Form of Warrant Agreement for Bridge Investors                                                                                                                                                                                                                      |
| *4(h)                      | Form of Registration Rights Agreement for Bridge Investors                                                                                                                                                                                                          |
| 5                          | Opinion re: legality                                                                                                                                                                                                                                                |
| *5(a)                      | Opinion of Eilenberg & Zivian                                                                                                                                                                                                                                       |
| 10                         | Material Contracts                                                                                                                                                                                                                                                  |
| *10(a)                     | License and Research Support Agreement between the Company and The Rockefeller University, dated as of January 31, 1996; and Amendment to License and Research Support Agreement between the Company and The Rockefeller University, dated as of October 1, 1996(2) |
| *10(b)                     | Research Agreement between the Company and Emory University, dated as of January 31, 1996(2)                                                                                                                                                                        |
| *10(c)                     | Research Support Agreement between the Company and Oregon State University, dated as of January 31, 1996(2)                                                                                                                                                         |
| *10(d)                     | Employment Agreement between the Company and Dr. Joshua D. Schein, dated as of January 1, 1996(1)                                                                                                                                                                   |
| *10(e)                     | Employment Agreement between the Company and Judson A. Cooper, dated as of January 1, 1996; and Amendment No. 1 to Employment Agreement between the Company and Judson A. Cooper, dated as of November 18, 1996(1)                                                  |

EXHIBIT  
NUMBER  
-----

DESCRIPTION OF EXHIBITS  
-----

- \*10(f) Employment Agreement between the Company and Dr. Kevin F. Jones, dated as of January 1, 1996
- \*10(g) Employment Agreement between the Company and David de Weese, dated as of November 18, 1996(1)
- \*10(h) Consulting Agreement between the Company and CSO Ventures LLC, dated as of January 1, 1996
- \*10(i) Consulting Agreement between the Company and Dr. Vincent A. Fischetti, dated as of January 1, 1996
- \*10(j) Consulting Agreement between the Company and Dr. Dennis Hruby, dated as of January 1, 1996
- \*10(k) Letter Agreement between the Company and Dr. Vincent A. Fischetti, dated as of March 1, 1996
- \*\*10(l) Employment Agreement between the Company and Dr. Dennis Hruby, dated as of April 1, 1997
- \*\*10(m) Clinical Trials Agreement between the Company and National Institute of Allergy and Infectious Diseases, dated as of July 1, 1997
- \*\*10(n) Research Agreement between the Company and The Research Foundation of State University of New York, dated as of July 1, 1997(2)
- \*\*10(o) Collaborative Research and License Agreement between the Company and American Home Products Corporation, dated as of July 1, 1997(2)
  
- \*\*10(p) Collaborative Evaluation Agreement between the Company and Chiron Corporation, dated as of July 1, 1997
- \*\*10(q) Consulting Agreement between the Company and Dr. Scott Hultgren, dated as of July 9, 1997
- \*\*10(r) Letter of Intent between the Company and MedImmune, Inc., dated as of July 10, 1997
  
  
- 11 Statement re: Computation of per share earnings
- \*\*11(a) Statement re: Computation of per share earnings
- 24 Consents of experts and counsel
- \*24(a) Consent of Eilenberg & Zivian
- \*\*24(b) Consent of Price Waterhouse LLP

- 
- (1) These agreements were entered into prior to the reverse split of the Company's Common Stock and, therefore, do not reflect such reverse split.
  - (2) Confidential information is omitted and identified by "\*\*\*\*\*" and filed separately with the SEC pursuant to a request for Confidential Treatment.

\* Filed with original SB-2 Registration Statement filed on March 10, 1997.

\*\* Filed herewith.

ITEM 28. UNDERTAKINGS.

--The undersigned Registrant in all instances will provide to the Underwriter at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

--Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the small business issuer pursuant to the foregoing provisions, or otherwise, the undersigned 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 undersigned Registrant of expenses incurred or paid by a director, officer or controlling person of the undersigned 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 undersigned 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.

--The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of a registration statement in reliance upon Rule 430A and contained in the form of prospectus filed by the undersigned Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933 shall be deemed to be part of the registration statement as of the time it was declared effective; and

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

--The undersigned Registrant hereby undertakes that it will:

(1) File, during any period in which it offers or sells securities, a post-effective amendment to this registration statement to:

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

(ii) Reflect in the prospectus any facts or events which, individually or together, represent a fundamental change in the information in the registration statement; and

(iii) Include any additional or changed material information on the plan of distribution.

(2) For determining liability under the Securities Act, treat each post-effective amendment as a new registration statement of the securities offered, and the offering of the securities at that time to be the initial bona fide offering.

(3) File a post-effective amendment to remove from registration any of the securities that remain unsold at the end of the offering.



SIGNATURES

IN ACCORDANCE WITH THE REQUIREMENTS OF THE SECURITIES ACT OF 1933, THE UNDERSIGNED REGISTRANT CERTIFIES THAT IT HAS REASONABLE GROUNDS TO BELIEVE THAT IT MEETS ALL OF THE REQUIREMENTS FOR FILING ON FORM SB-2 AND AUTHORIZED THIS REGISTRATION STATEMENT TO BE SIGNED ON ITS BEHALF BY THE UNDERSIGNED, THEREUNTO DULY AUTHORIZED, IN THE CITY OF NEW YORK, ON THE 11TH DAY OF JULY, 1997.

SIGA Pharmaceuticals, Inc.

/s/ David H. de Weese  
By: \_\_\_\_\_  
David H. de Weese

Chairman, President, Chief Executive  
Officer and Director (Principal  
Executive Officer)

IN ACCORDANCE WITH THE REQUIREMENTS OF THE SECURITIES ACT OF 1933, THIS REGISTRATION STATEMENT OR AMENDMENT HAS BEEN SIGNED BELOW BY THE FOLLOWING PERSONS IN THE CAPACITIES AND ON THE DATES INDICATED:

| SIGNATURE<br>-----                                  | TITLE<br>-----                                                                      | DATE<br>----- |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|---------------|
| <u>/s/ Joshua D. Schein</u><br>Dr. Joshua D. Schein | Principal Financial Officer,<br>Executive Vice President,<br>Secretary and Director | July 11, 1997 |
| <u>/s/ Judson A. Cooper</u><br>Judson A. Cooper     | Executive Vice President and<br>Director                                            | July 11, 1997 |
| <u>/s/ Terence E. Downer</u><br>Terence E. Downer   | Director                                                                            | July 11, 1997 |

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- - - - -  
 1 Confidential information is omitted and identified by "\*\*\*\*\*" and filed  
 separately with the SEC pursuant to a request for Confidential Treatment.



FORM OF UNDERWRITING AGREEMENT

SIGA PHARMACEUTICALS, INC.

UNDERWRITING AGREEMENT

\_\_\_\_\_, 1997

Sunrise Securities Corp.  
135 E. 57th Street  
New York, New York 10022

Attention: Nathan Low, President

Gentlemen:

The undersigned, SIGA Pharmaceuticals, Inc., a Delaware corporation (the "Company"), hereby confirms its agreement with you (the "Underwriter") as follows:

1. INTRODUCTION.

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(a) Subject to the terms and conditions contained herein, the Company proposes to issue and sell in the United States a minimum of 3,250,000 and a maximum of 4,000,000 shares (the "Shares") of common stock, without par value of the Company (the "Common Stock"), with an offering price per share of Common Stock of \$5.00.

(b) The Company is retaining the Underwriter as its exclusive agent in the offering contemplated hereby (the "Offering") and understands that the Underwriter is acting on a "best efforts" basis in connection with the Offering and that the Shares will be sold on an "all or none" basis, such that no Shares will be sold unless all of the Shares are sold.

(c) The Company hereby agrees to pay to the Underwriter a commission equal to 10.0% of the gross proceeds of the sale of the Shares in the Offering.

(d) The Company hereby agrees to issue and sell to the Underwriter warrants (the "Underwriter's Warrants") to purchase a number of shares of Common Stock equal to 10% of the number of Shares sold to purchasers in the Offering (the "Warrant Stock") for a purchase price of \$.001 per warrant. The Underwriter's Warrants will be exercisable for the Warrant Stock for a period of four years, commencing one year after the effective date of the Registration Statement (as hereinafter defined) at an initial exercise price per share equal to 110% of the price per Share in the Offering. The Warrant Stock shall be identical to the Shares. The Underwriter's Warrants shall be substantially in the form filed as Exhibit 1(b) to the Registration Statement. The Underwriter's Warrants and the Warrant Stock are sometimes hereinafter referred to collectively as the "Underwriter's Securities." The Shares and the Underwriter's Securities are sometimes hereinafter referred to collectively as the "Securities."

2. REPRESENTATIONS AND WARRANTIES. The Company represents and warrants

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to, and agrees with, the Underwriter that:

(a) The Company has filed with the Securities and Exchange Commission (the "Commission") a registration statement, and may have filed one or more amendments thereto, on Form SB-2 (Registration No. 333-23037), including in such registration statement and each such amendment a related preliminary prospectus, for the registration of the Securities under the Securities Act of 1933, as amended (the "Act"). As used in this Agreement,

the term "Registration Statement" shall refer to such registration statement, as amended, on file with the Commission at the time such registration statement becomes effective under the Act (including the prospectus, financial statements, exhibits, and all other documents filed as a part thereof, or incorporated by reference directly or indirectly therein (such incorporated documents being herein referred to as the "Incorporated Documents")); provided, however, that such Registration Statement, at the time it becomes effective, may omit such information as is permitted to be omitted from such Registration Statement when it becomes effective under the Act pursuant to Rule 430A of the General Rules and Regulations under the Act (the "Regulations"), which information (the "Rule 430A Information") shall be deemed to be included in such Registration Statement when a final prospectus is filed with the Commission in accordance with Rules 430A and 424(b)(1) or (4) of the Regulations; the term "Preliminary Prospectus" shall refer to each prospectus included in the Registration Statement, or any amendments thereto, before the Registration Statement becomes effective under the Act, the form of prospectus omitting Rule 430A Information included in the Registration Statement when the Registration Statement becomes effective under the Act, if applicable (the "Rule 430A Prospectus"), and any prospectus filed by the Company with your consent pursuant to Rule 424(a) of the Regulations; and the term "Prospectus" shall refer to the final prospectus in the form first filed pursuant to Rule 424(b)(1) or (4) of the Regulations or, if no such filing is required, the form of final prospectus included in the Registration Statement. Any reference in this Agreement to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after the effective date under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations of the Commission thereunder that are deemed to be incorporated by reference therein.

(b) When the Registration Statement becomes effective under the Act, and at all times subsequent thereto up to and including the First Closing Date (as defined in Section 3), and each Additional Closing Date (as defined in Section 3) and during such longer period as the Prospectus may be required to be delivered in connection with sales by you, and during such longer period until any post-effective amendment thereto shall become effective under the Act, the Registration Statement (and any post-effective amendment thereto) and the Prospectus (as amended or as supplemented, if the Company shall have filed with the Commission any amendment or supplement to the Registration Statement or the Prospectus), respectively, will contain all statements which are required to be stated therein in accordance with the Act and the Regulations, will comply with the Act and the Regulations, and 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 therein not misleading, and no event will have occurred which should have been set forth in an amendment or supplement to the Registration Statement or the Prospectus which has not then been set forth in such an amendment or supplement; if a Rule 430A Prospectus is included in the Registration Statement at the time it becomes effective under the Act, the Prospectus filed pursuant to Rules 430A and 424(b)(1) or (4) of the Regulations will contain all Rule 430A Information and all statements which are required to be stated therein in accordance with the Act or the Regulations, will comply with the Act and the Regulations, and 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 therein not misleading; and each Preliminary Prospectus, as of the date filed with the Commission, did 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 therein not misleading; except that no representation or warranty is made in this Section 2(b) with respect to statements or omissions made in reliance upon and in conformity with written information furnished to the Company as stated in Section 8(b) with respect to the Underwriter by or on behalf of the Underwriter expressly for inclusion in the Registration Statement, any Preliminary Prospectus, or the Prospectus,

or any amendment or supplement thereto. Each of the Incorporated Documents complies in all material respects with the requirements of the Exchange Act and the rules and regulations thereunder.

(c) Neither the Commission nor the "blue sky" or securities authority of any jurisdiction has issued an order (a "Stop Order") suspending the effectiveness of the Registration Statement, preventing or suspending the use of the Registration Statement, any Preliminary Prospectus, the Prospectus, or any amendment or supplement thereto, refusing to permit the effectiveness of the Registration Statement, or suspending the registration or qualification of the Securities, nor has any of such authorities instituted or, to the knowledge of the Company, threatened to institute any proceedings with respect to a Stop Order.

(d) Any contract, agreement, instrument, lease, or license required to be described in the Registration Statement or the Prospectus has been properly and accurately described therein. Any contract, agreement, instrument, lease, or license required to be filed as an exhibit to the Registration Statement has been filed with the Commission as an exhibit to, or has been incorporated as an exhibit by reference into, the Registration Statement.

(e) The Company has no subsidiary or subsidiaries (as defined in the Regulations). The Company is a corporation duly organized, validly existing, and in good standing under the laws of the jurisdiction of its incorporation, with full power and authority, and all necessary consents, authorizations, approvals, orders, licenses, certificates, and permits of and from, and declarations and filings with, all federal, state, local, and other governmental authorities and all courts and other tribunals, to own, lease, license, and use its properties and assets and to conduct its business in the manner described in the Prospectus. The Company is duly qualified to do business as a foreign corporation and is in good standing as such in every jurisdiction in which its ownership, leasing, licensing, or use of property and assets or the conduct of its business makes such qualification necessary, except where the failure to be so qualified does not amount to a material liability or disability to the Company.

(f) The authorized capital stock of the Company consists of 25,000,000 shares of Common Stock, of which 3,367,182 shares are outstanding without giving effect to the issuance of the Shares and 10,000,000 shares of Preferred Stock, par value \$.0001 per share, of which there are no outstanding shares. Except as disclosed in the Prospectus, each outstanding share of Common Stock is validly authorized and issued, fully paid, and nonassessable, without any personal liability attaching to the ownership thereof, has not been issued and is not owned or held in violation of any preemptive rights of stockholders. Except as may be properly described in the Prospectus, or as is not required to be described in the Prospectus, there is no commitment, plan, or arrangement to issue, and no outstanding option, warrant, or other right calling for the issuance of, any share of capital stock of the Company or any security or other instrument which by its terms is convertible into, or exercisable or exchangeable for, capital stock of the Company. There is outstanding no security or other instrument which by its terms is convertible into, or exercisable or exchangeable for, capital stock of the Company, except as may be properly described in the Prospectus. The certificates evidencing the Common Stock are in proper form.

(g) The financial statements of the Company included in the Registration Statement and the Prospectus fairly present, with respect to the Company, the balance sheets, the statements of stockholders' equity, the statements of operations, the statements of cash flows, and the other information purported to be shown therein at the respective dates and for the respective periods to which they apply. Such financial statements have been prepared in accordance with generally accepted accounting principles (except to the extent that certain footnote disclosures regarding any stub

period may have been omitted in accordance with the applicable rules of the Commission under the Exchange Act) consistently applied throughout the periods involved, are correct and complete in all material respects, and are in accordance with the books and records of the Company. Price Waterhouse LLP, the accountants whose report on the audited financial statements is filed with the Commission as a part of the Registration Statement, are, and during the periods covered by their report(s) included in the Registration Statement and the Prospectus were, independent certified public accountants with respect to the Company within the meaning of the Act and the Regulations. No other financial statements are required by Form SB-2 or otherwise to be included in the Registration Statement or the Prospectus. Since the date of the latest information set forth in the Registration Statement or the Prospectus, except as may be properly described in the Prospectus, there has at no time been a material adverse change in the financial condition, results of operations, business, properties, assets, liabilities or, to the best of its knowledge, future prospects of the Company.

(h) There is no claim or litigation, arbitration, governmental or other proceeding (formal or informal), or investigation pending, threatened, or, to the best knowledge of the Company, in prospect (or any basis therefor) with respect to the Company or any of its operations, businesses, properties, or assets, except (i) as may be properly described in the Prospectus or (ii) such as individually or in the aggregate do not now have, and will not in the future have, a material adverse effect upon the operations, business, properties, or assets of the Company. The Company is not in violation of, or in default with respect to, any law, rule, regulation, order, judgment, or decree, except: (A) as may be properly described in the Prospectus or (B) such as in the aggregate do not now have, and will not in the future have, a material adverse effect upon the operations, business, properties, assets or net worth of the Company. The Company is not currently required to take any action in order to avoid any such violation or default.

(i) The Company has good title to all properties and assets which the Prospectus indicates are owned by it, free and clear of all liens, security interests, pledges, charges, encumbrances and mortgages, except such as do not materially and adversely affect the value of such property and do not interfere with the use made or proposed to be made of such property by the Company (or except as may be properly described in the Prospectus). No real property leased, licensed, or used by the Company lies in an area which is, or to the knowledge of the Company will be, subject to zoning, use, or building code restrictions which would prohibit, and no state of facts relating to the actions or inactions of another person or entity or his or its ownership, leasing, licensing, or use of any real or personal property exists or will exist which would prevent, the continued effective leasing, licensing, or use of such real property in the business of the Company as presently conducted or as the Prospectus indicates the Company contemplates conducting, with such exceptions as are not material and do not interfere with the use made or proposed to be made of such property and buildings by the Company (or except as may be properly described in the Prospectus).

(j) Neither the Company nor, to the knowledge of the Company, any other party, is now, or is expected by the Company to be, in violation or breach of, or in default with respect to, any material provision of any contract, agreement, instrument, lease, license, arrangement, or understanding which is material to the Company, and each such contract, agreement, instrument, lease, license, arrangement, and understanding is in full force and effect and is the legal, valid, and binding obligation of the parties thereto and is enforceable as to them in accordance with its terms, subject to applicable bankruptcy and insolvency laws. The Company enjoys peaceful and undisturbed possession under all leases and licenses under which it is operating. Except as described in the Prospectus, the Company is not a party to, or bound by, any contract, agreement,

instrument, lease, license, arrangement, or understanding, or subject to any charter or other restriction, which has had, or may reasonably be expected to have, a material adverse effect on the financial condition, results of operations, business, properties, assets, liabilities or future prospects of the Company. The Company is not in violation or breach of, or in default with respect to, any term of its certificate of incorporation (or other charter document) or by-laws.

(k) All United States and foreign patents, patent applications, trademarks, trademark applications, trade names, service marks, copyrights, franchises, and other intangible properties and assets (all of the foregoing being herein called "Intangibles") that the Company owns or has pending, or under which it is licensed, are in good standing and uncontested, except as may be properly described in the Prospectus. There is no right under any Intangible necessary to the business of the Company as presently conducted or as the Prospectus indicates it contemplates conducting, except as may be so designated in the Prospectus. The Company has not infringed, is not infringing, or has not received notice of (or knows of any basis for) a third party claim of infringement with respect to asserted Intangibles of others, except as may be properly described in the Prospectus. To the knowledge of the Company, there is no infringement by others of Intangibles of the Company. To the knowledge of the Company, there is no Intangible of others which has had, or may in the future have a material adverse effect on the financial condition, results of operations, business, properties, assets, liabilities or future prospects of the Company, except as may be properly described in the Prospectus.

(l) Neither the Company, nor any director, officer, agent, employee, or other person associated with the Company, in such capacity, or acting on behalf of, the Company has, directly or indirectly: used any corporate funds for unlawful contributions, gifts, entertainment, or other unlawful expenses relating to political activity; made any unlawful payment to foreign or domestic government officials or employees or to foreign or domestic political parties or campaigns from corporate funds; violated any provision of the Foreign Corrupt Practices Act of 1977, as amended; or made any bribe, rebate, payoff, influence payment, kickback, or other unlawful payment. The Company's internal accounting controls and procedures are sufficient to cause the Company to comply in all respects with the Foreign Corrupt Practices Act of 1977, as amended.

(m) The Company has all requisite power and authority to execute, deliver, and perform this Agreement, the Escrow Agreement (as hereinafter defined), the Subscription Agreements (as hereinafter defined) and the Underwriter's Warrants. All necessary corporate proceedings of the Company have been duly taken effective the date hereof to authorize the execution, delivery and performance by the Company of this Agreement, the Escrow Agreement, the Subscription Agreements and the Underwriter's Warrants. Assuming due execution and delivery by the Underwriter, this Agreement has been duly authorized, executed, and delivered by the Company, is the legal, valid and binding obligation of the Company, and is enforceable against the Company in accordance with its terms. Assuming due execution and delivery by any other parties thereto, the Underwriter's Warrants, the Escrow Agreement, and the Subscription Agreements have been duly authorized by the Company and, when executed and delivered by the Company, will be the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms. No consent, authorization, approval, order, license, certificate, or permit of or from, or declaration or filing with, any federal, state, local, or other governmental authority or any court or other tribunal is required by the Company or the Subsidiary for the execution, delivery, or performance by the Company of this Agreement, the Escrow Agreement, the Subscription Agreements, or the Underwriter's Warrants (except such as have been obtained or filings under the Act which have been or will be made before the First Closing Date or Additional Closing Date, as the case may be, and consents, authorizations, approvals, orders, licenses, certificates, permits, declarations, or filings required under "blue sky" or securities



laws which have been obtained at or prior to the date of this Agreement). No consent of any party to any contract, agreement, instrument, lease, license, arrangement, or understanding to which the Company is a party, or to which any of their respective properties or assets are subject, is required for the execution, delivery, or performance of this Agreement, the Escrow Agreement, the Subscription Agreements, and the Underwriter's Warrants, except such consents as in the aggregate will not have a material adverse effect upon the operations, business, properties, assets or net worth of the Company. The execution, delivery, and performance of this Agreement, the Escrow Agreement, the Subscription Agreements, and the Underwriter's Warrants will not violate, result in a material breach of, conflict with, result in the creation or imposition of any lien, charge, or encumbrance upon any properties or assets of the Company pursuant to the terms of, or (with or without the giving of notice or the passage of time or both) entitle any party to terminate or call a default under, any such contract, agreement, instrument, lease, license, arrangement, or understanding, or violate, result in a breach of, or conflict with any term of the certificate of incorporation (or other charter document) or by-laws of the Company, or violate, result in a material breach of, or conflict with any law, rule, regulation, order, judgment or decree binding on the Company or to which any of its operations, businesses, properties or assets are subject.

(n) Each Share to be delivered on the First Closing Date or any Additional Closing Date is validly authorized and, when issued and delivered in accordance with this Agreement, will be validly issued, fully paid, and nonassessable, without any personal liability attaching to the ownership thereof, and will not be issued in violation of any preemptive or similar rights of stockholders, and each purchaser will, upon payment therefor, receive good title to the Shares purchased by it from the Company, free and clear of all liens, security interests, pledges, charges, encumbrances, stockholders' agreements, and voting trusts. The Warrant Stock is validly authorized and reserved for issuance and, when issued and delivered upon the exercise of the Underwriter's Warrants and payment therefor in accordance with the respective terms thereof, will be validly issued, fully-paid, and nonassessable, without any personal liability attaching to the ownership thereof, and will not be issued in violation of any preemptive or similar rights of stockholders. When issued, the Underwriter's warrants will constitute legal, valid, and binding obligations of the Company to issue and sell, upon exercise thereof and payment therefor in accordance with the respective terms thereof, the number and type of securities of the Company called for thereby and the Underwriter's Warrants will be enforceable against the Company in accordance with their respective terms. The Underwriter will receive good title to the Underwriter's Warrants purchased by it, free and clear of all liens, security interests, pledges, charges, encumbrances, restrictions (other than restrictions under federal and any applicable state securities laws), stockholders' agreements, and voting trusts.

(o) The Securities conform in all material respects to the descriptions thereof contained in the Registration Statement and the Prospectus.

(p) Subsequent to the respective dates as of which information is given in the Registration Statement and the Prospectus, and except as may otherwise be properly described in the Prospectus, the Company has not (i) issued any securities or incurred any liability or obligation, primary or contingent, for borrowed money, (ii) entered into any transaction not in the ordinary course of business, (iii) declared or paid any dividend on its capital stock or (iv) experienced any adverse changes or any development which may materially adversely effect the condition (financial or otherwise), net assets or stockholders' equity, results of operations, business, key personnel, assets, or properties of the Company.

(q) Neither the Company nor any of its officers, directors, or affiliates (as defined in the Regulations), has taken or will take, directly or indirectly, any action designed to stabilize or manipulate the price of any security of the Company, or which has caused or resulted in, or which might in the future reasonably be expected to cause or result in, stabilization or manipulation of the price of any security of the Company, to facilitate the sale or resale of any of the Shares.

(r) The Company has obtained from each of the Company's stockholders owning in excess of one percent of the outstanding securities of any class of the Company as of the effectiveness of the Registration Statement under the Act (the "Beneficial Owners"), and each officer, director and founder of the Company, his or its enforceable written agreement, in form and substance satisfactory to counsel for the Underwriter, that for a period of (i) six months from the date on which the Registration Statement becomes effective under the Act, with respect to the Beneficial Owners, and (ii) 24 months from such date with respect to the directors, officers and founders of the Company, he or it will not, without the prior written consent of the Underwriter, issue, offer, sell, contract to sell, grant any option for the sale of, or otherwise dispose ("Dispose") of, directly or indirectly, any shares of Common Stock or other securities of the Company or any security or other instrument which by its terms is convertible into, exercisable for, or exchangeable for shares of Common Stock or any other securities of the Company, including, without limitation, any shares of Common Stock issuable under any employee stock options. Each such agreement is a legal, valid, and binding obligation of the director, officer, or securityholder executing the same, and is enforceable as to such director, officer, or securityholder in accordance with the terms thereof.

(s) The Company is not, and does not intend to conduct its business in a manner in which it would become, an "investment company" as defined in Section 3(a) of the Investment Company Act of 1940, as amended.

(t) No person or entity has the right to require registration of shares of Common Stock or other securities of the Company because of the filing or effectiveness of the Registration Statement, except as properly and accurately described in the Prospectus.

(u) Except as may be set forth in the Prospectus, the Company has not incurred any liability for a fee, commission, or other compensation on account of the employment of a broker or finder in connection with the transactions contemplated by this Agreement.

(v) Neither the Company nor any of its affiliates is presently doing business with the government of Cuba or with any person or affiliate located in Cuba. If, at any time after the date on which the Registration Statement is declared effective under the Act or with the Florida Department of Banking and Finance (the "Florida Department"), whichever is later, and prior to the end of the period referred to in the first clause of Section 2(b), the Company commences engaging in business with the government of Cuba or with any person or affiliate located in Cuba, the Company will so inform the Florida Department within 90 days after such commencement of business in Cuba, and, during the period referred to in Section 2(b), will inform the Florida Department within 90 days after any change occurs with respect to previously reported information.

(w) Except as disclosed in the Prospectus, no officer or director of the Company has any affiliation or association with the National Association of Securities Dealers, Inc. (the "NASD") or any member thereof and upon inquiry of its stockholders beneficially owning five percent or more of the outstanding shares of Common Stock, the Company has been advised that no such stockholder has any such affiliation or association, except as disclosed in writing to the Underwriter.

(x) Except as disclosed in the Prospectus, the Company has filed all necessary federal, state, local, and foreign income and franchise tax returns and other reports required to be filed and has paid all taxes shown as due thereon; and there is no tax deficiency which has been, or, to the knowledge of the Company, might be, asserted against the Company.

(y) All requirements for the use by the Company of a registration statement on Form SB-2 with respect to the Offering have been satisfied.

(z) The Common Stock is authorized for quotation on the Nasdaq SmallCap Market ("Nasdaq") and upon the Closing Date, all appropriate action will have been taken to include the Shares on Nasdaq.

3. PURCHASE, SALE, AND DELIVERY OF THE SHARES.  
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(a) On the basis of representations and warranties herein contained, but subject to the terms and conditions herein set forth, the Company hereby appoints you its sales agent and grants you the exclusive right to offer and sell the Shares during the Offering Period (as hereinafter defined) for the account and risk of the Company. You accept such appointment and agree to use your best efforts as sales agent, following written or telegraphic receipt of notice of the effective date of the Registration Statement, to offer and sell such number of Shares as contemplated by this Agreement at the price stated in the Prospectus.

(b) Each prospective purchaser of Shares will be required to complete, execute, and deliver to the Company a subscription agreement in the form filed as an exhibit to the Registration Statement (the "Subscription Agreement"). Prior to or concurrently with the delivery to the Company of any Subscription Agreement by any purchaser, funds sufficient to purchase the Shares subscribed for shall be wired to an escrow account to be maintained pursuant to an escrow agreement among the Escrow Agent (as hereinafter defined), the Company, and the Underwriter in the form filed as an exhibit to the Registration Statement (the "Escrow Agreement"). You shall transmit any funds received from any purchaser directly to the Escrow Agent by noon of the next business day after your receipt of such checks. Except as provided in the first sentence of subparagraph (c) below, the Company shall not be entitled to reject, without the Underwriter's consent, any Subscription Agreement tendered to it prior to the Termination Date (as hereinafter defined) unless (i) the Subscription Agreement is not properly completed after the Underwriter and the Company have given the subscriber an opportunity to cure the defect or payment in full for the Shares subscribed for is not made in accordance with such Subscription Agreement or (ii) the subscriber submitting such Subscription Agreement is a resident of a jurisdiction in which the offering is not registered, qualified, or exempt from such registration or qualification. The Company will forward to you copies of each Subscription Agreement accepted by it within three business days of receipt by the Company of such Subscription Agreement.

(c) All subscriptions for Shares will be conditioned upon the acceptance by the Company of Subscription Agreements at least 3,250,000 Shares (the "Minimum Subscriptions") on or prior to 30 days after the effectiveness of the Registration Statement, which is the last date on which the offering of Shares may be made, except that such last offering date may be extended by the Underwriter, in its sole discretion, to a date not later than 60 days after the effective date of the Registration Statement (the last date on which the offering of Shares may be made is herein referred to as the "Termination Date" and the period during which the offering of Shares may be made is herein referred to as the "Offering Period"). If Minimum Subscriptions are not tendered to and accepted by the Company by the Termination Date, this Agreement shall, subject to the provisions of Section 10 hereof, terminate. If at least the Minimum Subscriptions are tendered to and accepted by the Company on or before the Termination Date, a closing will be held at the offices of the Underwriter at a mutually agreed date (not later than five business days after the Termination Date) and time as soon as practicable after the delivery of the last of such subscriptions (the "First Closing Date") and shall be subject to each of the conditions precedent to closing provided for in this Agreement. The parties hereto may mutually agree to continue the Offering after the First Closing Date and prior to the Termination Date until up to 4,000,000 Shares are subscribed for. If additional subscriptions are tendered and accepted after the First Closing Date and prior to the Termination Date, one or more additional closings with respect to such subscriptions shall be held in accordance with the terms of the Prospectus (each an "Additional Closing Date"). Each such additional closing will be held at the offices of the Underwriter at a mutually agreed date (not later than five business days after the Termination Date) and time and shall be subject to each of the conditions precedent to closing provided for in this Agreement. Each closing date provided for under this Agreement (including the First Closing Date) shall constitute a "Closing Date."

(d) On or prior to the applicable Closing Date, all cash payments of purchasers received (unless and until returned to the purchasers pursuant hereto) will be placed in a segregated escrow account with United States Trust Company of New York (the "Escrow Agent") for the purchasers' benefit.

(e) The purchase price paid by any prospective purchaser whose subscription is rejected, or is returned because the conditions to closing were not satisfied, shall be returned to such prospective purchaser, without any deduction therefrom or interest thereon.

(f) If, prior to the Termination Date, subscriptions for more than 4,000,000 Shares are received, the Underwriter, in its sole and absolute discretion, may allocate the Shares among the subscribers as to whom a closing has not already been held in such manner as it shall see fit.

(g) As soon as practicable after each Closing Date, the Company shall deliver or cause to be delivered by mail to each purchaser of Shares on such Closing Date (i) a copy of an executed Subscription Agreement which indicates thereon the number of Shares such purchaser has purchased and (ii) a stock certificate representing such Shares, registered in such purchaser's name.

4. OFFERING OF THE SHARES ON BEHALF OF THE COMPANY.  
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(a) In offering the Shares for sale, you shall offer Shares as agent for the Company, and the Offering shall be made upon the terms and subject to the conditions set forth in the Registration Statement and Prospectus. The Underwriter shall commence offering the Shares for sale as agent for the Company as soon after the effective date of the Registration Statement as the Underwriter may deem advisable.

5. COVENANTS. The Company covenants that it will:  
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(a) Use its best efforts to cause the Registration Statement to become effective under the Act as promptly as possible and notify you immediately, and confirm such notice in writing, (i) when the Registration Statement and any post-effective amendment thereto become effective under the Act, (ii) of the receipt of any comments from the Commission or the "blue sky" or securities authority of any jurisdiction regarding the Registration Statement, any post-effective amendment thereto, the Prospectus, or any amendment or supplement thereto, (iii) of the filing with the Commission of any supplement to the Prospectus and (iv) of the receipt of, or its otherwise becoming aware of, any notification with respect to a Stop Order or the initiation or threatening of any proceeding with respect to a Stop Order. The Company will use its best efforts to prevent the issuance of any Stop Order and, if any Stop Order is issued, to obtain the lifting thereof as promptly as possible. If the Registration Statement has become or becomes effective under the Act with a form of prospectus omitting Rule 430A Information, or filing of the Prospectus with the Commission is otherwise required under Rule 424(b) of the Regulations, the Company will file with the Commission the Prospectus, properly completed, pursuant to Rule 424(b) of the Regulations within the time period prescribed and will provide evidence satisfactory to you of such timely filing.

(b) During the time when a prospectus relating to the Shares is required to be delivered hereunder or under the Act or the Regulations, comply with all requirements imposed upon it by the Act, as now existing and as hereafter amended, and by the Regulations, as from time to time in force, so far as necessary to permit the continuance of sales of, or dealings in, the Shares and in accordance with the provisions hereof and of the Prospectus. If, at any time when a prospectus relating to the Shares is required to be delivered hereunder or under the Act or the Regulations, any event shall have occurred as a result of which, in the reasonable opinion of counsel for the Company or counsel for the Underwriter, the Registration Statement or the Prospectus as then amended or supplemented contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein not misleading, or if, in the opinion of either of such counsel, it is necessary at any time to amend or supplement the Registration Statement or the Prospectus to comply with the Act or the Regulations, the Company will as promptly as practicable, and, in any event within one business day, notify you and promptly prepare and file with the Commission an appropriate amendment or supplement (in form and substance satisfactory to you) which will correct such statement or omission or which

will effect such compliance and will use its best efforts to have any such amendment declared effective under the Act as soon as possible.

(c) Deliver without charge to you such number of copies of each Preliminary Prospectus as you may reasonably request and, as soon as the Registration Statement, or any amendment thereto, becomes effective under the Act or a supplement is filed with the Commission, deliver without charge to you or your counsel not less than two signed copies of the Registration Statement, including exhibits and Incorporated Documents, or such amendment thereto, as the case may be, and two copies of any supplement thereto, and deliver without charge to you such number of copies of the Prospectus, the Registration Statement, and amendments and supplements thereto, if any, without exhibits or Incorporated Documents, as you may request for the purposes contemplated by the Act.

(d) Endeavor in good faith, in cooperation with you and your counsel, at or prior to the time the Registration Statement becomes effective under the Act, to qualify the Shares for offering and sale under the "blue sky" or securities laws of such jurisdictions as you may designate; provided, however, that no such qualification shall be required in any jurisdiction where, as a result thereof, the Company would be subject to service of general process or to taxation as a foreign corporation doing business in such jurisdiction to which it is not then subject. In each jurisdiction where such qualification shall be effected, the Company will, unless you agree in writing that such action is not at the time necessary or advisable, file and make such statements or reports at such times as are or may be required by the laws of such jurisdiction.

(e) Make generally available (within the meaning of Section 11(a) of the Act and the Regulations) to its securityholders as soon as practicable, but not later than 45 days after the end of its fiscal quarter in which the first anniversary date of the Registration Statement occurs an earnings statement (which need not be certified by independent certified public accountants unless required by the Act or the Regulations, but which shall satisfy the provisions of Section 11(a) of the Act and the Regulations) covering a period of at least 12 months beginning after the effective date of the Registration Statement.

(f) For a period of 12 months (or six months, in the case of any public offering under the Act) after the date hereof, not, without the prior written consent of the Underwriter, which shall not be unreasonably withheld or delayed, Dispose of any shares of Common Stock or other securities of the Company (or any security or other instrument which by its terms is convertible into, or exercisable or exchangeable for, shares of Common Stock or any other securities of the Company), except for (i) the Underwriter's Warrants and the Warrant Stock; (ii) the shares of Common Stock issuable upon the exercise of options or warrants outstanding on the date hereof, which may not be sold until the lock-ups referred to in Section 2(r) expire; (iii) the grant or exercise of options under the plans existing on the date hereof or pursuant to a plan adopted by the Company with the consent of the Board of Directors and the stockholders, in the case of grants to officers and directors, shall provide that the underlying shares are not saleable until the lock-ups referred to in Section 2(r) expire; (iv) securities Disposed of in connection with any strategic alliance with a pharmaceutical company or in connection with the hiring or retention of key employees, consultants or directors; and (v) securities Disposed of in connection with commitments existing as of the date hereof; provided further that the Company may extend the exercisibility of outstanding options and warrants or replace them upon their termination or expiration with a like number of options or warrants.

(g) During the Offering Period, without the prior written consent of the Underwriter, which shall not be unreasonably withheld or delayed, not consummate any stock dividend, stock split, recapitalization,

reorganization, reclassification, combination or any other similar event affecting the capital stock of the Company.

(h) For a period of three years after the effective date of the Registration Statement, furnish you without charge the following:

(i) within 90 days after the end of each fiscal year, three copies of financial statements certified by independent certified public accountants, including a balance sheet, statement of operations, and statement of cash flows of the Company and its then existing subsidiary or subsidiaries, with supporting schedules, prepared in accordance with generally accepted accounting principles, as at the end of such fiscal year and for the 12 months then ended, which may be on a consolidated basis;

(ii) as soon as practicable after they have been sent to stockholders of the Company or filed with, or furnished to, the Commission or the NASD, three copies of each annual and interim financial and other report or communication sent by the Company to its stockholders or filed with, or furnished to, the Commission or the NASD;

(iii) as soon as practicable, two copies of every press release and every material news item and article in respect of the Company or its affairs which was released by the Company; and

(iv) such additional documents and information with respect to the affairs of the Company and its then existing subsidiary or subsidiaries as you may from time to time reasonably request; provided, however, that such additional documents and information shall be received by you on a confidential basis, unless otherwise disclosed to the public, and shall not be used in violation of the Federal securities laws and the regulations promulgated thereunder.

(i) Apply the net proceeds received by the Company from the Offering contemplated by this Agreement in the manner set forth under the heading "Use of Proceeds" in the Prospectus.

(j) Furnish to you as early as practicable prior to the First Closing Date, and any Additional Closing Date, as the case may be, but no less than two full business days prior thereto, a copy of the latest available unaudited interim financial statements of the Company which have been read by the Company's independent certified public accountants, as stated in their letters to be furnished pursuant to Section 7(e).

(k) File no amendment or supplement to the Registration Statement or Prospectus at any time, whether before or after the date on which the Registration Statement becomes effective under the Act, unless such filing shall comply with the Act and the Regulations and unless you shall previously have been advised of such filing and furnished with a copy thereof, and you and counsel for the Underwriter shall have approved such filing. Until the later of (i) the completion by you of the distribution of the Shares (but in no event more than nine months after the date on which the Registration Statement shall have become effective under the Act) and (ii) 25 days after the date on which the Registration Statement becomes effective under the Act, the Company will prepare and file with the Commission, promptly upon the Underwriter's request, any amendments or supplements to the Registration Statement or the Prospectus which, in the Underwriter's sole opinion, may be necessary or advisable in connection with the distribution of the Shares.

(l) File timely with the Commission and the NASD a report on Form 10-C in accordance with the rules and regulations of the Commission under the Exchange Act.

(m) Comply with all provisions of all undertakings contained in the Registration Statement.

(n) Prior to the First Closing Date or any Additional Closing Date, as the case may be, issue no press release or other communication, directly or indirectly, and hold no press conference with respect to the Company or the financial condition, results of operations, business, properties, assets, liabilities of the Company, or the Offering, without the prior written consent of the Underwriter, (other than trade releases issued in the ordinary course of the Company's business or otherwise required by law, in which case deliver such release to the Underwriter for review prior to issuance).

(o) Make all filings required, and otherwise use its reasonable best efforts, to maintain the inclusion of the Common Stock on Nasdaq for at least five years from the date of this Agreement.

(p) On each Closing Date, sell to the Underwriter (or its designee), the Underwriter's Warrants at the price of \$.001 per option, entitling the holder thereof to purchase a number of shares of Common Stock equal to 10% of the number of Shares sold on such Closing Date for an exercise price equal to 110% of the price per Share in the Offering.

(q) Until expiration of the Underwriter's Warrants, keep reserved sufficient shares of Common Stock for issuance upon exercise of the Underwriter's Warrants.

(r) Deliver to the Underwriter, without charge, within a reasonable period after the last Closing Date, three sets of bound volumes of the Registration Statement and all related materials to the individuals designated by you or counsel for the Underwriter.

(s) For a period of three years after the effective date of the Registration Statement, provide, at its sole expense, to the Underwriter copies of the Company's daily transfer sheets, if so requested.

(t) For a period of five years after the First Closing Date, supply to the appropriate parties such information as may be necessary or desirable, and otherwise use its best efforts, so that during such five-year period the Company will be listed in one or more of the securities manuals published by Standard & Poor's Corporation and Moody's Investors Service, Inc. and that, at all times during such period, such listing will, at a minimum, contain the names of the Company's officers and directors, a balance sheet as of a date not more than 18 months prior to such time and a statement of operations for either the fiscal year preceding such date or the most recent fiscal year of operations.

(u) Comply with all registration, filing and reporting requirements of the Exchange Act, which may from time to time be applicable to the Company.

#### 6. PAYMENT OF EXPENSES.

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(a) The Company hereby agrees to pay, whether or not the Offering is consummated, all expenses (other than fees of counsel to the Underwriter, except as provided in Sections 6(a)(iii) and 6(b)) in connection with (i) the preparation, printing, filing, distribution, and mailing of the Registration Statement and the Prospectus and the printing, filing, distribution, and mailing of this Agreement, and related documents, including the cost of all copies thereof and of the Preliminary Prospectuses and of the Prospectus and any amendments or supplements thereto supplied to the Underwriter in quantities as hereinabove stated, (ii) the issuance, sale, transfer, and delivery of the Securities, including any transfer or other taxes payable thereon, (iii) the registration or qualification of the Securities under state or foreign "blue sky" or securities laws, including the costs of printing and mailing any "Blue Sky Surveys" and the fees of counsel (in the amount of \$35,000) for the Underwriter



and the disbursements in connection therewith, (iv) the filing fees payable to the Commission, the NASD, and the jurisdictions in which such qualification is sought, (v) any fees relating to the listing of the Securities on Nasdaq, (vi) the cost of printing certificates representing the Securities and (vii) the fees of the transfer agent for the Securities.

(b) In addition, if the Offering is consummated, the Company hereby agrees to pay to the Underwriter on each Closing Date (i) a non-accountable expense allowance equal to 3.0% of the gross proceeds from the sale of the Shares on such Closing Date, \$45,000 of which has already been paid by the Company; and (ii) a commission equal to 10.0% of the gross proceeds from the sale of Shares on such Closing Date.

(c) In the event that (i) this Agreement is terminated by the Underwriter pursuant to Section 10 hereof, or (ii) the Minimum Subscriptions are not received prior to the Termination Date, the Company hereby confirms that it will pay within 10 days following the date of termination of this Agreement (in the case of clause (i) above) and within 10 days following the Termination Date (in the case of clause (ii) above), the amount of all of your actual accountable out-of-pocket expenses, including, without limitation, the reasonable legal fees and expenses, marketing and due diligence expenses, and travel expenses incurred by you, but in no event to exceed the sum of \$100,000, less amounts previously paid to you in reimbursement for such expenses (including, without limitation, the sum of \$45,000 paid on or about July 23, 1996); and the Company will be responsible for the payment of all other expenses relating to this Agreement and the Offering, whether or not set forth in clauses (i) through (vii) of Section 6(a) hereof.

7. CONDITIONS OF UNDERWRITER'S OBLIGATIONS. Your obligations hereunder,  
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and the right of the Company to obtain on any Closing Date the purchase price for Shares to be purchased on such Closing Date, shall be subject to the continued accuracy in all material respects, on the date hereof and on such Closing Date, of the representations, warranties and agreements of the Company and to the performance by the Company of its obligations hereunder to the following terms and conditions:

(a) The Registration Statement shall have become effective under the Act not later than 6:00 p.m., New York City time, on the date of this Agreement or such later date and time as shall be consented to in writing by you; on or prior to the First Closing Date, or any Additional Closing Date, as the case may be, no Stop Order shall have been issued, and no proceeding shall have been initiated or threatened with respect to a Stop Order; and any request by the Commission for additional information shall have been complied with by the Company to the reasonable satisfaction of your counsel. If required, the Prospectus shall have been filed with the Commission in the manner and within the time period required by Rule 424(b) under the Regulations.

(b) On the First Closing Date and any Additional Closing Date, as the case may be, the Underwriter shall have received the opinions of Eilenberg & Zivian, counsel for the Company, dated the date of delivery, addressed to the Underwriter, and [ ], patent counsel for the Company, in form and substance satisfactory to counsel for the Underwriter.

(c) On or prior to the First Closing Date and any Additional Closing Date, as the case may be, the Underwriter shall have been furnished such information, documents, certificates, and opinions as they may reasonably require in order to evidence the accuracy, completeness, or satisfaction of any of the representations, warranties, covenants, agreements, or conditions herein contained, or as the Underwriter may reasonably request.

(d) At the First Closing Date, and any Additional Closing Date, as the case may be, you shall have received a certificate of the chief executive officer and the chief financial officer of the Company, dated the First Closing Date or such Additional Closing Date, as the case may be, to the effect that, (i) the conditions set forth in Section 7(a) have been satisfied, (ii) as of the date of this Agreement and as of the First Closing Date or such Additional Closing Date, as the case may be, the representations and warranties of the Company contained herein were and are accurate and correct in all material respects, and (iii) as of the First Closing Date or such Additional Closing Date, as the case may be, the obligations to be performed by the Company hereunder on or prior thereto have been fully performed in all material respects.

(e) At the First Closing Date and any Additional Closing Date, as the case may be, you shall have received a letter, dated the date of delivery, addressed to the Underwriter, from Price Waterhouse LLP, independent certified public accountants for the Company:

(i) confirming that they are, and during the period covered by their report included in the Registration Statement and the Prospectus were, independent certified public accountants with respect to the Company within the meaning of the Act and the published Regulations;

(ii) stating that, in their opinion, the consolidated financial statements of the Company included in the Registration Statement examined by them comply in form in all material respects with the applicable accounting requirements of the Act and the related published rules and regulations;

(iii) stating that, on the basis of procedures (but not an examination made in accordance with generally accepted auditing standards) consisting of a reading of the latest available unaudited interim consolidated financial statements of the Company (with an indication of the date of the latest available unaudited consolidated interim financial statements), a reading of the latest available minutes of the stockholders and Board of Directors of the Company and committees of such Board of Directors, inquiries to certain officers and other employees of the Company responsible for financial and accounting matters, and other specified procedures and inquiries, nothing has come to their attention that caused them to believe that: (A) any unaudited financial statements of the Company included in the Registration Statement and Prospectus do not comply in form in all material respects with the applicable accounting requirements of the Act and the Exchange Act and the related published rules and regulations under the Act or the Exchange Act or are not fairly presented in conformity with generally accepted accounting principles (except to the extent that certain footnote disclosures regarding any stub period may have been omitted in accordance with the applicable rules of the Commission under the Exchange Act) applied on a basis consistent with that of the audited financial statements appearing therein; (B) there was any change in the capital stock or long-term debt of the Company or any decrease in the net current assets or stockholders' equity of the Company as of the date of the latest available monthly financial statements of the Company as of a specified date not more than five business days prior to the date of such letter, each as compared with the amounts shown in the latest balance sheet included in the Registration Statement and Prospectus, other than as properly described in the Registration Statement and Prospectus; or (C) there was any decrease in current assets or stockholders' equity or increase in net loss during the period from the date of such balance sheet to the date of the latest available monthly financial statements of the Company or to a specified date not more than five business days prior to the date of such letter, each as compared with the corresponding period in the preceding fiscal year, other than as properly described in the Registration Statement and Prospectus; and

(iv) stating that they have compared specific numerical data and financial information pertaining to the Company set forth in the Registration Statement, which have been specified by you, to the extent that such data and information may be derived from the general accounting records of the Company, with the results obtained from the application of specified readings, inquiries, and other appropriate procedures (which procedures do not constitute an examination in accordance with generally accepted auditing standards) set forth in the letter, and found them to be in agreement.

(f) All proceedings taken in connection with the issuance, sale, transfer, and delivery of the Securities shall be satisfactory in form and substance to you and to your counsel.

(g) The NASD, upon review of the terms of the public offering of the Shares, shall not have objected to the Underwriter's participation in such offering upon the terms and conditions provided for herein.

(h) Prior to or on each Closing Date, the Company shall have issued, in accordance with this Agreement, the Underwriter's Warrants to the Underwriter in the name or names and in such authorized denominations as the Underwriter may request.

(i) At least the Minimum Subscriptions shall have been tendered to the Company in accordance with the terms hereof.

Any certificate or other document signed by any officer of the Company and delivered to the Underwriter or to counsel for the Underwriter shall be deemed a representation and warranty by the Company hereunder to the Underwriter as to the statements made therein. If any condition to the Underwriter's obligations hereunder to be fulfilled prior to or at the First Closing Date, or any Additional Closing Date, as the case may be, is not so fulfilled, the Underwriter may terminate this Agreement or, if the Underwriter so elects, in writing waive any such conditions which have not been fulfilled or extend the time for their fulfillment.

If any of the conditions specified in this Section 7 shall not have been fulfilled or waived, this Agreement and all your obligations hereunder may be cancelled, prospectively, by you at, or at any time prior to, any Closing Date. Any such cancellation shall be without liability to you, and the obligations of the Company pursuant to Sections 6 and 8 hereof shall nevertheless survive and continue thereafter. Notice of such cancellation shall be given to the Company at the addresses specified in Section 11 hereof, in writing, or by telegraph or telephone confirmed in writing.

8. INDEMNIFICATION AND CONTRIBUTION.  
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(a) Subject to the conditions set forth below, the Company agrees to indemnify and hold harmless the Underwriter, its officers, directors, stockholders, employees, agents, and counsel, and each person, if any, who controls the Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, against any and all loss, liability, claim, damage, and expense whatsoever (which shall include, for all purposes of this Section 8, but not be limited to, attorneys' fees and any and all expense whatsoever incurred in investigating, preparing, or defending against any litigation, commenced or threatened, or any claim whatsoever and any and all amounts paid in settlement of any claim or litigation) as and when incurred arising out of, based upon, or in connection with, (i) any untrue statement of a material fact or alleged untrue statement of a material fact contained in (A) the Registration Statement, any Preliminary Prospectus, or the Prospectus (as from time to time amended and supplemented), or any amendment or supplement thereto or (B) any application or other document or communication (for purposes of this Section 8, collectively referred to as an "application") executed by, or on behalf of, the Company or based upon written information furnished by, or on behalf of, the Company filed in any jurisdiction in order to qualify the Securities under the "blue sky" or securities laws thereof or filed with the Commission or any securities exchange; or any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, unless such statement or omission was made in reliance upon, and in conformity with, written information furnished to the Company by or on behalf of the Underwriter as stated in Section 8(b) with respect to the Underwriter, expressly for inclusion in the Registration Statement, any Preliminary Prospectus, or the Prospectus, or any amendment or supplement thereto, or in any application, as the case may be, or (ii) any breach of any representation, warranty, covenant, or agreement of the Company contained in this Agreement. The foregoing agreement to indemnify shall be in addition to any liability the Company may otherwise have, including liabilities arising under this Agreement.

If any action is brought against the Underwriter or any of its officers, directors, stockholders, employees, agents, or counsel, or any person who controls the Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act (an "indemnified party") in respect of which indemnity may be sought against the Company pursuant to the foregoing paragraph, such indemnified party or parties shall within three business days notify the Company

in writing of the institution of such action (but the failure so to notify, including within such three-day period, shall not relieve the Company from any liability it may have other than pursuant to this Section 8(a) and shall relieve the Company from liability pursuant to this Section 8(a) only to the extent the Company is materially prejudiced thereby), and the Company shall promptly assume the defense of such action, including the employment of counsel (satisfactory to such indemnified party or parties) and payment of expenses. Such indemnified party or parties shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such indemnified party or parties unless the employment of such counsel shall have been authorized in writing by the Company in connection with the defense of such action or the Company shall not have promptly employed counsel reasonably satisfactory to such indemnified party or parties to have charge of the defense of such action or such indemnified party or parties shall have reasonably concluded that there may be one or more legal defenses available to it or them or to other indemnified parties which are different from or additional to those available to the Company, in any of which events such fees and expenses shall be borne by the Company, and the Company shall not have the right to direct the defense of such action on behalf of the indemnified party or parties. Anything in this paragraph to the contrary notwithstanding, the Company shall not be liable for any settlement of any such claim or action effected without its written consent, which shall not be unreasonably withheld. The Company shall not, without the prior written consent of each indemnified party that is not released as described in this sentence, settle or compromise any action, or permit a default or consent to the entry of judgment in or otherwise seek to terminate any pending or threatened action, in respect of which indemnity may be sought hereunder (whether or not any indemnified party is a party thereto), unless such settlement, compromise, consent, or termination includes an unconditional release of each indemnified party from all liability in respect of such action. The Company agrees promptly to notify the Underwriter of the commencement of any litigation or proceedings against the Company or any of its officers or directors in connection with the sale of the Shares, the Registration Statement, any Preliminary Prospectus, any Rule 430A Prospectus, or the Prospectus, or any amendment or supplement thereto, or any application.

(b) The Underwriter agrees to indemnify and hold harmless the Company, each director of the Company, each officer of the Company who shall have signed the Registration Statement, counsel of the Company and each other person, if any, who controls the Company within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, to the same extent as the foregoing indemnity from the Company to the Underwriter in Section 8(a), but only with respect to statements or omissions, if any, made in the Registration Statement, any Preliminary Prospectus, or the Prospectus (as from time to time amended and supplemented), or any amendment or supplement thereto, or in any application in reliance upon, and in conformity with, written information furnished to the Company as stated in this Section 8(b) with respect to the Underwriter by or on behalf of the Underwriter expressly for inclusion in the Registration Statement, any Preliminary Prospectus, or the Prospectus, or any amendment or supplement thereto, or in any application, as the case may be; provided, however, that the obligation of the Underwriter to provide indemnity under the provisions of this Section 8(b) shall be limited to the gross amount of the commission received by the Underwriter of the Offering. For all purposes of this Agreement, the information relating to when the Underwriter registered and became a member of the NASD and the Underwriter's participation in prior offerings constitute the only information furnished in writing by the Underwriter expressly for inclusion in the Registration Statement, any Preliminary Prospectus, or the Prospectus (as from time to time amended or supplemented), or any amendment or supplement thereto, or in any application, as the case may be. If any action shall be brought against the Company, or any other person so indemnified based on the Registration Statement, any Preliminary Prospectus, or the Prospectus, or any amendment or supplement thereto, or on any application, and in respect of which

indemnity may be sought against the Underwriter pursuant to this Section 8(b), the Underwriter shall have the rights and duties given to the Company, and the Company and each other person so indemnified shall have the rights and duties given to the indemnified parties, by the provisions of Section 8(a).

(c) To provide for just and equitable contribution, if (i) an indemnified party makes a claim for indemnification pursuant to Sections 8(a) or 8(b) (subject to the limitations thereof) but it is found in a final judicial determination, not subject to further appeal, that such indemnification may not be enforced in such case, even though this Agreement expressly provides for indemnification in such case or (ii) any indemnified or indemnifying party seeks contribution under the Act, the Exchange Act, or otherwise, then the Company (including for this purpose any contribution made by or on behalf of any director of the Company, any officer of the Company who signed the Registration Statement, any controlling person of the Company and counsel of the Company), as one entity and the Underwriter (including for this purpose any contribution by or on behalf of an indemnified party) as a second entity, shall contribute to the losses, liabilities, claims, damages, and expenses whatsoever to which any of them may be subject, in such proportions as are appropriate to reflect the relative benefits received by the Company and the Underwriter; provided, however, that if applicable law does not permit such allocation, then other relevant equitable considerations such as the relative fault of the Company and the Underwriter in connection with the facts which resulted in such losses, liabilities, claims, damages, and expenses shall also be considered. The relative benefits received by the Company and the Underwriter shall be deemed to be in the same proportion as (x) the total proceeds from the Offering (net of underwriting discounts and commissions but before deducting expenses) received by the Company and (y) the underwriting discounts and commissions received by the Underwriter, in each case as set forth in the table on the cover page of the Prospectus and in the footnotes thereto. The relative fault, in the case of an untrue statement, alleged untrue statement, omission, or alleged omission, shall be determined by, among other things, whether such statement, alleged statement, omission, or alleged omission relates to information supplied by the Company or by the Underwriter, and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement, alleged statement, omission, or alleged omission. The Company and the Underwriter agree that it would be unjust and inequitable if the respective obligations of the Company and the Underwriter for contribution were determined by pro rata or per capita allocation of the aggregate losses, liabilities, claims, damages, and expenses (even if the Underwriter and the other indemnified parties were treated as one entity for such purpose) or by any other method of allocation that does not reflect the equitable considerations referred to in this Section 8(c). No person guilty of a fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who is not guilty of such fraudulent misrepresentation. For purposes of this Section 8(c), each person, if any, who controls the Underwriter within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act and each officer, director, stockholder, employee, agent, and counsel of the Underwriter shall have the same rights to contribution as the Underwriter and each person, if any, who controls the Company within the meaning of Section 15 of the Act or Section 20(a) of the Exchange Act, each officer of the Company who shall have signed the Registration Statement, each director of the Company and counsel of the Company shall have the same rights to contribution as the Company, subject in each case to the provisions of this Section 8(c). Anything in this Section 8(c) to the contrary

notwithstanding, no party shall be liable for contribution with respect to the settlement of any claim or action effected without its written consent. This Section 8(c) is intended to supersede any right to contribution under the Act, the Exchange Act, or otherwise.

9. REPRESENTATIONS AND AGREEMENTS TO SURVIVE DELIVERY. All  
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representations, warranties, covenants, and agreements contained in this Agreement shall be deemed to be representations, warranties, covenants, and agreements at the First Closing Date and any Additional Closing Date, and such representations, warranties, covenants, and agreements of the Company, and the Underwriter, including the indemnity and contribution agreements contained in Section 8, shall remain operative and in full force and effect regardless of any investigation made by, or on behalf of, the Underwriter or any indemnified person, or by, or on behalf of, the Company, or any person or entity which is entitled to be indemnified under Section 8(b), and shall survive termination of this Agreement or the delivery of the Shares to the purchasers and the Underwriter's Option to the Underwriter. In addition, the provisions of Sections 5(a), 6, 8, 9, 10 and 12 shall survive termination of this Agreement, whether such termination occurs before or after the First Closing Date or any Additional Closing Date, as the case may be.

10. EFFECTIVE DATE OF THIS AGREEMENT AND TERMINATION THEREOF.  
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(a) This Agreement shall become effective upon its execution except that you, at your option, may delay the effectiveness of this Agreement until the earlier of (i) 11:00 A.M. New York time on the first full business day following the day on which the Registration Statement becomes effective under the Act and (ii) the commencement of the public offering by you of the Stock. In addition to the right to terminate this Agreement pursuant to Section 7 hereof, you shall have the right to terminate this Agreement at any time prior to the First Closing Date or any Additional Closing Date, as the case may be, by giving notice to the Company, (i) if any domestic or international event, act, or occurrence has materially disrupted, or, in your opinion, will in the immediate future materially disrupt, the securities markets; or (ii) if there shall have been a general suspension of, or a general limitation on prices for, trading in securities on the New York Stock Exchange, the American Stock Exchange or in the over-the-counter market; or (iii) if there shall have been an outbreak or increase in the level of major hostilities or other national or international calamity; or (iv) if a banking moratorium has been declared by a state or federal authority; or (v) if a moratorium in foreign exchange trading by major international banks or persons has been declared; or (vi) if there shall have been a material interruption in the mail service or other means of communication within the United States; or (vii) if the Company or the Subsidiary shall have sustained a material or substantial loss by fire, flood, accident, hurricane, earthquake, theft, sabotage, or other calamity or malicious act, whether or not such loss shall have been insured, or from any labor dispute or court or government action, order, or decree, which will, in your opinion, make it inadvisable to proceed with the offering, sale, or delivery of the Shares; or (viii) if any material governmental restrictions shall have been imposed on trading in securities in general, which restrictions are not in effect on the date hereof; or (ix) if there shall be passed by the Congress of the United States or any state legislature any act or measure, or adopted by any governmental body, authoritative accounting institute or board, or governmental executive any orders, rules, or regulations, which you believe likely to have a material adverse effect on the business, financial condition, or financial statements of the Company and the Subsidiary or the market for any of the Company's securities; or (x) if there shall have been a material adverse change

in the market for the Company's securities or securities in general or in political, financial, or economic conditions as in your judgment makes it inadvisable to proceed with the offering, sale, and delivery of the Shares on the terms contemplated by the Prospectus.

(b) If you elect to prevent this Agreement from becoming effective, as provided in this Section 10, or to terminate this Agreement, you shall notify the Company promptly by telephone or telecopy, confirmed by letter.

(c) Notwithstanding any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Sections 5(a), 6, 8, 9, 10 and 12 shall not be in any way affected by such termination or failure to carry out the terms of this Agreement or any part hereof.

11. NOTICES. All communications hereunder, except as may be otherwise

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specifically provided herein, shall be in writing and shall be delivered personally, transmitted by facsimile transmission confirmed in writing within three business days thereafter, or sent by prepaid overnight air courier or registered or certified mail, postage prepaid, return receipt requested, if sent to you at 135 E. 57th Street, New York, New York 10022, Attention: Mr. Preston Tsao, Facsimile: (212) 421-5944, with a copy to Squadron, Ellenoff, Plesent & Sheinfeld, LLP, 551 Fifth Avenue, New York, New York 10176, Attention: Kenneth R. Koch, Esq., Facsimile: (212) 697-6686; or if sent to the Company, at 666 Third Avenue, New York, New York 10017, Attention: Joshua D. Schein, Chief Financial Officer, Facsimile: (212) 986-2399, with a copy to Eilenberg & Zivian, 666 Third Avenue, New York, New York 10017, Attention: Adam Eilenberg, Esq., Facsimile: (212) 986-2399. All notices hereunder shall be deemed to have been given (a) when delivered, if delivered personally, or sent by facsimile transmission and, in the case of facsimile transmission, confirmed in writing within three business days thereafter, or sent by prepaid overnight air courier or (b) three business days following the mailing thereof, if mailed by registered or certified mail, postage prepaid, return receipt requested, in any such case at the address set forth in this Section 11, or such other address or addresses as a party may have advised the other party in the manner provided in this Section 11.

12. PARTIES. This Agreement shall inure solely to the benefit of, and

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shall be binding upon, the Underwriter, the Company, and the persons and entities referred to in Section 8 who are entitled to indemnification or contribution, and their respective successors, legal representatives, and assigns (which shall not include any buyer, as such, of the Shares), and no other person shall have or be construed to have any legal or equitable right, remedy, or claim under or in respect of or by virtue of this Agreement or any provision herein contained.

13. CONSTRUCTION. THIS AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH

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THE LAWS OF THE STATE OF NEW YORK, WITHOUT GIVING EFFECT TO CONFLICT OF LAWS. TIME IS OF THE ESSENCE IN THIS AGREEMENT.

14. CONSENT TO JURISDICTION. THE COMPANY IRREVOCABLY CONSENTS TO THE

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JURISDICTION OF THE COURTS OF THE STATE OF NEW YORK AND OF ANY FEDERAL COURT LOCATED IN SUCH STATE IN CONNECTION WITH ANY ACTION OR PROCEEDING ARISING OUT OF, OR RELATING TO, THIS AGREEMENT, ANY DOCUMENT OR INSTRUMENT DELIVERED PURSUANT TO, IN CONNECTION WITH, OR SIMULTANEOUSLY WITH THIS AGREEMENT, INCLUDING, WITHOUT LIMITATION, THE ESCROW AGREEMENT OR ANY SUBSCRIPTION AGREEMENT, OR A BREACH OF

THIS AGREEMENT OR ANY SUCH DOCUMENT OR INSTRUMENT. IN ANY SUCH ACTION OR PROCEEDING, THE COMPANY WAIVES PERSONAL SERVICE OF ANY SUMMONS, COMPLAINT, OR OTHER PROCESS AND AGREES THAT SERVICE THEREOF MAY BE MADE IN ACCORDANCE WITH SECTION 11. WITHIN 30 DAYS AFTER SUCH SERVICE, OR SUCH OTHER TIME AS MAY BE MUTUALLY AGREED UPON IN WRITING BY THE ATTORNEYS FOR THE PARTIES TO SUCH ACTION OR PROCEEDING, THE COMPANY SHALL APPEAR OR ANSWER SUCH SUMMONS, COMPLAINT, OR OTHER PROCESS. SHOULD THE COMPANY FAIL TO APPEAR OR ANSWER WITHIN SUCH 30-DAY PERIOD OR SUCH EXTENDED PERIOD, AS THE CASE MAY BE, THE COMPANY SHALL BE DEEMED IN DEFAULT AND JUDGMENT MAY BE ENTERED AGAINST THE COMPANY FOR THE AMOUNT AS DEMANDED IN ANY SUMMONS, COMPLAINT, OR OTHER PROCESS SO SERVED.

If the foregoing correctly sets forth the understanding between you and the Company, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between us.

Very truly yours,

SIGA PHARMACEUTICALS, INC.

BY: \_\_\_\_\_  
NAME:  
TITLE:

ACCEPTED AS OF THE DATE FIRST ABOVE  
WRITTEN IN NEW YORK, NEW YORK

SUNRISE SECURITIES CORP.

BY: \_\_\_\_\_  
NAME:  
TITLE:



[EMPLOYMENT AGREEMENT BETWEEN THE COMPANY AND DR. DENNIS HRUBY]

EMPLOYMENT AGREEMENT

Employment Agreement effective as of April 1, 1997 between SIGA PHARMACEUTICALS, INC., a Delaware corporation (with its successors and assigns, referred to as the "Corporation"), and Dr. Dennis Hruby (referred to as "Hruby").

PRELIMINARY STATEMENT

The Corporation desires to employ Hruby, and Hruby wishes to be employed by the Corporation, upon the terms and subject to the conditions set forth in this Agreement. The Corporation and Hruby also wish to enter into the other agreements set forth in this Agreement, all of which are related to Hruby's employment under this Agreement.

AGREEMENT

Hruby and the Corporation therefore agree as follows:

1. **EMPLOYMENT FOR TERM.** The Corporation hereby employs Hruby and Hruby hereby accepts employment with the Corporation for the period beginning on the date of this Agreement and ending on April 1, 1998 (the "Initial Term"), or upon the earlier termination of the Term pursuant to Section 6. This Agreement shall be automatically renewed for additional one-year periods (the "Renewal Terms;" together with the Initial Term, the "Term") unless either party notifies the other in writing of its intention not to so renew this Agreement no less than 60 days prior to the expiration of the Initial Term or a Renewal Term. The termination of Hruby's employment under this Agreement shall end the Term but shall not terminate Hruby's or the Corporation's other agreements in this Agreement.

2. **POSITION AND DUTIES.** During the Term, Hruby shall serve as the Vice President of Research of the Corporation. During the Term, Hruby shall also hold such additional positions and titles as the Board of Directors of the Corporation (the "Board") may determine from time to time. During the Term, Hruby shall devote his best efforts to his duties as an employee of the Corporation.

3. **COMPENSATION.**

(a) **BASE SALARY AND STOCK.** The Corporation shall pay Hruby a base salary, beginning on the first day of the Term and ending on the last day of the Term, of not less than \$85,000 per annum, payable at least monthly on the Corporation's regular pay cycle for professional employees.

(b) **STOCK OPTIONS.** Pursuant to the Corporation's stock option plan, the Corporation shall grant to Hruby 10,000 options to purchase 10,000 shares of the Corporation's Common Stock at an exercise price equal to the initial public offering price ("IPO Price") of the Common Stock of the Corporation. The options shall vest on a pro rata basis on the first, second, third and fourth anniversaries of this Agreement.

(c) **OTHER AND ADDITIONAL COMPENSATION.** Section 3 and (b) establishes the minimum compensation during the Term and shall not preclude the Board from awarding Hruby a higher salary or any bonuses or stock options in the discretion of the Board during the Term at any time.

4. **EMPLOYEE BENEFITS.** During the Term, Hruby shall be entitled to the employee benefits, including vacation, health and other insurance benefits made available by the Corporation to any other employee of the Corporation.

5. EXPENSES. The Corporation shall reimburse Hruby for actual out-of-pocket expenses incurred by him in the performance of his services for the Corporation upon the receipt of appropriate documentation of such expenses.

6. TERMINATION.

(a) GENERAL. The Term shall end immediately upon Hruby's death. The Term may also end for Cause or Disability, as defined in Section 7.

(b) NOTICE OF TERMINATION. Promptly after it ends the Term, the Corporation shall give Hruby notice of the termination, including a statement of whether the termination was for Cause or Disability (as defined in Section 7 and 7(b) below). The Corporation's failure to give notice under this Section 6 shall not, however, affect the validity of the Corporation's termination of the Term.

7. SEVERANCE BENEFITS.

(a) "CAUSE" DEFINED. "Cause" means 1. willful malfeasance or willful misconduct by Hruby in connection with his employment; 2. Hruby's gross negligence in performing any of his duties under this Agreement; 3. Hruby's conviction of, or entry of a plea of guilty to, or entry of a plea of nolo contendere with respect to, any crime other than a traffic violation or infraction which is a misdemeanor; 4. Hruby's material breach of any written policy applicable to all employees adopted by the Corporation; or 5. material breach by Hruby of any of his agreements in this Agreement.

(b) DISABILITY DEFINED. "Disability" shall mean Hruby's incapacity due to physical or mental illness that results in his being unable to substantially perform his duties hereunder for six consecutive months (or for six months out of any nine month period). During a period of Disability, Hruby shall continue to receive his base salary hereunder, provided that if the Corporation provides Hruby with disability insurance coverage, payments of Hruby's base salary shall be reduced by the amount of any disability insurance payments received by Hruby due to such coverage. The Corporation shall give Hruby written notice of termination which shall take effect thirty (30) days after the date it is sent to Hruby unless Hruby shall have returned to the performance of his duties hereunder during such thirty (30) day period (whereupon such notice shall become void).

(c) TERMINATION. If the Corporation ends the Term for Cause or Disability, or if Hruby resigns as an employee of the Corporation, or if Hruby dies, then the Corporation shall have no obligation to pay Hruby any amount, whether for salary, benefits, bonuses, or other compensation or expense reimbursements of any kind, accruing after the end of the Term, and such rights shall, except as otherwise required by law, be forfeited immediately upon the end of the Term.

8. CONFIDENTIALITY, OWNERSHIP, AND COVENANTS.

(a) "CORPORATION INFORMATION" AND "INVENTIONS" DEFINED. "CORPORATION INFORMATION" means all information, knowledge or data of or pertaining to (i) the Corporation, its employees and all work undertaken on behalf of the Corporation, and (ii) any other person, firm, corporation or business organization with which the Corporation may do business during the Term, that is not in the public domain (and whether relating to methods, processes, techniques, discoveries, pricing, marketing or any other matters). "INVENTIONS" collectively refers to any and all inventions, trade secrets, ideas, processes, formulas, source and object codes, data, programs, other works of authorship, know-how, improvements, research, discoveries, developments, designs, and techniques regarding any of the foregoing.

(b) CONFIDENTIALITY. (i) Hruby hereby recognizes that the value of all trade secrets and other proprietary data and all other information of the Corporation not in the public domain disclosed by the

Corporation in the course of his employment with the Corporation is attributable substantially to the fact that such confidential information is maintained by the Corporation in strict confidentiality and secrecy and would be unavailable to others without the expenditure of substantial time, effort or money. Hraby therefore, except as provided in the next two sentences, covenants and agrees that all Corporation Information shall be kept secret and confidential at all times during and after the end of the Term and shall not be used or divulged by him outside the scope of his employment as contemplated by this Agreement, except as the Corporation may otherwise expressly authorize by action of the Board. In the event that Hraby is requested in a judicial, administrative or governmental proceeding to disclose any of the Corporation Information, Hraby will promptly so notify the Corporation so that the Corporation may seek a protective order or other appropriate remedy and/or waive compliance with this Agreement. If disclosure of any of the Corporation Information is required, Hraby may furnish the material so required to be furnished, but Hraby will furnish only that portion of the Corporation Information that legally is required.

(ii) Hraby also hereby agrees to keep the terms of this Agreement confidential.

(c) OWNERSHIP OF INVENTIONS, PATENTS AND TECHNOLOGY.

(i) IN GENERAL. Subject to Section 8(c)(ii) below, Hraby hereby assigns to the Corporation all of Hraby's right (including patent rights, copyrights, trade secret rights, and all other rights throughout the world), title and interest in and to Inventions, whether or not patentable or registrable under copyright or similar statutes, made or conceived or reduced to practice or learned by Hraby, either alone or jointly with others, during the course of the performance of services for the Corporation. Hraby shall also assign to, or as directed by, the Corporation, all of Hraby's right, title and interest in and to any and all Inventions, the full title to which is required to be in the United States government by a contract between the Corporation and the United States government or any of its agencies. The Corporation shall have all right, title and interest in all research and work product produced by Hraby as an employee of the Corporation, including, but not limited to, all research materials and lab books.

(ii) STATE OF OREGON UNIVERSITY. Specifically, Hraby shall promptly and fully disclose to the Corporation any and all inventions, methods, improvements, discoveries, original works of authorship, trade secrets, or other intellectual property conceived, developed or reduced to practice by Hraby or any of his employees, consultants or research assistants, during the performance of the Term hereunder or derived from Confidential Information, including without limitation, as relates to the Core Technology, as defined in a research agreement (the "Research Agreement"), dated as of January 31, 1996, by and between the Corporation and The State Board of Higher Education on behalf of State of Oregon University ("Oregon") (collectively, "Work Product"). Hraby shall treat all Work Product as the Confidential Information of the Corporation. Hraby agrees and does hereby assign to the Corporation and its successors and assigns, without further consideration, his entire right, title and interest in and to all Work Product developed during the performance of the Term hereunder or derived from any Confidential Information, whether or not patentable or copyrightable, subject only to the provisions of the Research Agreement and Oregon's rights thereunder and any other existing written agreement Hraby may have with Oregon. Hraby further agrees to execute all applications for patents and/or copyrights, domestic or foreign, assignments and other papers necessary to secure and enforce rights relating to the Work Product. The parties acknowledge that all original works of authorship that are made by Hraby within the scope of the Term and that may be protected by copyrighted are "works made for hire," as that time is defined in the United States Copyright Act (17 USC Section 101).

(d) NON-COMPETITION PERIOD DEFINED. "Non-Competition Period" means the period beginning at the end of the Term and ending one (1) year after the end of the Term.

(e) COVENANTS REGARDING THE TERM AND NON-COMPETITION PERIOD. Hruby acknowledges and agrees that his services pursuant to this Agreement are unique and extraordinary; that the Corporation will be dependent upon Hruby for the research and development of antibiotics, vaccines and anti-infectives; and that he will have access to and control of confidential information of the Corporation. Hruby further acknowledges that the business of the Corporation is national in scope and cannot be confined to any particular geographic area of the United States. For the foregoing reasons and to induce the Corporation to enter this Agreement, Hruby covenants and agrees that during the Term and the Non-Competition Period Hruby shall not unless with written consent of the Corporation:

(i) engage in the business of research and development of the Core Technology, as defined in the Research Agreement, or any other products or processes in which the Corporation is engaged in during the Term or in any other business conducted by the Corporation during the Term (collectively the "Prohibited Activity") in the United States or elsewhere for his own account;

(ii) become interested in any individual, corporation, partnership or other business entity (a "Person") engaged in any Prohibited Activity in the United States, directly or indirectly, as an individual, partner, shareholder, officer, director, principal, agent, employee, trustee, consultant or in any other relationship or capacity; provided, however, that Hruby may own directly or indirectly, solely as an investment, securities of any Person which are traded on any national securities exchange if Hruby (x) is not a controlling person of, or a member of a group which controls, such person or (y) does not, directly or indirectly, own 5% or more of any class of securities of such person;

(iii) directly or indirectly hire, engage or retain any person which at any time during the Term or Non-Competition Period was a supplier, client or customer of the Corporation, or directly or indirectly solicit, entice or induce any such person to become, a supplier, client or customer of any other person engaged in any Prohibited Activity; or

(iv) directly or indirectly hire, employ or retain any person who at any time was an employee of the Corporation or directly or indirectly solicit, entice, induce or encourage any such person to become employed by any other person.

(f) REMEDIES. Hruby hereby acknowledges that the covenants and agreements contained in Section 8 are reasonable and valid in all respects and that the Corporation is entering into this Agreement, inter alia, on such

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acknowledgment. If Hruby breaches, or threatens to commit a breach, of any of the Restrictive Covenants, the Corporation shall have the following rights and remedies, each of which rights and remedies shall be independent of the other and severally enforceable, and all of which rights and remedies shall be in addition to, and not in lieu of, any other rights and remedies available to the Corporation under law or in equity: (i) the right and remedy to have the Restrictive Covenants specifically enforced by any court having equity jurisdiction, it being acknowledged and agreed that any such breach or threatened breach will cause irreparable injury to the Corporation and that money damages will not provide an adequate remedy to the Corporation; (ii) the right and remedy to require Hruby to account for and pay over to the Corporation all compensation, profits, monies, accruals, increments or other benefits (collectively, "Benefits") derived or received by Hruby as the result of any transactions constituting a breach of any of the Restrictive Covenants, and Hruby shall account for and pay over such Benefits to the Corporation; (iii) if any court determines that any of the Restrictive Covenants, or any part thereof, is invalid or unenforceable, the remainder of the Restrictive

Covenants shall not thereby be affected and shall be given full effect, without regard to the invalid portions; and (iv) if any court construes any of the Restrictive Covenants, or any part thereof, to be unenforceable because of the duration of such provision or the area covered thereby, such court shall have the power to reduce the duration or area of such provision and, in its reduced form, such provision shall then be enforceable and shall be enforced.

(g) JURISDICTION. The parties intend to and hereby confer jurisdiction to enforce the Restrictive Covenants upon the courts of any jurisdiction within the geographical scope of such Covenants. If the courts of any one or more such jurisdictions hold the Restrictive Covenants wholly unenforceable by reason of the breadth of such scope or otherwise, it is the intention of the parties that such determination not bar or in any way affect the Corporation's right to the relief provided above in the courts of any other jurisdiction, within the geographical scope of such Covenants, as to breaches of such Covenants in such other respective jurisdictions such Covenants as they relate to each jurisdiction being, for this purpose, severable into diverse and independent covenants.

#### 9. SUCCESSORS AND ASSIGNS.

(a) HRUBY. This Agreement is a personal contract, and the rights and interests that the Agreement accords to Hruby may not be sold, transferred, assigned, pledged, encumbered, or hypothecated by him. All rights and benefits of Hruby shall be for the sole personal benefit of Hruby, and no other person shall acquire any right, title or interest under this Agreement by reason of any sale, assignment, transfer, claim or judgment or bankruptcy proceedings against Hruby. Except as so provided, this Agreement shall inure to the benefit of and be binding upon Hruby and his personal representatives, distributees and legatees.

(b) THE CORPORATION. This Agreement shall be binding upon the Corporation and inure to the benefit of the Corporation and of its successors and assigns, including (but not limited to) any corporation that may acquire all or substantially all of the Corporation's assets or business or into or with which the Corporation may be consolidated or merged. This Agreement shall continue in full force and effect in the event that the Corporation sells all or substantially all of its assets, merges or consolidates, otherwise combines or affiliates with another business, dissolves and liquidates, or otherwise sells or disposes of substantially all of its assets. The Corporation's obligations under this Agreement shall cease, however, if the successor to, the purchaser or acquiror either of the Corporation or of all or substantially all of its assets, or the entity with which the Corporation has affiliated, shall assume in writing the Corporation's obligations under this Agreement (and deliver an executed copy of such assumption to Hruby), in which case such successor or purchaser, but not the Corporation, shall thereafter be the only party obligated to perform the obligations that remain to be performed on the part of the Corporation under this Agreement.

10. ENTIRE AGREEMENT. This Agreement represents the entire agreement between the parties concerning Hruby's employment with the Corporation and supersedes all prior negotiations, discussions, understandings and agreements, whether written or oral, between Hruby and the Corporation relating to the subject matter of this Agreement.

11. AMENDMENT OR MODIFICATION, WAIVER. No provision of this Agreement may be amended or waived unless such amendment or waiver is agreed to in writing signed by Hruby and by a duly authorized officer of the Corporation. No waiver by any party to this Agreement of any breach by another party of any condition or provision of this Agreement to be performed by such other party shall be deemed a waiver of a similar or dissimilar condition or provision at the same time, any prior time or any subsequent time.

12. NOTICES. Any notice to be given under this Agreement shall be in writing and delivered personally or sent by overnight courier or registered or certified mail, postage prepaid, return receipt requested, addressed to the party concerned at the address indicated below, or to such other address of which such party subsequently may give notice in writing:

If to Hruby: Dr. Dennis Hruby  
4017 NW Christine  
Corvallis, OR 97330-3263  
Fax: 541-737-2440

If to the Corporation: SIGA PHARMACEUTICALS, INC.  
666 Third Avenue  
30th Floor  
New York, NY 10017  
Fax: 212-986-2399  
Attention: David H. de Weese

with a copy to: Eilenberg & Zivian  
666 Third Avenue  
30th Floor  
New York, NY 10017  
Fax: 212-986-2399  
Attention: Jeffrey D. Abbey, Esq.

Any notice delivered personally or by overnight courier shall be deemed given on the date delivered and any notice sent by registered or certified mail, postage prepaid, return receipt requested, shall be deemed given on the date mailed.

13. SEVERABILITY. If any provision of this Agreement or the application of any such provision to any party or circumstances shall be determined by any court of competent jurisdiction to be invalid and unenforceable to any extent, the remainder of this Agreement or the application of such provision to such person or circumstances other than those to which it is so determined to be invalid and unenforceable shall not be affected, and each provision of this Agreement shall be validated and shall be enforced to the fullest extent permitted by law. If for any reason any provision of this Agreement containing restrictions is held to cover an area or to be for a length of time that is unreasonable or in any other way is construed to be too broad or to any extent invalid, such provision shall not be determined to be entirely null, void and of no effect; instead, it is the intention and desire of both the Corporation and Hruby that, to the extent that the provision is or would be valid or enforceable under applicable law, any court of competent jurisdiction shall construe and interpret or reform this Agreement to provide for a restriction having the maximum enforceable area, time period and such other constraints or conditions (although not greater than those contained currently contained in this Agreement) as shall be valid and enforceable under the applicable law.

14. SURVIVORSHIP. The respective rights and obligations of the parties hereunder shall survive any termination of this Agreement to the extent necessary to the intended preservation of such rights and obligations.

15. HEADINGS. All descriptive headings of sections and paragraphs in this Agreement are intended solely for convenience of reference, and no provision of this Agreement is to be construed by reference to the heading of any section or paragraph.

16. WITHHOLDING TAXES. All salary, benefits, reimbursements and any other payments to Hruby under this Agreement shall be subject to all applicable payroll and withholding taxes and deductions required by any law, rule or regulation of and federal, state or local authority.

17. COUNTERPARTS. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original but all of which together constitute one and same instrument.

18. APPLICABLE LAW: JURISDICTION. The laws of the State of New York shall govern the interpretation, validity and performance of the terms of this Agreement, without reference to rules relating to conflicts of law. Any suit, action or proceeding against Hruby with respect to this Agreement, or any judgment entered by any court in respect thereof, may be brought in any court of competent jurisdiction in the State of New York, as the Corporation may elect in its sole discretion, and Hruby hereby submits to the nonexclusive jurisdiction of such courts for the purpose of any such suit, action, proceeding or judgment.

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

SIGA PHARMACEUTICALS, INC.

By: /s/ David H. de Weese  
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David H. de Weese, President

/s/ Dennis Hruby  
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Dr. Dennis Hruby



[CLINICAL TRIALS AGREEMENT BETWEEN THE COMPANY AND  
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES]

Clinical Trials Agreement  
SIGA Pharmaceuticals, Inc.-NIAID

Protocol DMID 96-091  
6/2/97

NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES  
CLINICAL TRIALS AGREEMENT  
FOR STUDIES DONE WITH THE DIVISION OF  
MICROBIOLOGY AND INFECTIOUS DISEASES

BASED ON

PROTOCOL DMID 96-091

SAFETY, TRANSMISSIBILITY AND DOSE-RESPONSE IN HUMANS OF A  
GROUP A STREPTOCOCCAL VACCINE GP 1223 COMPRISING THE HUMAN COMMENSAL BACTERIUM  
STREPTOCOCCUS GORDONII ENGINEERED TO EXPRESS THE CONSERVED REGION OF THE M  
PROTEIN OF  
STREPTOCOCCUS PYOGENES

IN COLLABORATION WITH

SIGA PHARMACEUTICALS, INC.

The Division of Microbiology and Infectious Diseases (DMID), National Institute of Allergy and Infectious Diseases (NIAID), and SIGA Pharmaceuticals, Inc., located at 666 Third Avenue, New York, New York 10017, have agreed to cooperate on the conduct of a clinical trial whose designation of Protocol DMID 96-091 for Streptococcus gordonii GP 1223 vaccine, entitled "Safety, Immunogenicity, Transmissibility and Dose-Response in Humans of a Group A Streptococcal Vaccine GP 1223 Comprising the Human Commensal Bacterium Streptococcus gordonii Engineered to Express the Conserved Region of the M Protein of Streptococcus pyogenes."

The DMID, NIAID believes that this clinical trial can be efficiently conducted by taking advantage of the established clinical trial site network, Vaccine and Treatment Evaluation Units which is uniquely positioned to coordinate the efforts of a staff of program and data managers, scientists, physicians, statisticians and regulatory experts. Thus, the agreement whose terms and conditions under which the protocol will be conducted and which are outlined below reflects this belief.

The understanding by both parties to the agreement is as follows:

1. INVESTIGATIONAL NEW DRUG APPLICATION (IND) SPONSORSHIP

The NIAID shall be responsible for the submission of an IND covering Protocol DMID 96-091. The IND shall satisfy all of the requirements of the United States Food and Drug Administration (U.S. FDA). A letter granting cross reference to SIGA Pharmaceuticals, Inc.'s FDA files which pertain to S. gordonii GP 1223 vaccine shall be supplied by SIGA Pharmaceuticals, Inc., and, in return, the NIAID will also supply a letter, if requested, granting cross reference to the NIAID'S IND to SIGA Pharmaceuticals, Inc.

A. Monitoring

The IND Holder shall be responsible for clinical site monitoring and the quality assurance of all data. Monitoring shall be done in compliance with U.S. FDA Good Clinical Practices Guidelines. Representatives of SIGA Pharmaceuticals, Inc. shall have the right with the coordination of the IND Holder to visit the clinical site with the IND Holder.

B. Adverse Experience Reporting

Adverse experience reports shall be collected by the IND Holder according to the procedures outlined in the protocol.

The IND holder shall assume total responsibility for the reporting of such adverse events to the FDA with a copy to SIGA Pharmaceuticals, Inc.

The IND holder shall report all serious and life threatening adverse events observed in this clinical trial to FDA and SIGA Pharmaceuticals, Inc., on a timely basis consistent with Federal Regulations 21 CFR 312.32. All other adverse experiences shall be reported by IND holder to FDA and SIGA Pharmaceuticals, Inc. on a timely basis consistent with Federal Regulations 21 CFR 312.33 for the Annual Report. Specific provisions for reporting adverse experiences to agencies outside the U.S. shall be provided for as required.

SIGA Pharmaceuticals, Inc. shall, in a timely manner and during the term of this trial, provide the DMID, NIAID with any information it now has or may obtain in the future regarding the safety and/or the toxicity of S. gordonii GP 1223 vaccine.

## 2. PROTOCOL TEAM

Development and management of the protocol, evaluation of data, proposal of amendments, recommendations for early termination, etc. shall be the responsibility of the Protocol Team. The membership shall include the study PI, co-investigators, representatives from the DMID, NIAID, SIGA Pharmaceuticals, Inc. and the persons involved with statistical and data analysis from the study.

While the DMID, NIAID will endeavor to control the distribution of the protocol document itself, SIGA Pharmaceuticals, Inc. acknowledges that a list of all protocols which are open to patient enrollment are available (with abstracts) to the public under the Freedom of Information Act.

## 3. STUDY SITES

The DMID, NIAID will utilize trial sites under Government Contract for the studies described in the protocol.

The NIAID will ensure that the protocol will be conducted at Clinical Trial Sites according to the U.S. FDA Good Clinical Practices Guidelines.

## 4. CASE REPORT FORM (CRF) DEVELOPMENT

The Protocol team shall assume responsibility for the development and subsequent revisions, if any, of CRFs with appropriate review and approval by the DMID, NIAID.

## 5. DATA COLLECTION, MANAGEMENT, ANALYSIS AND REPORTING

The DMID, NIAID shall assume responsibility for the collection, management, analysis, and initial reporting of all data obtained from the trial. SIGA Pharmaceuticals, Inc. may utilize data and reports from this study for any legitimate business or regulatory purpose.

Information which may be released to the public or which may have significant impact on SIGA Pharmaceuticals, Inc.'s approval of S. gordonii GP 1223 vaccine for commercial sale shall not be released without prior discussion of the information with SIGA Pharmaceuticals, Inc. except to the extent required by Federal Law.

SIGA Pharmaceuticals, Inc., after appropriate consultation with the DMID, NIAID, may provide information regarding the trial to governmental organizations (e.g., FDA, SEC, etc.).

## 6. VACCINE SUPPLY AND DISTRIBUTION

The DMID, NIAID shall provide SIGA Pharmaceuticals, Inc. with an estimate of the quantity of S. gordonii GP 1223 vaccine that will be required to complete the protocol. SIGA Pharmaceuticals, Inc. shall provide this quantity of vaccine to the DMID, NIAID without charge. The NIAID shall be responsible for distributing S. gordonii GP 1223 vaccine as well as any other vaccine used in the trial to the trial sites. The timing of the delivery and the quantities of the vaccine shipped to repository or study sites shall be mutually agreed upon. The DMID, NIAID shall not provide any of the vaccine to a third party (other than the specific trial sites) without the prior written consent of SIGA Pharmaceuticals, Inc.

SIGA Pharmaceuticals, Inc., shall provide the DMID, NIAID with necessary Material Safety Data Sheet (MSDS) for S. gordonii GP1223 vaccine together with any specific storage or shipping instructions.

7. CONFIDENTIALITY/PROPRIETARY INFORMATION

The DMID, NIAID shall treat as confidential/proprietary any preclinical, clinical, or formulation data that SIGA Pharmaceuticals, Inc. marks "Confidential" including but not limited to the Investigator's Brochure and the protocol. Such information is the sole and exclusive property of SIGA Pharmaceuticals, Inc. during the period of this Agreement and subsequent thereto. Likewise, all information which is disclosed visually or orally and subsequently confirmed as Confidential Information in writing within ten (10) working days after first disclosure will be held as Confidential Information.

Confidential/Proprietary Information means confidential scientific, business, or financial information provided that such information:

is not publicly known or available from other sources who are not under a confidentiality obligation to the source of the information;

has not been made available by its owners without a confidentiality obligation;

is not already known by or available to the receiving Party without a confidentiality obligation; or does not relate to potential hazards or cautionary warnings associated with the production, handling, or use of the subject matter of this Agreement

8. TRIAL DATA

All raw data obtained from the trial shall be the property of the Clinical Trial Site that produces the data. These data shall not be released to the public except to the extent required by law. No persons or party other than SIGA Pharmaceuticals, Inc., its contractor, and/or its designate shall have any rights to review and/or use the raw data obtained from the trial for purposes of filing an NDA without the permission of SIGA Pharmaceuticals, Inc.

Where applicable, the grouped data shall be controlled by the NIAID and shall not be released to the public without appropriate consultation with SIGA Pharmaceuticals, Inc. However, SIGA Pharmaceuticals, Inc. retains the right to access and utilize the data for all legitimate business or regulatory purposes.

Upon completion of the study, SIGA Pharmaceuticals, Inc. will be provided with a copy of the complete analysis data set and other raw data as required in a machine-readable format to be determined jointly.

9. FDA MEETING

With respect to any discussions with FDA involving data obtained from this trial, IND holder shall take the initiative in arranging meetings with the FDA. Formal meetings with the FDA concerning the trial data shall be discussed and agreed upon by SIGA Pharmaceuticals, Inc. and the DMID, NIAID in advance. SIGA Pharmaceuticals, Inc. shall have the right to attend all formal meetings with the FDA. The IND holder shall provide SIGA Pharmaceuticals, Inc. with written summaries of all substantive telephone discussions with the FDA.

10. PUBLICATIONS POLICY

Any publications based on the results of the trial shall conform to the conditions in the "Advance Understanding" in the contract with the University of Maryland, Contract N01 AI45251: "The content of any abstract or manuscript containing data generated under this contract

shall be submitted for review by the NIAID Project Officer before submission for public presentation or publication including presentations at a scientific meeting which includes abstracts. Preprints and reprints of these shall be sent to the Project Officer."

Additional clauses within the contract state that all publications shall acknowledge NIAID support and be submitted to the Project Officer for review prior to publication. The Project Officer shall have access to all data generated with the support of this contract. SIGA Pharmaceuticals, Inc. shall receive copies of any abstract or manuscript prior to their submission for publication with sufficient time for review and comment.

#### 11. INDEMNIFICATIONS AND DISPUTES

No indemnification for damages is provided for under this agreement. Each party shall be liable for damages it incurs as a result of its own activities under this agreement.

Any dispute arising under this Agreement which is not disposed of by agreement of the parties shall be submitted jointly to the signatories of this Agreement. If the signatories are unable to jointly resolve the dispute within thirty (30) days after notification thereof, the Assistant Secretary of Health (or his/her designee) shall propose a resolution. Nothing in this section shall prevent any Party from pursuing any and all administrative and/or judicial remedies which may be available.

#### 12. ENDORSEMENT

SIGA Pharmaceuticals, Inc. acknowledges that the involvement of the DMID, NIAID in the trial shall not be construed as an endorsement by the DMID, NIAID or the National Institutes of Health (NIH) for S. gordonii GP1223 vaccine. However, this does not prohibit SIGA Pharmaceuticals, Inc. to reference or use publications and reports based on the trial for legitimate business and regulatory purposes.

#### 13. PROVISION OF FINANCIAL SUPPORT TO NIAID CLINICAL TRIALS

SIGA Pharmaceuticals, Inc. shall not provide separate funding to any sites participating in the trial for any aspect of the study without the prior written approval of the DMID, NIAID.

#### 14. UNILATERAL TERMINATION

Either DMID, NIAID or the Collaborator may unilaterally terminate this entire Agreement at any time by giving written notice at least sixty (60) days prior to the desired termination date.

The Parties agree that should this Agreement be terminated, the Protocol will nonetheless be completed if medically appropriate.

Neither party may transfer or assign this Agreement or any rights or obligations under this Agreement.

If this Agreement is terminated, SIGA Pharmaceuticals, Inc. shall receive copies of all data, reports and other information related to this clinical trial and any unused vaccine. The obligations under Paragraphs # 1B (Adverse Experience Reporting), #2 (Protocol Team, as it relates to the distribution of the Protocol); #5 (Data Collection, Management, Analysis and Reporting, as it relates to the release of information); #8 (Trial Data), #10 (Publications Policy) and #11 (Indemnification and Disputes) shall survive the termination of this Agreement. In addition, the Confidentiality provisions of Paragraph #7 will expire three years from the date this agreement is terminated.



[RESEARCH AGREEMENT BETWEEN THE COMPANY AND  
THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK]

RESEARCH AGREEMENT

BETWEEN

SIGA PHARMACEUTICALS, INC.

AND

THE RESEARCH FOUNDATION OF STATE UNIVERSITY  
OF NEW YORK

THIS AGREEMENT entered into this 1st day of July, 1997 is by and between SIGA PHARMACEUTICALS, INC., a for-profit corporation existing under the laws of the State of Delaware, with its principal offices located at 666 Third Avenue, 30th Floor, New York, NY 10017, hereinafter referred to as "Sponsor" and THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK, a nonprofit, educational corporation existing under the laws of the State of New York, with its principal offices located at State University Plaza, Broadway and State Street, Albany, New York 12246 (Mailing Address: The UB Commons, Suite 211, 520 Lee Entrance, Amherst, New York 14228), hereinafter referred to as "Foundation".

WITNESSETH:

WHEREAS, Sponsor desires to have Foundation undertake a research program in "P. gingivalis Fimbrillin Expression in S. gordonii"; and

WHEREAS, Foundation has available personnel and facilities needed to conduct such studies; and

WHEREAS, the Foundation desires to enter into an agreement with Sponsor for the conduct of the aforementioned research program,

NOW, THEREFORE, in consideration of the premises and the mutual covenants hereinafter contained, the parties agree as follows:

1. SCOPE OF WORK

The Foundation agrees to conduct and carry out in a professional and competent manner all the work and services set forth in Exhibit A, which is attached to and made a part of this Agreement.

2. KEY PERSONNEL

The research will be conducted at the State University of New York at Buffalo under the direction of Dr. Robert J. Genco and Dr. Todd Evans. Dr. Dennis E. Hruby shall act as technical representative of Sponsor.

3. COMPENSATION

Sponsor shall pay the Foundation \*\*\*\*\* for the work performed in accordance with the terms of this Agreement. The cost of the research is mutually agreed upon and will not be exceeded by Foundation without prior specific written authorization from Sponsor. This sum shall be paid in \*\*\*\*\* equal quarterly installments of \*\*\*\*\* commencing on July 1, 1997.

4. TERM

This Agreement shall commence on July 1, 1997 and shall terminate on (i) the later of June 30, 1998, or 90 days following the completion of the research and presentation of a written report to the Sponsor, or (ii) thirty (30) days after notice of termination has been given by either one of the parties hereto, unless extended by mutual agreement of the parties hereto expressed in writing in the manner provided in Article 10 of this Agreement. In the event of termination, Sponsor shall reimburse Foundation for the costs of all obligations which Foundation entered into prior to cancellation that cannot be cancelled.

#### 5. PROPRIETARY INFORMATION

It is understood that in the course of carrying out the purposes of this Agreement Sponsor may wish to provide the Foundation with information proprietary to Sponsor. The Foundation agrees not to disclose such information which is clearly marked as proprietary to other than its employees and shall use its best efforts to prevent unauthorized disclosure of such proprietary information.

#### 6. USE OF NAME

Sponsor agrees not use the name of The Research Foundation of State University of New York of the State University of New York or the State of New York or the name of any member of the respective organization in sales promotion or advertising or in any other form of publicity without the express written permission of the respective organization and, if appropriate, the individual whose name is to be used.

#### 7. PUBLICATION

The Foundation will be free to publish papers consistent with protection of any patentable rights and proprietary information dealing with results of research under this Agreement after giving a copy of material intended for publication to Sponsor. Title to and the right to determine the disposition of any copyrightable material, first produced or composed in performance of this research, shall remain with the Foundation, provided that the Foundation shall grant to Sponsor an irrevocable, royalty-free, nonexclusive right to reproduce, translate, and use all such copyrighted material for its own purposes.

#### 8. PATENTS

The parties to this Agreement recognize that inventions may result from the investigations which are pursued by the Foundation during the performance of this Agreement. Title to any invention or discovery made or conceived in the performance of this research shall be determined in the following manner:

(a) In the event that a patentable invention is, or inventions are conceived or reduced to practice under this Agreement utilizing University or Foundation owned or controlled facilities at any of the State-operated institutions of the State University of New York, the Foundation may, at its option, file or cause to have filed and prosecute domestic and foreign patent applications covering such invention or inventions, and the Foundation shall have title to any such inventions, and the patent applications or patents maturing therefrom.

(b) In the event that a patentable invention or inventions are conceived or reduced to practice under this Agreement by one or more employees of the project team employed by Sponsor not utilizing University or Foundation owned or controlled facilities at any of the State-operated institutions of the State University of New York, Sponsor may, at its option, file or cause to have filed and prosecute domestic and foreign patent covering such invention or inventions, and Sponsor shall have title to any inventions, patent applications or patents



maturing therefrom. Sponsor shall provide a nonexclusive, royalty-free license to Foundation for research purposes.

(c) In the event one or more employees of the project team of the State University of New York and one or more employees of Sponsor conceive or reduce to practice under this Agreement an invention or inventions utilizing University or Foundation owned or controlled facilities at any of the State-operated institutions of the State University of New York, the Foundation shall have title to any inventions, patent applications or patents maturing therefrom.

#### 9. OPTION FOR LICENSE

Sponsor shall have an exclusive option to negotiate an exclusive license to commercialize any invention or discovery made or conceived in the performance of this research. Such option shall include an exclusive option to an exclusive license to technology described in U.S. Patent Number 5,536,497 (Fimbrial polypeptids useful in the prevention of periodontitis, Evans et. al., July 16, 1996) and any foreign counterparts. The royalty rate shall be negotiated at the time the option is exercised by Sponsor. Sponsor must exercise its option within three (3) months of the termination of the Research Agreement.

#### 10. NOTICES

All notices, demands and other communications hereunder, except exchanges of technical information, shall be delivered personally to the party hereto to which it is addressed or mailed to such party by registered or certified mail, return receipt requested, with postage hereon fully prepaid at the following addresses, unless otherwise subsequently modified by change of address in writing:

If to the SPONSOR:

SIGA PHARMACEUTICALS, INC.  
666 Third Avenue, 30/th/ Floor  
New York, NY 10017  
Attn: David H. de Weese, President and CEO

If to the FOUNDATION:

Maureen B. McMahon  
Office of Sponsored Programs Administration  
The Research Foundation of State University  
of New York  
The UB Commons - Suite 211  
520 Lee Entrance  
Amherst, New York 14228

Any notices, demands and other communications delivered personally shall be deemed to have been received by addressee at the time and date of its delivery. Any notices, demands and other communications so mailed shall be deemed to have been received by the addressee seven (7) days after the time and date of its being so mailed.

#### 11. WAIVERS

No waiver of any term, provision or condition of this Agreement whether by conduct or otherwise in any one or more instances shall be deemed to be or construed as a further or continuing waiver of any such term, provision or condition or of any other term, provision or condition of the Agreement.

#### 12. INTEGRATION

This Agreement represents and embodies all the agreements and negotiations between the parties hereto and no oral agreements of correspondence prior to the date of execution of this Agreement shall be held to vary the provision hereof.

13. MODIFICATIONS AND CHANGES

This Agreement may be changed, amended, modified, extended or terminated by mutual consent provided that such consent shall be in writing and executed by the parties hereto prior to the time such change shall take effect.

14. SITUS

Regardless of the place of physical execution, this Agreement shall be construed according to the laws of the State of New York.

15. ORDER OF PRECEDENCE

In the event of any inconsistency between Clauses 1 through 12 of this Agreement, and the attached Exhibit A, the inconsistency should be resolved by giving precedence to Clauses 1 through 13.

IN WITNESS WHEREOF, this Agreement has been duly executed by and the parties hereto as of the date hereinabove first written.

THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK

|                                                                            |                               |
|----------------------------------------------------------------------------|-------------------------------|
| By /s/ Charles Kaars<br>-----<br>Charles Kaars<br>Assistant Vice President | July 1, 1997<br>-----<br>Date |
|----------------------------------------------------------------------------|-------------------------------|

SIGA PHARMACEUTICALS, INC.

|                                                                       |                                |
|-----------------------------------------------------------------------|--------------------------------|
| By /s/ David de Weese<br>-----<br>David de Weese<br>President and CEO | June 25, 1997<br>-----<br>Date |
|-----------------------------------------------------------------------|--------------------------------|

EXHIBIT A

P. GINGIVALIS FIMBRILLIN EXPRESSION IN S. GORDONII  
SIGA PROJECT- GNOTOBIOTIC RAT

- Purpose:** This project will measure the effect of using *S. gordonii* recombinants expressing Fim A from *P. gingivalis* in preventing or modifying *P. gingivalis*-induced alveolar bone destruction in the rat model of periodontal disease.
- Recombinant:** Two strains of *S. gordonii* provided by Siga Pharmaceutical Inc. will be constructed to express the carboxy portion of *P. gingivalis* strain 381 fimbriae. Modified strain I will express the peptide anchored to the cell at the carboxyl terminal end. Modified strain II will secrete the peptide.
- Animal Model:** A rat model based on the Evans et al. finding that gnotobiotic rats can be infected with *P. gingivalis* resulting in alveolar bone loss. It is known that as a result of the *P. gingivalis* strain 381 infection in rats that host-derived MMP are found in gingival tissue presumably derived from macrophages. It may be postulated that FimA expression could induce protective antibodies or low levels of expression could block receptors on macrophages preventing induction of MMP.
- Experimental:** Preliminary study. Nine animals infected by the intranasal route with *S. gordonii* WT will be examined for bone loss as a result of infection with WT only. It is anticipated that no bone loss will be evident. Colonization by *S. gordonii* will be monitored by culture.
- Challenge study. Four groups of 12 animals each (total 48 animals) of Sprague-Dawley gnotobiotic rats obtained from Taconic Farms will be maintained in barriers. No pre-treatment with antibiotics prior to infection with *P. gingivalis* is required. The following groups will be used: (1) negative controls which receive a sham infection; (2) an untreated positive control which is infected with *P. gingivalis* only (3) an experimental group which receives the *S. gordonii* with the anchored peptide (modified Sg strain I); and (4) an experimental group which receives the *S. gordonii* secreting Fim A (modified Sg strain II). Animal numbers used in each group are based on previously performed studies which determined the optimal group size to obtain the desired sensitivity.
- Outcomes:** Periodontal disease will be estimated by alveolar bone loss measurements using the horizontal bone loss method. Infection will be monitored for *S. gordonii* and *P. gingivalis* infection by culture. Antibody production in serum and saliva by PCFIA.

[COLLABORATIVE RESEARCH AND LICENSE AGREEMENT BETWEEN THE COMPANY  
AND AMERICAN HOME PRODUCTS CORPORATION]

COLLABORATIVE RESEARCH AND LICENSE AGREEMENT

This COLLABORATIVE RESEARCH AND LICENSE AGREEMENT (the "Agreement") is entered into as of July 1, 1997 by and between AMERICAN HOME PRODUCTS CORPORATION, a Delaware corporation, represented by its Wyeth-Ayerst Laboratories Division having its principal place of business at 555 East Lancaster Avenue, St. Davids, Pennsylvania 19087 ("WYETH-AYERST"), and SIGA Pharmaceuticals Inc. ("SIGA"), a Delaware corporation, having its principal place of business at 666 Third Avenue, 30th Floor, New York, New York 10017.

WHEREAS, \*\*\*\*\*

WHEREAS, WYETH-AYERST has expertise in discovering, developing, testing, obtaining regulatory approvals, manufacturing and marketing products for bacterial diseases; and

WHEREAS, WYETH-AYERST and SIGA wish to enter into this Agreement in order to collaborate in the performance of research to discover and develop products for bacterial diseases \*\*\*\*\*

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the parties hereby agree as follows:

1. DEFINITIONS  
-----

Whenever used in this Agreement with an initial capital letter, the terms defined in this Section 1 shall have the meanings specified.

1.0 "ACTIVITY PROFILE" \*\*\*\*\*

1.1 "AFFILIATE" means any corporation, firm, limited liability company, partnership or other entity which directly or indirectly controls or is controlled by or is under common control with a party to this Agreement. "Control" means ownership, directly or through one or more Affiliates, of fifty percent (50%) or more of the shares of stock entitled to vote for the election of directors, in the case of a corporation, or fifty percent (50%) or more of the equity interests in the case of any other type of legal entity, status as a general partner in any partnership, or any other arrangement whereby a party controls or has the right to control the Board of Directors or equivalent governing body of a corporation or other entity.

1.2 "BACTERIAL DISEASE" means a disease in humans or other animals caused by infection or colonization with bacterial organisms.

1.3 "COMPOUND" means a chemical compound or mixture of compounds that is discovered or developed in the R & D Program, which is identified as having the Activity Profile by use of a biochemical screen, genetically engineered cell-based screen, affinity screen or other methodology, together with analogs, derivatives or modifications thereof. Without limiting the generality of the foregoing, a Compound will be deemed "discovered" in the R & D Program if the potential utility or mode of action of such Compound in the Field is identified or investigated in the R & D Program.

1.4 "CONFIDENTIAL INFORMATION" means all Technology and all financial, marketing, competitive, or other business information, including but not

limited to information about any element of Technology or a party's business, which is disclosed by one party to the other hereunder and indicated as confidential by the disclosing party except to the extent that such information (i) as of the date of disclosure is demonstrably known to the party receiving such disclosure or its Affiliates, as shown by written documentation, other than by virtue of a prior confidential disclosure to such party or its Affiliates; (ii) as of the date of disclosure is in, or subsequently enters, the public domain, through no fault or omission of the party receiving such disclosure; or (iii) as of the date of disclosure or thereafter is obtained from a third party free from any obligation of confidentiality to the disclosing party.

1.5 "CPMP" means the Committee on Proprietary Medical Products of the European Union.

1.6 \*\*\*\*\*

1.7 "EFFECTIVE DATE" means the date of full execution of this Agreement by the parties.

1.8 "FIELD" means all human and veterinary antibacterial uses, including without limitation, vaccines of any kind, and other systemic and topical uses, related to the Activity Profile.

1.9 "FIRST COMMERCIAL SALE" means the date of the first sale of a Licensed Product in the ordinary course of business in any country by WYETH-AYERST or an Affiliate, or a distributor, licensee or sublicensee of either.

1.10 \*\*\*\*\*

1.11 "JOINT TECHNOLOGY" means Technology jointly owned by the parties as determined in accordance with the provisions of Section 5.2 and 5.4 hereof.

1.12 "LICENSED PRODUCT" means any product in the Field which is discovered or identified as a result of the R & D Program conducted pursuant to this Agreement, or the making, using, importing, offer for sale or sale of which would infringe a Valid Claim of a SIGA Patent but for the licenses granted herein.

1.13 "NDA" means a New Drug Application, as defined by the U.S. FDA, or the equivalent in any other country in the Territory.

1.14 "NET SALES" means with respect to a Licensed Product, the gross amount invoiced by WYETH-AYERST, its Affiliates and/or its licensees and sublicensees, on sales or other dispositions of the Licensed Product to unrelated third parties, less the following items, provided that such items are actually included in the price charged and do not exceed reasonable and customary amounts in the country in which such sale occurred:

(a) Trade, cash and quantity discounts actually allowed and taken directly with respect to such sales;

(b) Excise, sales taxes or other taxes imposed upon and paid directly with respect to such sales (excluding national, state or local taxes based on income);

(c) Amounts repaid or credited by reason of rejections, defects, recalls or returns or because of rebates or retroactive price reduction; and

(d) One Percent (1%) of gross sales invoiced less (a), (b) and (c) above as an allowance to cover all other items, such as freight, transportation and insurance.

If a Licensed Product is sold, or otherwise commercially disposed of for value (including, without limitation, disposition in connection with the delivery of other products or services), in a transaction that is not a sale for cash to an independent third party, then the gross amount invoiced in such transaction shall be deemed to be the gross amount that would have been paid had there been such a sale at the average sale price determined on a country-by-country basis of such Licensed Product during the applicable royalty reporting period.

Net Sales shall not include any consideration received by WYETH-AYERST, its Affiliates, its licensees or sublicensees in respect of the sale, use or other disposition of a Licensed Product in a country as part of a clinical trial prior to the receipt of all regulatory approvals required to commence commercial sales of such Licensed Product in such country, except sales under "treatment INDs," "named patient sales," "compassionate use sales," or their equivalents pursuant to which WYETH-AYERST, its Affiliates, licensees or sublicensees is/are entitled, under applicable regulatory policies, to recover costs incurred in providing such Licensed Products to the patients.

1.15 "PATENT RIGHTS" means the rights and interests in and to issued patents and pending patent applications in any country which are necessary or commercially desirable to develop, make, have made, use, import, offer for sale, sell or have sold Licensed Products, including, but not limited to, all provisional applications, substitutions, continuations, continuations-in-part, divisions, and renewals, all letters patent granted thereon, and all reissues, reexaminations and extensions thereof, whether owned solely or jointly by a party or otherwise controlled by a party with the right to transfer rights therein. "SIGA Patent Rights" shall mean those Patent Rights owned or otherwise controlled by SIGA. "WYETH-AYERST Patent Rights" shall mean those Patent Rights owned or otherwise controlled by WYETH-AYERST. "Joint Patent Rights" shall mean those Patent Rights owned or otherwise controlled jointly by the parties. Patent Rights are listed on Schedule I attached hereto and made a part hereof, which Schedule shall be updated by the parties from time to time during the term of this Agreement, as appropriate.

1.16 "PRE-PROJECT STATUS" means a WYETH-AYERST research designation for a Compound that is a candidate for further development in anticipation of filing an Investigational New Drug Application with the United States Food and Drug Administration or its equivalent (IND track), which designation is given to a Compound by WYETH-AYERST in accordance with its customary drug development practices for its own proprietary compounds, and when, at a minimum, it has been demonstrated to WYETH-AYERST's satisfaction, consistent with its customary criteria, that such Compound has in vitro and in vivo activity, and wherein in WYETH-AYERST's determination, an acceptable margin of safety will be attainable for such Compound, as indicated by a preliminary toxicity assessment. Pre-Project Team means a scientific task force assembled by WYETH-AYERST to further develop such Compound receiving this designation.

1.17 "PROGRAM COMMENCEMENT DATE" means July 1, 1997.

1.18 "PROTEASE" shall mean \*\*\*\*\*

1.19 "R & D PROGRAM" means the research and development program, to be conducted by SIGA and WYETH-AYERST pursuant to Section 2 of this Agreement and reflected in the Work Plans, which shall be amended from time to time, as appropriate, in accordance with Section 2.1.3 hereof.

1.20 "RESEARCH PHASE" means research relating to Compounds that have not yet received Pre-Project Status designation.

1.21 "RESEARCH TERM" means the term during which the R & D Program should be conducted which shall commence on the Program Commencement Date and expire on April 30, 1999, unless extended in accordance with Section 2.3.2 hereof.

1.22 "TECHNOLOGY" means and includes any and all scientific or other technical data, know-how, trade secrets, information, materials, compounds, compositions, biological material, such as plasmids, vectors, DNA, RNA, or peptide sequences, peptide structure, peptide conjugates, vaccine adjuvants, organisms, cell lines, and antibodies, samples and other information owned or controlled by either party which (i) is used in the Research Program; (ii) which relate to the Licensed Products including, without limitation, chemical, biological, pharmacological, toxicological, non-clinical and clinical data, product formulations, specifications and usage, or (iii) which relate to processes, techniques and specifications for the manufacture of the Licensed Products, including, without limitation, preparation, synthesis, culture, recovery and purification and quality control processes, techniques and specifications; whether or not patentable, and including any negative results.

1.23 "TERRITORY" means all the countries of the world.

1.24 "VALID CLAIM" means any claim of an unexpired patent which has not been held unenforceable, unpatentable or invalid by a decision of a court or other governmental agency of competent jurisdiction, unappealed or unappealable within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue, reexamination, disclaimer or otherwise.

1.25 "WORK PLAN" means the written plan describing the activities to be carried out during each year of the R & D Program pursuant to this Agreement. Each Work Plan will be set forth in a written document prepared by SIGA and WYETH-AYERST, and approved by the Joint Steering Committee.

## 2. R & D PROGRAM

### 2.1 IMPLEMENTATION OF R & D PROGRAM.

#### 2.1.1 Basic Provisions of Program

The objective of the Research Phase of the \*\*\*\*\* The objective of the development phase of the R & D Program shall be the development of Compounds which have received Pre-Project Status designation and the testing and regulatory approval of Licensed Products having the Activity Profile. In carrying out the R & D Program, SIGA shall devote an average of at least \*\*\*\*\* full-time equivalent employees per year to the Research Phase of the R & D Program over its \*\*\*\*\* year duration, and shall ensure that such employees are devoted solely to the R & D Program. SIGA and WYETH-AYERST shall each use reasonable efforts to perform such tasks as are set forth to be performed by it in the Work Plans, including the provision of such facilities, materials, equipment and consultants as each deems necessary to the achievement of such Work Plans.

#### 2.1.2 Collaborative Efforts and Reports.

The parties agree that the successful execution of the R & D Program will require the collaborative use of both parties' areas of expertise. The

parties shall keep each other fully informed about the status of the portions of the R & D Program they respectively perform.

Designated representatives of SIGA and WYETH-AYERST shall cooperate in the performance of the R & D Program and, subject to any confidentiality obligations to third parties, shall exchange information and materials as necessary to carry out the R & D Program, but subject to the provisions of Sections 4 and 5 hereof. Each party will attempt to accommodate any reasonable request of the other party to send or receive personnel for purposes of collaborating or exchanging information under the R & D Program. Such visits and/or access will have defined purposes and be scheduled in advance. Each party will bear its relevant travel and lodging costs.

#### 2.1.3 Work Plans.

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The Work Plan for the first year of the R & D Program shall be prepared by the JSC (as defined herein) as promptly as practical after the Effective Date. The Work Plan for the second year of the R & D Program shall be prepared by the JSC no later than thirty (30) days before the end of the first year of the R & D Program. The Work Plan shall set forth specific research and development objectives, milestones and resource allocation requirements.

Each Work Plan shall be in writing and shall set forth with reasonable specificity tasks for the period covered by the Work Plan. The JSC may make adjustments to the Work Plan at its quarterly meetings or otherwise as it may determine.

In planning and monitoring the R & D Program, each party may be assigned tasks and responsibilities taking into account each party's respective specific capabilities and expertise in order to avoid duplication and enhance efficiency and synergies.

As of the Execution Date, it is contemplated that the following duties will be undertaken by each party, to be set forth in the Work Plan for the first year of the R & D Program.

\*\*\*\*\*



## 2.2 JOINT STEERING COMMITTEE.

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(i) The R&D Program, until IND nomination by Wyeth-Ayerst, will be administered by a Joint Steering Committee ("JSC") which will be comprised of an equal number of representatives of each of SIGA and Wyeth-Ayerst and which will be chaired by a representative of Wyeth-Ayerst. The JSC will act on behalf of the two companies, and will be responsible for planning and monitoring the R&D Program and for drawing up a research and development plan for each one year period during the Research Term, setting forth specific research and development objectives, milestones and resource allocation requirements for that period. The JSC will meet quarterly, or as frequently as mutually agreed, to review progress and recommend necessary adjustments to the plan as the research progresses. Such meetings will be alternatively held in New York City and Pearl River, or at a mutually agreed upon site elsewhere. Each party will pay its own expenses related to such meetings. In addition, each party will report not less than quarterly to the JSC and the other party on its activities in the R&D Program.

(ii) Upon IND nomination by WYETH-AYERST and until NDA approval of each Licensed Product, the JSC shall continue to meet quarterly or as often as mutually agreed, to monitor and comment on the progress of the Wyeth Drug Development Program (as defined in 2.4.2 hereof). The Parties shall appoint members to the JSC having such expertise in regulatory and clinical affairs as is relevant and appropriate to each stage of the Drug Development Program respecting each such Licensed Product.

(iii) All matters will be decided in the JSC by consensus. Matters which the JSC cannot resolve will be referred to senior management of the respective parties for resolution in accordance with Paragraph 10.1 hereof.

## 2.3 RESEARCH AND DEVELOPMENT TERM.

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### 2.3.1 Term of the R & D Program.

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The R & D Program shall be conducted during the Research Term unless the R & D Program is earlier terminated by either party pursuant to the termination provisions below.

### 2.3.2 Extension of the Research Term.

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The Research Term may be extended upon three (3) months written notice prior to its expiration, by mutual written agreement of the parties on terms to be agreed upon between the parties.

## 2.4 PRODUCT DEVELOPMENT

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### 2.4.1 Identification of Compounds for Pre-Project Status.

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WYETH-AYERST shall, in good faith and consistent with its customary criteria for such decisions regarding its own proprietary products, determine whether or not a Compound should be given Discovery Team Status and Pre-Project Status. In rendering its decision, WYETH-AYERST shall consider factors such as the relative ease of synthesis, availability of starting materials, Compound stability, proprietary status of the Compound and its synthesis and the existence of third party products and patents. Once a Compound is given Pre-Project Status, its development will be the sole

responsibility of WYETH-AYERST, and WYETH-AYERST will appoint Discovery Teams and/or Pre-Project Teams to manage the development thereof.

#### 2.4.2 Development Obligations.

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WYETH-AYERST or its Affiliates shall conduct a drug development program to develop Licensed Products in the field of human medicine, and in its sole discretion and through an Affiliate, in veterinary medicine, and henceforth market Licensed Products in the Field incorporated or derived from any Compounds discovered or identified as a result of the R & D Program, which reach Pre-Project Status and which are selected by WYETH-AYERST or its Affiliates for development (a "Drug Development Program").

Within (90) days following the selection of a Compound for Pre-Project Status, WYETH-AYERST, with input from the JSC shall prepare a development plan ("Global Development Plan") for such Compound. The Global Development Plan shall describe the activities to be carried out by Wyeth during each year of the Drug Development Program. The Global Development Plan may be amended by WYETH-AYERST from time to time, based on a variety of conditions that may occur, such as, but not limited to, performance of the Compound as to efficacy or toxicology, the regulatory requirements of an agency, the availability of animal models for preclinical investigations or of investigators or patients for clinical trials, the availability of drug supplies, and other like factors.

WYETH-AYERST shall use commercially reasonable efforts to develop and market Licensed Products hereunder, which shall mean that WYETH-AYERST shall exert efforts comparable to that which it or its Affiliates extend in their own proprietary discovery and development programs and to products that are marketed, giving due consideration to scientific profile, safety, efficacy, patient accrual in clinical trials, the competitive environment, market dynamics, and product life cycle, among other considerations. Though not an obligation to be met, the parties agree that as a goal, and within the initial \*\*\*\*\* years of the Research Term, the parties will attempt to identify a Compound which is suitable for designation of Pre-Project Status. It is expressly understood by the Parties that WYETH-AYERST's nomination of a Compound for Pre-Project Status may occur after the Research Term, and that this shall in no way affect WYETH-AYERST's rights and obligations hereunder, provided that WYETH-AYERST is actively pursuing the designation of a Compound for Pre-Project Status.

Notwithstanding the foregoing, and if WYETH-AYERST has not designated a Compound Pre-Project Status for veterinary medicine within \*\*\*\*\* years of the initial approval of an NDA for the first Licensed Product, then, in its sole discretion, SIGA may elect to redefine the Field to exclude all or a portion of veterinary uses, and all rights hereunder relating to same shall revert to SIGA.

#### 2.4.3 Reports.

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WYETH-AYERST will keep SIGA fully informed concerning the status of the Drug Development Program for each Licensed Product, it being understood that all such information is Confidential Information subject to all the terms and conditions of this Agreement, and particularly Article 4 hereof. WYETH-AYERST shall (a) report to SIGA in reasonable detail no less frequently than semi-annually concerning all aspects of such development and commercialization activities; (b) provide SIGA with access to Technology and Confidential Information employed in or arising out of such development and commercialization activities; and (c) provide SIGA with summaries of all regulatory filings filed in connection with such Licensed Products, together with all clinical protocols and material correspondence with regulatory authorities in the United States and other countries.

#### 2.5 COMMERCIALIZATION RIGHTS.

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WYETH-AYERST shall have the exclusive right to develop and commercialize Licensed Products hereunder, including without limitation, any manufacture thereof.

3. FUNDING  
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3.1 RESEARCH FUNDING.  
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In partial consideration of the research to be performed by SIGA in the R & D Program, WYETH-AYERST will pay SIGA \$\*\*\*\*\* within thirty (30) days of the Effective Date. WYETH-AYERST will continue to fund SIGA's research hereunder during the Research Term by making research payments of US\$\*\*\*\*\* per year during the initial two-year period of the Research Term, payable quarterly. Such payments will be made in advance, on or before the first day of each calendar quarter, with the first and last payments prorated in the event that the Effective Date is not the first day of a calendar quarter.

3.2 ADDITIONAL R & D PAYMENTS.  
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WYETH-AYERST will make additional research payments to SIGA in furtherance of the performance of additional research. Such additional research payments shall be payable within thirty (30) days of the determination (as set forth in Section 3.5) of the achievement of this research as follows:

| Achievement<br>----- | Research<br>Payment<br>----- |
|----------------------|------------------------------|
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |
| *****                | \$*****                      |

\*\*If there are multiple Licensed Products from a single Compound, research payments for the second such Licensed Product from a single Compound will be \*\*\*\*\* of these amounts. No payment will be required for any subsequent Licensed Products beyond the second such Licensed Product.

3.3 RESEARCH AND DEVELOPMENT TAX CREDITS.  
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Each party shall be entitled to seek the benefit of any research and development tax credits arising out of any research paid for by such party or its Affiliates. SIGA acknowledges that research payments made under Sections 3.1 and 3.2 are made in furtherance of research, and accordingly, WYETH-AYERST is entitled to seek research tax credits.

3.4 RECORD KEEPING AND AUDIT OF RESEARCH FUNDS.  
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SIGA warrants and represents that it will apply the research funding it receives from WYETH-AYERST pursuant to Section 3.1 toward achieving the objectives of the R & D Program for which SIGA is responsible under the Work Plan. SIGA shall keep for three (3) years from the date of each payment of research funding pursuant to Section 3.1 hereof, complete and accurate records of the use of such funding, in sufficient detail to allow such use to be determined accurately, and shall submit reports detailing such use in its written reports due in accordance with Section 2.2 hereof. WYETH-AYERST shall have the right for a period of three (3) years after receiving any report or statement with respect to same to appoint an independent certified public accountant reasonably acceptable to SIGA to inspect the relevant records of SIGA to verify such reports or statements. SIGA shall make such records available for inspection by such independent certified public accountant during regular business hours at such place or places where such records are customarily kept, upon reasonable notice from WYETH-AYERST, solely to verify the accuracy of the reports and use of the research payments. Such inspection right shall not be exercised more than once in any year, nor more than once with respect to any particular research payment. WYETH-AYERST agrees, and will require that any such certified public accountant shall agree, to hold in strict confidence all information concerning such payments and reports, and all information learned in the course of any audit or inspection, except to the extent necessary for WYETH-AYERST to reveal such information in order to enforce its rights under this Agreement or if disclosure is required by law. The results of each inspection, if any, shall be binding on both parties.

4. TREATMENT OF CONFIDENTIAL INFORMATION  
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4.1 CONFIDENTIALITY.  
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4.1.1 General.  
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During the term of this Agreement and for three (3) years thereafter, each party will keep confidential, and will cause its employees, consultants, Affiliates, licensees and sublicensees to keep confidential, all Confidential Information of the other party that is disclosed to it, or to any of its employees, consultants, Affiliates, licensees and sublicensees, pursuant to or in connection with this Agreement, and all Confidential Information relating to the R & D Program and the development of Licensed Products hereunder. Neither SIGA nor WYETH-AYERST nor any of their respective employees, consultants, Affiliates, licensees and sublicensees shall use Confidential Information of the other party for any purpose whatsoever except as expressly permitted in this Agreement. Notwithstanding the foregoing,

the following exchange of information shall not constitute a violation of this Section 4.1, as long as each such exchange is covered by like obligations of confidentiality and limited use:

(i) an exchange of information between SIGA and The Rockefeller University ("Rockefeller") pursuant to SIGA's License and Research Support Agreement with Rockefeller; and

(ii) an exchange of information by either party with the prior consent of the non-disclosing party, with any other research collaborator or consultant engaged relevant to the R & D Program.

4.1.2 Restricted Access.  
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SIGA and WYETH-AYERST each agree that any disclosure of the other party's Confidential Information to any of its officers, employees, consultants or agents or those of any of its Affiliates, licensees and sublicensees shall be made only if and to the extent necessary to carry out its rights and responsibilities under this Agreement, and shall only be made to persons who are bound by like obligations of confidentiality and limited use. Accordingly, SIGA and WYETH-AYERST, for themselves and their Affiliates, each agree not to disclose Confidential Information to any third parties without prior written approval from the other party except as required in any patent application or patent prosecution, in any application for regulatory approval for testing, manufacture or sale of a Licensed Product subject to this Agreement, or as otherwise required by law, and except as otherwise reasonably required to exercise such party's rights under this Agreement. However, before disclosing the other party's Confidential Information in connection with a patent application, patent prosecution or regulatory application or as otherwise required by law, the disclosing party shall provide a copy of such intended disclosure to the other party. If the other party so requests and where permitted by law or regulation, the disclosing party shall redact such portion of the intended disclosure as reasonably requested. Each party shall take such action, and shall cause its Affiliates, licensees and sublicensees to take such action, to preserve the confidentiality of each other's Confidential Information as it would customarily take to preserve the confidentiality of its own Confidential Information, and in no event, less than reasonable care. Each party, upon the other's request, will return all the Confidential Information disclosed to it by the other party pursuant to this Agreement, including all copies and extracts of documents, within sixty (60) days of the request following the termination of this Agreement; provided that a party may retain Confidential Information of the other party relating to any license or right which survives such termination and one copy of all other Confidential Information may be retained in confidential and inactive archives solely for the purpose of establishing the contents thereof.

4.1.3 Employee Confidentiality Agreements.  
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SIGA and WYETH-AYERST each represent that all of its employees and all of the employees of its Affiliates, and any consultants to such party or its Affiliates, participating in the R & D Program who shall have access to Confidential Information of the other party are bound by written agreements to maintain such information in confidence and not to use such information except as expressly permitted herein.

4.2 Publicity.  
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Neither party may disclose the existence or terms of this Agreement without the prior written consent of the other party; provided, however, that either party may make such a disclosure to the extent required by law or by the Securities Exchange Commission in connection with any offering of SIGA's securities, subject to the same provisions of redaction set forth in 4.1.2 hereof. All news releases relating to the existence and any term of this Agreement, for publication in general circulation periodicals and newswires, shall be prepared by the parties in mutually agreeable format and substance following the Effective Date of this Agreement.

4.3 PUBLICATION.  
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It is expected that each party may wish to publish the results of its research under this Agreement. In order to safeguard intellectual property rights, the party wishing to publish or otherwise publicly disclose the results of its research hereunder shall first submit a draft of the proposed scientific manuscripts, abstracts or other proposed public presentations, to the JSC for review, comment and consideration of appropriate patent action at least eight (8) weeks prior to any submission for publication or other public disclosure. Within thirty (30) days of receipt of the pre-publication materials, the JSC will advise the party seeking publication as to whether a patent application will be prepared and filed or whether trade secret

protection should be pursued and, if so, the JSC will, in cooperation with both parties, determine the appropriate timing and content of any such desired publications.

## 5. INTELLECTUAL PROPERTY RIGHTS

### 5.1 DISCLOSURE OF INVENTIONS.

Each party shall promptly inform the other and the JSC about all inventions in the Field that are conceived, made or developed in the course of carrying out the R & D Program by employees or consultants of either of them, alone or jointly with employees or consultants of the other party. The following provisions shall apply to rights in the intellectual property developed by SIGA or WYETH-AYERST, developed by either party alone or jointly by the parties during the course of carrying out the R & D Program.

### 5.2 OWNERSHIP.

#### 5.2.1 Intellectual Property Rights.

SIGA shall have sole and exclusive ownership of all right, title and interest on a worldwide basis in and to any Technology developed solely by SIGA, with full rights to license or sublicense, subject to WYETH-AYERST's rights hereunder. WYETH-AYERST shall have sole and exclusive ownership of all right, title and interest on a worldwide basis in and to any Technology developed solely by WYETH-AYERST with full rights to license or sublicense, subject to SIGA's rights hereunder. WYETH-AYERST and SIGA shall jointly own all Technology jointly invented by both SIGA and WYETH-AYERST in the R & D Program and shall jointly own all Joint Patent Rights thereon. Except as specifically set forth herein, each party shall retain the sole and exclusive right under Patent Rights and Technology solely owned or otherwise controlled by such party (including rights under its own interests in any Joint Technology and any Patent Rights thereon), and shall have the right to grant sublicenses thereunder, in either case to use such Technology and Patent Rights in any way outside the Field, and to develop, have developed, make, have made, use, distribute for sale, sell, offer for sale and import any products which are derived therefrom outside the Field.

### 5.3 PATENT COORDINATORS.

SIGA and WYETH-AYERST shall each appoint a Patent Coordinator who shall serve as such party's primary liaison with the other party on matters relating to patent filing, prosecution, maintenance and enforcement. Each party may replace its Patent Coordinator at any time by notice in writing to the other party.

### 5.4 INVENTORSHIP.

Inventorship determination shall be made in accordance with the relevant patent laws. In case of dispute between SIGA and WYETH-AYERST over inventorship, the Patent Coordinators and mutually acceptable outside patent counsel, shall make the determination of the inventor(s) by application of the standards contained in United States patent law. The Patent Coordinators and mutually acceptable outside patent counsel, shall also, in the case of dispute, make the determination as to whether an invention is Joint Technology.

### 5.5 TRADEMARKS.

WYETH-AYERST, its Affiliates, distributors, assignees, licensees and sublicensees, shall have the absolute right to use, and in their sole discretion, register any trademarks, tradenames and/or tradedress they may choose, in connection with the Licensed Products licensed hereunder, provided that the label for any such Licensed Product shall be consistent with applicable regulatory and labeling requirements in the relevant country

therefor. SIGA shall have no right, title, or interest in or to any trademark, tradename or tradedress which WYETH-AYERST, its Affiliates, distributors, assignees, licensees or sublicensees may use on or in connection with Licensed Products, or the packaging, advertising, promotion, labeling, marketing or selling thereof. Further, and for so long as WYETH-AYERST, its Affiliates, distributors, assignees, licensees or sublicensees shall have any interest in or to any such trademarks, tradenames, or tradedress whether as proprietor, owner, licensee, or licensor, in any part of the Territory, SIGA shall not adopt, use, apply for registration, register, own or acquire such trademark, tradename or tradedress, or any mark, name or tradedress confusingly similar thereto. No rights to any trademarks, tradenames, tradedress, or copyrights owned by SIGA are granted to WYETH-AYERST under this Agreement.

6. PROVISIONS CONCERNING THE FILING, PROSECUTION

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AND MAINTENANCE OF PATENT RIGHTS  
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The following provisions relate to the filing, prosecution and maintenance of Patent Rights during the term of this Agreement:

6.1 FILING OF PATENTS.  
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In consultation with the Patent Coordinators, the JSC will coordinate the determination of what patents will be filed on Technology developed under the R & D Program and make a recommendation to WYETH-AYERST. WYETH-AYERST will then determine the countries in which such patent applications will be filed and shall be responsible for the filing, prosecution, and maintenance (including the defense of interferences and similar proceedings) of such patent applications, provided that SIGA shall have the opportunity to provide substantive review and comment on any such prosecution. If WYETH-AYERST decides not to file a patent application on any such Technology in any country, it shall promptly notify SIGA of such decision at least 90 days prior to the applicable bar date for such patent application. In such event SIGA shall have the right to file a patent application, and WYETH-AYERST shall not have any rights in or to such patent application or any resulting patent in any such country. Responsibility for filing, prosecution, and maintenance of patents (including the defense of interferences and similar proceedings) on Joint Technology will be agreed upon by the parties on a case-by-case basis and handled by mutually acceptable outside patent counsel charged with the duty to act in the best interests of both parties. WYETH-AYERST will bear the costs of the filing, prosecution and maintenance of all patents filed pursuant to this Agreement, unless such patent application is filed by SIGA, in which case the prosecution and maintenance will be at SIGA's expense. The parties shall cooperate with each other in gaining patent term restoration or similar extensions or continuations of rights under Patent Rights. Each party shall also promptly give notice to the other of the grant, lapse, revocation, surrender, invalidation or abandonment of any Patent Rights for which it has responsibility. If at any time, either party wishes to discontinue the prosecution or maintenance of any Patent Rights for which it has responsibility, such party shall promptly give notice of such intention to the other party. The party receiving such notice shall have the right, but not the obligation, to assume responsibility for the prosecution or continued maintenance of any such Patent Right by giving return notice to the party wishing to discontinue same within thirty (30) days.

7. LICENSE RIGHTS  
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7.1 LICENSE GRANTS.  
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(a) Research Use: SIGA hereby grants to WYETH-AYERST an exclusive license

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under SIGA Technology, SIGA Confidential Information, and SIGA Patent Rights and SIGA's interests in Joint Technology and Joint Patent Rights, to research, discover, develop, and make Compounds and to discover and develop Licensed Products for use in the Field; with the proviso that said license

shall be exclusive in the Field except as to SIGA's internal, nontransferable, non-commercial research use only.

(b) Commercial License: SIGA hereby grants to WYETH-AYERST an exclusive

license in the Territory, including the right to grant sublicenses, to develop, have developed, make, have made, use, distribute for sale, offer for sale, sell and import Licensed Products for use in the Field under any and all Patent Rights and Technology owned by or otherwise controlled by SIGA (including SIGA's interests in Joint Technology and Joint Patent Rights). SIGA grants WYETH-AYERST the right to use Confidential Information owned by or otherwise controlled by SIGA in connection with the development, making, using, distribution for sale, offer for sale, sale and import of Licensed Products.

7.2 TERM OF LICENSES.

(a) The license term of the exclusive research use license granted pursuant to 7.1(a) hereof shall be commensurate with the Research Term of this Agreement. During the Research Term and for the six month period following the end of the Research Term, SIGA will not collaborate with, or grant license rights to, any other party in the Field, provided, however, that SIGA may collaborate or grant license rights to academic institutions for non-commercial research use only.

(b) The commercial license term for each Licensed Product shall continue on a country-by-country and product-by-product basis until the last to expire of the SIGA Patent Rights, WYETH-AYERST Patent Rights or Joint Patent Rights in any country in the Territory to which the license pertains, having at least one Valid Claim that but for the licenses granted herein would be infringed, or until the expiration of ten (10) years from the First Commercial Sale in such country by WYETH-AYERST or its Affiliates, licensees or sublicensees of each such Licensed Product, whichever is later. At the end of the commercial license term for each Licensed Product, the license granted pursuant to 7.1(b) shall be fully-paid and irrevocable. The license for each such Licensed Product shall be deemed a license separate and severable from licenses to other Licensed Products.

7.3 PAYMENT OF ROYALTIES, ROYALTY RATES, ACCOUNTING FOR ROYALTIES AND RECORDS.

7.3.1 Payment of Royalties to SIGA

WYETH-AYERST shall pay SIGA a royalty of \*\*\*\*\* on the first \$\*\*\*\*\* of cumulative Net Sales of Licensed Products. For all sales of Licensed Products after such cumulative amount is reached, WYETH-AYERST shall pay SIGA a royalty based on the Net Sales of Licensed Products in each country as follows:

| FOR ANNUAL NET SALES BETWEEN: | MARGINAL ANNUAL ROYALTY (%) |
|-------------------------------|-----------------------------|
| \$*****                       | *****                       |
| \$*****                       | *****                       |
| \$*****                       | *****                       |

Such royalty shall be determined based on total annual Net Sales of WYETH-AYERST and its Affiliates, licensees and sublicensees of each Licensed Product in each calendar year and shall be payable on an incremental basis, i.e., \*\*\*\*\*% annual royalty is payable on the first \$\*\*\*\*\* Net Sales for a particular calendar year, with \*\*\*\*\*% accruing on the incremental Net Sales over that amount up to and including \$\*\*\*\*\* in Net Sales for that calendar year. Unless otherwise provided by the parties, the obligation to pay royalties shall be imposed on WYETH-AYERST regardless of the entity making Net



Sales. The obligation to pay royalties is imposed only once with respect to the same unit of Licensed Product(s).

7.3.2 Combination Products and Bulk Sales.  
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Royalties due on sales of Licensed Products that are formulated in combination with one or more additional active ingredients shall be calculated by multiplying actual Net Sales of such combination Licensed Products by the fraction  $A/(A+B)$  where A is the invoice price of the combination Licensed Product if sold separately, and B is the total invoice price of any other active component or components in the combination, if sold separately.

If on a country-by-country basis the other active component or components in the combination are not sold separately in said country, Net Sales, for the purpose of determining royalties on the combination Licensed Products shall be calculated by multiplying actual Net Sales of such combination Licensed Products by the fraction  $A/C$  where A is the invoice price of the Licensed Product if sold separately and C is the invoice price of the combination Licensed Product.

If on a country-by-country basis, neither the Licensed Product nor the combination Licensed Product is sold separately in said country, Net Sales for purposes of determining royalties on the combination Licensed Products shall be calculated as above except that WYETH-AYERST shall allocate values to the components A and B based upon a good-faith determination (which must be set forth in writing and provided to SIGA) of the respective contributions of such components to the market value of the combination Licensed Product.

If on a country-by-country basis a Licensed Product is sold in bulk (as distinguished from packaged pharmaceutical form) for resale in packaged or finished form, Net Sales shall be calculated by determining the quantity of Licensed Product in packaged pharmaceutical form that would reasonably be produced from the bulk quantity of Licensed Product so sold, and by multiplying such quantity by the average wholesale market price for such licensed product in packaged pharmaceutical form during the applicable royalty reporting period.

7.3.3 Reduced Royalty.  
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Notwithstanding the foregoing, royalty payments due to SIGA as specified above shall be reduced by \*\*\*\*\* in any country where WYETH-AYERST decided to file a patent application pursuant to Section 6.1 and the Patent Rights related to such patent application do not exist and there is a competitive product against which WYETH-AYERST could have asserted an issued valid patent, had such a valid patent existed.

7.3.4 Outside Technology.  
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If, after application of the credits and reductions set forth in 7.3.2 above, the commercialization of any Licensed Product hereunder becomes infeasible because of the overall level of royalties payable thereon, the parties will in good faith discuss the modification of the economic terms hereof in order to attempt to mitigate such circumstances.

7.3.5 Payment Dates and Reports.  
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Royalties shall be paid by WYETH-AYERST on Net Sales within thirty (30) days after the end of each calendar quarter in the year in which such Net Sales are made. Such payments shall be accompanied by a report showing the quantity and Net Sales of each Licensed Product sold by WYETH-AYERST or any Affiliate, licensee or sublicensee in each country, the applicable royalty rate for such Licensed Product, any credits or offsets to be applied, and a calculation of the amount of royalty due. Payments that are late by fifteen (15) days (after the 30 day due date) will incur a penalty of 1 1/2% per month.

7.3.6 Accounting.  
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The Net Sales used for computing the royalties payable to SIGA hereunder shall be computed, and royalties shall be paid, in U.S. dollars. For purposes of determining the amount of royalties due, the amount of Net Sales in any foreign currency shall be computed by converting such amount into U.S. dollars at the prevailing commercial rate of exchange for purchasing dollars with such foreign currency as reported in The Wall Street Journal on the last business day of the period to which a royalty payment relates.

If SIGA has operations outside the U.S. generating expenses in a country, and if any portion of royalties due hereunder cannot be remitted from such country or converted from local currency to United States dollars because of government control, and it is legally permissible to remit royalties in local currency within the country, then WYETH-AYERST, its Affiliates, licensees or sublicensees shall have the right to deposit in a bank of SIGA's choice in such country and in trust for SIGA that portion of royalties that could not be remitted from the country. If SIGA has operations outside the U.S. generating taxable revenues in a country, SIGA agrees that any tax burden levied by any such country covered by this Agreement on receipt by SIGA of royalties from WYETH-AYERST under this Agreement shall be borne by SIGA. In the event that such tax is required to be withheld by WYETH-AYERST, its Affiliates, licensees or sublicensees, it shall deliver to SIGA a statement including the amount of tax withheld and justification therefor, and such other information as may be necessary for United States foreign tax credit purposes.

7.3.7 Records.  
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WYETH-AYERST, its Affiliates, licensees and sublicensees shall keep for three (3) years from the date of each payment of royalties complete and accurate records of sales by WYETH-AYERST and its Affiliates, licensees and sublicensees of each Licensed Product in sufficient detail to allow the accruing royalties to be determined accurately. SIGA shall have the right for a period of three (3) years after receiving any report or statement with respect to royalties due and payable to appoint an independent certified public accountant reasonably acceptable to WYETH-AYERST to inspect the relevant records of WYETH-AYERST and its Affiliates, licensees and sublicensees to verify such report or statement. WYETH-AYERST and its Affiliates, licensees and sublicensees shall make its records available for inspection by such independent certified public accountant during regular business hours at such place or places where such records are customarily kept, upon reasonable notice from SIGA, solely to verify the accuracy of the reports and payments. Such inspection right shall not be exercised more than once in any year, nor more than once with respect to sales of any Licensed Product in any given payment period. If any inspection by SIGA under this Section 7.3.7 results in a discrepancy of more than 5% of the amounts paid to SIGA under this Agreement, WYETH-AYERST shall promptly reimburse SIGA for the reasonable costs of such inspection. SIGA agrees, and will require that any such certified public accountant shall agree, to hold in strict confidence all information concerning royalty payments and reports, and all information learned in the course of any audit or inspection, except to the extent necessary for SIGA to reveal such information in order to enforce its rights under this Agreement or if disclosure is required by law. The results of each inspection, if any, shall be binding on both parties. SIGA shall pay for such inspections, except that in the event there is any upward adjustment in aggregate royalties payable for any calendar year of more than five percent (5%) of the amount paid, WYETH-AYERST shall pay for such inspection.

7.4 LEGAL ACTION.  
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7.4.1 Actual or Threatened Infringement.  
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In the event either party becomes aware of any possible infringement or unauthorized possession, knowledge or use in the Field, or outside the Field

with a detrimental effect to the R & D Program or otherwise in the Field itself, of any Patent, Confidential Information, or Technology (collectively, an "Infringement"), that party shall promptly notify the other party and provide it with full details. WYETH-AYERST shall be responsible for the prosecution, prevention or termination of any Infringement at WYETH-AYERST's expense and with the sharing of recoveries as specified below. If WYETH-AYERST does not commence an action to prosecute, or otherwise take steps to prevent or terminate an Infringement within one hundred and twenty (120) days from such notice, then with respect to Technology and Patent Rights owned solely by SIGA and Joint Technology and Joint Patent Rights, SIGA shall have the right and option to take such reasonable action as SIGA considers appropriate to prosecute, prevent or terminate such Infringement. If either party determines that it is necessary or desirable for the other to join any such suit, action or proceeding, the second party shall execute all papers and perform such other acts as may be reasonably required in the circumstances.

Each party shall, unless otherwise mutually agreed, bear the cost of any proceeding or suit under this Section 7.4.1 brought by it. In each case, the party bringing suit shall have the right first to reimburse itself out of any sums recovered in such suit or in its settlement for all reasonable costs and expenses, including reasonable attorney's fees, related to such suit or settlement. The remainder is next to be used to reimburse the other party for its reasonable costs and expenses so incurred. Any remaining amounts shall be shared on a 50/50 basis. Each party shall always have the right to be represented by counsel of its own selection and at its own expense in any suit instituted under this Section by the other party for Infringement. If WYETH-AYERST lacks standing and SIGA has standing to bring any such suit, action or proceeding, then SIGA shall do so at the request of WYETH-AYERST and at WYETH-AYERST's expense. In any action under this Section 7.4.1, the parties shall fully cooperate with and assist each other.

#### 7.4.2 Defense of Claims by WYETH-AYERST.

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Notwithstanding anything to the contrary in this Agreement, in the event that any action, suit or proceeding is brought against WYETH-AYERST or any Affiliate, licensee or sublicensee of WYETH-AYERST alleging the infringement of the intellectual property rights of a third party by reason of the discovery, development, manufacture, use, sale, importation or offer for sale of a Licensed Product by WYETH-AYERST or its Affiliates, licensees or sublicensees, WYETH-AYERST shall be relieved of its research and development obligations of Article 2 hereof and may otherwise discontinue any and all development, making, using, offering for sale, importing, and selling of any such affected Licensed Product, until such time as the action, suit, or proceeding is finally adjudicated or settled by the parties with the result that WYETH-AYERST, its Affiliates, licensees, or sublicensees would be free to resume the activities and obligations hereunder. The parties will cooperate with each other in the defense of any such suit, action or proceeding. The parties will give each other prompt written notice of the commencement of any such suit, action or proceeding or claim of infringement and will furnish each other a copy of each communication relating to the alleged infringement.

#### 7.5 TERMINATION AND DISENGAGEMENT.

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7.5.1 This Agreement shall expire automatically upon the earlier of ten (10) years or the last to expire issued patent within Patents in the relevant country of manufacture, use, importation, offer for sale, or sale of each Licensed Product. Upon such expiration, and subject to the provisions of 7.2 hereof, all licenses as granted hereunder to WYETH-AYERST shall be fully paid-up and irrevocable.

7.5.2 This Agreement may be earlier terminated by WYETH-AYERST in its independent discretion at any time upon ninety (90) days prior written notice, subject to the payment of research funds for the initial \*\*\*\*\* years of the Research Term and subject to the additional research payments of Article 3 hereof that have accrued as of the date of notice of such termination. Upon

such early termination, all WYETH-AYERST rights granted pursuant to 7.1(a) hereof to SIGA Technology and Patents, and SIGA'S interests in Joint Patents and Joint Technology, shall revert to SIGA. All rights granted WYETH-AYERST pursuant to 7.1(b) hereof shall also revert to SIGA, except with respect to any Compound that has been identified in the R & D Program as of the date of notice of such termination, but subject to the continued research funding obligations of Section 3.2 hereof as respects each such identified Compound and subject to the royalty obligations of Section 6.4 hereof as respects each such Compound.

7.5.3 WYETH-AYERST may terminate the R & D Program at its sole discretion (i) in the event of the "Acquisition" of SIGA by a third party, (ii) if SIGA is no longer generally engaged in Protease research as a primary business activity or is generally unable to perform the types of obligations set forth herein due to a change in its business objectives, (iii) if SIGA fails to deliver sufficient quantities of Protease pursuant to Section 2.1.3, or (iv) if there has been an action or other proceeding brought in accordance with Section 7.4.2 hereof. For purposes hereof, an "Acquisition" shall be deemed to have occurred if SIGA shall consolidate or merge with another entity, or convey, sell or lease to another entity all or substantially all of the stock, assets or business of SIGA and its subsidiaries, taken as a whole, or suffer a Change in Control in which another entity shall come to control SIGA. "Change of Control" as used herein shall mean any transaction or event as a result of which any other entity acquires or for the first time controls and is able to vote without restriction (directly or through nominees or beneficial ownership) more than fifty percent (50%) or more of the capital stock of SIGA outstanding at the time having the power ordinarily to vote for directors of SIGA.

Any termination of the R & D Program under this Section by WYETH-AYERST shall be without prejudice to the rights of either party against the other, then accruing or otherwise accrued under this Agreement. The license granted to WYETH-AYERST pursuant to Section 7.1(b) hereof shall survive early termination of the R & D Program by WYETH-AYERST under this Section as to Compounds already identified as a result of the R & D Program and designated for IND Track Status or under active evaluation for such status at the time of termination. Further, as of the effective date of such early termination by WYETH-AYERST of the R & D Program, WYETH-AYERST shall be released from its future obligations of research funding, except for any obligations which have accrued but have not been satisfied as of such termination date.

7.5.4 SIGA may terminate this Agreement in its sole discretion if WYETH-AYERST has not identified a Compound for Pre-Project Status following the completion of the Research Term and is not actively pursuing such identification, as set forth in Section 2.4.2.

7.5.5 Either party shall have the right to terminate this Agreement by giving notice to the other party of its election to that effect in accordance with the notice provisions hereof, in any of the following events:

- (i) If a party assigns or makes any composition or sequestration of its assets for the benefit of its creditors; or
- (ii) If a party becomes insolvent, goes into liquidation, files a petition in bankruptcy, is adjudicated bankrupt, is placed in judicial receivership or provisional administration, or dissolves, or its financial condition is such that it is unable to pay its bills and obligations as and when due and payable to its creditors.

7.5.6 Notwithstanding any other provisions of this Agreement, either party, at its option, may terminate this Agreement on ninety (90) days' prior written notice served by a party should the other party fail to comply with or perform its obligations hereunder (including without limitation, WYETH-AYERST's obligation to adhere to the Global Development Plan), unless such failure or non-performance is corrected within the ninety (90) day period following

notification, or such extended period as shall be agreed between the parties; and further provided, that if the nature of the breaching party's obligation is such that more than ninety (90) days is required for cure, then such party shall not be in default if it shall have commenced performance to cure within the ninety (90) day period and thereafter diligently attempts to complete performance of cure; and further provided that as to any alleged breach expressly set forth with reasonable detail to be the subject of a good faith dispute, the remainder of said ninety (90) day period shall be tolled until the dispute is resolved. Termination of this Agreement with respect to a particular Licensed Product, shall not give rise to grounds for termination of the Agreement in its entirety or as to any other Licensed Product. Termination of this Agreement with respect to the R & D Program shall not give rise to grounds for termination of the Agreement as to a Licensed Product already under development and not the subject of the incurred material breach.

7.5.7 Effect of Termination for Cause.  
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Upon termination by WYETH-AYERST pursuant to Section 7.5.5 or 7.5.6, the licenses granted to WYETH-AYERST pursuant to 7.1(a) and 7.1(b) shall survive, subject to the earned royalty and related provisions of Sections 7.3.1 through 7.4.2 hereof, respecting WYETH-AYERST's sale of Licensed Product.

Subject to all other terms and conditions herein, and upon termination by SIGA under Sections 7.5.4, 7.5.5 or 7.5.6 hereof, the licenses granted pursuant to 7.1(a) and 7.1(b) shall revert to SIGA.

7.5.8 Upon termination by SIGA for any reason and upon the reasonable request of WYETH-AYERST, SIGA shall grant a direct commercial license, pursuant to 7.1(b) hereof, to any licensee or sublicensee of WYETH-AYERST with respect to any Compound already identified in the R & D Program prior to said termination and which would be affected by such termination. The terms and conditions of this Article 7 shall apply to such license unless otherwise agreed by the parties and such licensee or sublicensee.

7.5.9 Upon termination of this Agreement, except termination by WYETH-AYERST under Sections 7.5.3, 7.5.5 and 7.5.6 hereof, and upon SIGA's express written request, WYETH-AYERST will provide to SIGA all copies of data, test results, and any other information, reports, or written materials related to the R & D Program, if same has not already been provided to SIGA pursuant to Paragraph 2.4.3 hereof or otherwise; and further, WYETH-AYERST shall make available for inspection and review by SIGA, under appropriate terms of confidentiality and limited use, all copies of regulatory filings and related materials, data and test results, including clinical studies, related to Licensed Products.

7.5.10 Surviving Provisions.  
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Termination of this Agreement for any reason shall be without prejudice to the rights and obligations of the parties provided in Article 4, Sections 5.2, 5.5, 7.7, Article 9, Section 10.1, and Article 11, all of which shall survive such termination.

7.6 WARRANTY DISCLAIMER.  
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EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY WARRANTY WITH RESPECT TO ANY TECHNOLOGY, INFORMATION, PATENTS, GOODS, SERVICES, RIGHTS OR OTHER SUBJECT MATTER OF THIS AGREEMENT AND HEREBY DISCLAIMS WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT WITH RESPECT TO ANY AND ALL OF THE FOREGOING.

7.7 LIMITED LIABILITY.  
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NOTWITHSTANDING ANYTHING ELSE IN THIS AGREEMENT OR OTHERWISE, NEITHER SIGA NOR WYETH-AYERST WILL BE LIABLE TO THE OTHER WITH RESPECT TO ANY SUBJECT MATTER OF THIS AGREEMENT UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL

OR EQUITABLE THEORY FOR (I) ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES OR LOST PROFITS OR (II) COST OF PROCUREMENT OF SUBSTITUTE GOODS, TECHNOLOGY OR SERVICES.

8. REPRESENTATIONS AND WARRANTIES  
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8.1 MUTUAL REPRESENTATIONS.  
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SIGA and WYETH-AYERST each represents and warrants as follows:

8.1.1 Organization.  
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It is a corporation duly organized, validly existing and is in good standing under the laws of the State of Delaware and the State of Delaware respectively, and it and/or its Affiliates are qualified to do business and is in good standing as a foreign corporation in each jurisdiction in which the performance of its obligations hereunder requires such qualification and has all requisite power and authority, corporate or otherwise, to conduct its business as now being conducted, to own, lease and operate its properties and to execute, deliver and perform this Agreement.

8.1.2 Authorization.  
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The execution, delivery and performance by it of this Agreement have been duly authorized by all necessary corporate action and do not and will not (a) require any consent or approval of its stockholders or (b) violate any provision of any law, rule, regulation, order, writ, judgment, injunction, decree, determination or award presently in effect having applicability to it or any provision of its charter documents.

8.1.3 Binding Agreement.  
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This Agreement is a legal, valid and binding obligation of it enforceable against it in accordance with its terms and conditions.

8.1.4 No Inconsistent Obligation.  
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It is not under any obligation to any person, or entity, contractual or otherwise, that is conflicting or inconsistent in any respect with the terms of this Agreement or that would impede the diligent and complete fulfillment of its obligations.

8.1.5 Governmental Consents.  
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No consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state or local governmental authority is required on the part of either party in connection with the valid execution, delivery and performance of this Agreement, except for any filings under any applicable securities laws and except for any filing under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended. The filings under securities laws, if any, will be effected by SIGA at its cost within the applicable stipulated statutory period. Any filings under the Hart-Scott-Rodino Antitrust Improvements Act, if any, will be effected by the parties hereto within thirty (30) days after the Effective Date. If a Hart-Scott-Rodino filing is effected by the parties, the costs attendant thereto shall be borne equally by the parties. If this Agreement is enjoined under Hart-Scott- Rodino, then this Agreement shall be null and void and any and all research funding made to SIGA under Article 3 shall be returned to WYETH-AYERST.

8.1.6 Intellectual Property.  
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It (a) owns or is the licensee in good standing of all Patent Rights, technology, trade secrets and other intellectual property to be used by it in connection with this Agreement; (b) has received no notice of infringement or misappropriation of any alleged rights asserted by any third party in relation

to any technology to be used by it in connection herewith; (c) is not in default with respect to any license agreement related hereto; and (d) is not aware of any patent, trade secret or other right of any third party which could materially adversely affect its ability to carry out its responsibilities hereunder, or the other party's ability to exercise or exploit any license granted to it under this Agreement. Such party agrees to immediately notify the other party in writing in the event such party hereafter receives a notice of the type referred to in (b) above, becomes in default under any license agreement referred to in (c) above, or becomes aware of any patent, trade secret or other right of the nature referred to in (d) above.

8.1.7. Litigation.  
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There is no action, suit, proceeding or investigation pending or currently threatened against it which questions the validity of this Agreement or the right to enter into such instrument or to consummate the transactions contemplated hereby.

9. INDEMNIFICATION  
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Each party shall indemnify, defend and hold harmless the other party, its Affiliates and their respective directors, officers, employees, and agents and their respective successors, heirs and assigns, against any liability, damage, loss or expense (including reasonable attorneys' fees and expenses of litigation) incurred by or imposed upon such indemnified party, or any of them, in connection with any claims, suits, actions, demands or judgments of third parties, including without limitation personal injury and product liability matters (except in cases where such claims, suits, actions, demands or judgments result from a willful material breach of this Agreement, gross negligence or willful misconduct on the part of the indemnifying party arising directly out of any actions of the indemnifying party in the performance of the R & D Program or arising out of the development, testing, production, manufacture, promotion, import, sale or use by any person of any Licensed Product manufactured or sold by WYETH-AYERST or by an Affiliate, licensee, sublicensee, distributor or agent of WYETH-AYERST.

10. DISPUTE RESOLUTION  
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10.1 SENIOR OFFICIALS.  
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The parties recognize that a bona fide dispute as to certain matters may from time to time arise during the term of this Agreement which relates to either party's rights and/or

obligations hereunder. In the event of the occurrence of such a dispute, either party may, by notice to the other party, have such dispute referred to their respective senior officials designated below or their successors, for attempted resolution by good faith negotiations within thirty (30) days after such notice is received. Said senior officials shall be designated by the parties upon execution of this Agreement.

11. MISCELLANEOUS  
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11.1 PAYMENT METHOD.  
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Each payment to SIGA under this Agreement shall be paid by WYETH-AYERST in U.S. currency by wire transfer of funds to an account of SIGA in accordance with instructions provided by SIGA.

11.2 NOTICES.  
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All notices shall be in writing mailed via certified mail, return receipt requested, courier providing evidence of delivery, or facsimile transmission with confirmation of receipt requested, addressed as follows, or to such other address as may be designated by notice so given from time to time:

If to WYETH-AYERST:

WYETH-AYERST LABORATORIES  
555 East Lancaster Avenue  
St. Davids, Pennsylvania 19087  
Attention: Senior Vice President  
Global Business Development

With a copy to:

Associate General Counsel  
AMERICAN HOME PRODUCTS CORPORATION  
One Campus Drive  
Parsippany, New Jersey 07054

If to SIGA:

SIGA Pharmaceuticals, Inc.  
666 Third Avenue, 30th Floor  
New York, NY 10017  
Attn: President

With a copy to:

Eilenberg & Zivian  
666 Third Avenue, 30th Floor  
New York, NY 10017  
Attn: Jeffrey D. Abbey, Esq.

Notices shall be deemed given as of the date received as evidenced by confirmation of receipt.

11.3 GOVERNING LAW AND JURISDICTION.  
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This Agreement shall be governed by and construed in accordance with the laws of the state of New Jersey, U.S.A., without regard to the application of principles of conflicts of law, except with regard to issues of patent law, which shall be determined with reference to the substantive laws of the country in question.

11.4 BINDING EFFECT.  
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This Agreement shall be binding upon and inure to the benefit of the parties and their respective legal representatives, successors and permitted assigns.

11.5 HEADINGS.  
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Section and subsection headings are inserted for convenience of reference only and do not form a part of this Agreement.

11.6 COUNTERPARTS.  
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This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original.

11.7 AMENDMENT: WAIVER.  
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This Agreement may be amended, modified, superseded or canceled, and any of the terms may be waived, only by a written instrument executed by each party or, in the case of waiver, by the party or parties waiving compliance. The delay or failure of any party at any time or times to require performance of any provisions shall in no manner affect the rights at a later time to enforce the same. No waiver by any party of any condition or of the breach of any term contained in this Agreement, whether by conduct, or otherwise, in any



one or more instances, shall be deemed to be, or considered as, a further or continuing waiver of any such condition or of the breach of such term or any other term of this Agreement.

11.8 NO THIRD PARTY BENEFICIARIES.  
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Except as set forth in Section 10, no third party, including any employee of any party to this Agreement, shall have or acquire any rights by reason of this Agreement.

11.9 NO AGENCY OR PARTNERSHIP.  
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Nothing contained in this Agreement shall give either party the right to bind the other, or be deemed to constitute the parties as agents for the other or as partners with each other or any third party.

11.10 ASSIGNMENT AND SUCCESSORS.  
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This Agreement may not be assigned by either party without the consent of the other, which consent shall not be unreasonably withheld, except that each party may, without such consent, assign this Agreement and the rights, obligations and interests of such party, in whole or in part, to any of its Affiliates, to any purchaser of all or substantially all of its assets to which the subject matter of the Agreement relates, or to any successor corporation resulting from any merger or consolidation of such party with or into such corporation.

11.11 AFFILIATE AGREEMENTS.  
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WYETH-AYERST may, from time to time after Pre-Project Status has been granted to an Licensed Product, request and SIGA agrees to execute separate license agreements for such Licensed Product under Section 8.1(b) hereof in mutually satisfactory form ("Affiliate Agreements") separately granting to American Home Products Corporation, or separately granting directly to any Affiliate, equivalent rights as granted to WYETH-AYERST in Section 8.1(b) hereof, in any country or countries within the Territory. Any such Affiliate Agreement entering into force under this Section shall be prepared by WYETH-AYERST, subject to review and approval by SIGA, and shall contain terms and conditions consistent with those of this Agreement, subject only to such modifications as may be required by the laws or regulations of the country or countries having jurisdiction over any such Affiliate Agreement, including, but not limited to, governmentally required changes in the rate of payment, restrictions against the remittance thereof and limitations upon the term or duration of any such Affiliate Agreement. In those countries in which any such Affiliate Agreement requires prior government approval or registration, such Affiliate Agreement shall not be binding or have any force or effect until the required government approval or registration has been granted. All Affiliate Agreements shall be deemed to be severable and independent with respect to this Agreement and to each other.

11.12 FORCE MAJEURE.  
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For a period of one (1) year from each occurrence thereof, neither WYETH-AYERST nor SIGA shall be liable for failure of or delay in performing obligations set forth in this Agreement, and neither shall be deemed in breach of its obligations, if such failure or delay is due to natural disasters or any causes beyond the reasonable control of WYETH-AYERST or SIGA. In event of such force majeure, the party affected thereby shall use reasonable efforts to cure or overcome the same and resume performance of its obligations hereunder.

11.13 INTERPRETATION.  
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The parties hereto acknowledge and agree that: (i) each party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its

revision; (ii) the rule of construction to the effect that any ambiguities are resolved against the drafting party shall not be employed in the interpretation of this Agreement; and (iii) the terms and provisions of this Agreement shall be construed fairly as to all parties hereto and not in a favor of or against any party, regardless of which party was generally responsible for the preparation of this Agreement.

11.14 INTEGRATION: SEVERABILITY.  
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This Agreement is the sole agreement with respect to the subject matter hereof and merges and supersedes all other agreements and understandings between the parties with respect to same, including but not limited to the Confidentiality Agreement between SIGA and WYETH-AYERST dated February 29, 1996. If any provision of this Agreement is or becomes invalid or is ruled invalid by any court of competent jurisdiction or is deemed unenforceable, it is the intention of the parties that the remainder of this Agreement shall not be affected.

11.15 EXPORT CONTROLS.  
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This Agreement is made subject to any restrictions concerning the export of Licensed Products, Confidential Information, or Technology from the United States which may be imposed upon or related to either party to this Agreement from time to time by the Government of the United States. Neither party will export, directly or indirectly, any Confidential Information, Technology or any Licensed Products utilizing such Confidential Information or Technology to any countries for which the United States Government or any agency thereof at the time of export requires an export license or other governmental approval, without first obtaining the written consent to do so from the Department of Commerce or other agency of the United States Government when required by applicable statute or regulation.

Without limitation of the foregoing, and in support of maintaining a general license for the export of technical data under this Agreement, a party receiving an export agrees to not knowingly export or reexport any technical data or materials furnished to such party under this Agreement, any part thereof or any direct product thereof, directly or indirectly, without first obtaining permission to do so from the United States Department of Commerce, the United States Food and Drug Administration and/or other appropriate United States governmental agencies, into Afghanistan, the People's Republic of China, South Africa, Namibia, Iran, Iraq, Syria, or any other country subject to applicable terrorist or foreign policy controls, or any of those countries listed from time to time in supplements to Part 770 to Title 15 of the Code of Federal Regulations in Country Groups Q, S, W, Y or Z.

11.16 SECTION 365(n) OF THE BANKRUPTCY CODE.  
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All rights and licenses granted under or pursuant to any section of this Agreement are, and shall otherwise be, deemed to be, for purposes of Section 365(n) of the Bankruptcy Code, licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code. The parties shall retain and may fully exercise all of their respective rights and elections under the Bankruptcy Code. Upon the bankruptcy of either party, the non-bankrupt party shall further be entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property, and such, if not already in its possession, shall be promptly delivered to the non-bankrupt party.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives.

AMERICAN HOME PRODUCTS CORPORATION  
REPRESENTED BY ITS WYETH-AYERST  
LABORATORIES DIVISION

By: /s/ Robert I. Levy  
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Title: President Wyeth Ayerst Research  
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Date: July 8, 1997  
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SIGA

By: /s/ Judson A. Cooper  
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Title: Executive Vice President  
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Date: July 8, 1997  
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[Collaborative Evaluation Agreement between the Company and Chiron Corporation]

COLLABORATIVE EVALUATION AGREEMENT

This Agreement is made by and between Chiron Corporation, 4560 Horton Street, Emeryville, California 94608 ("Chiron"), and SIGA Pharmaceuticals, Inc., 666 Third Avenue, 30/th/ Floor, New York, New York 10017 ("SIGA"), effective July 1, 1997, as follows:

1. Evaluation. Chiron and SIGA desire to collaborate on evaluating the

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utility of gram-positive commensal bacteria as vectors for inducing mucosal immunity as set forth in the SIGA/Chiron Research Project proposal attached hereto as Exhibit A and incorporated herein (the "Evaluation").

2. Materials:

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2.1 Chiron Materials: Chiron shall provide its proprietary HSV gd2

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and HIV gp120 and gp120 V3 loop plasmids (the "Chiron Materials") to SIGA solely for SIGA's use in conducting the Evaluation. Chiron retains sole ownership of the Chiron Materials. SIGA may not use the Chiron Materials for any other purpose, nor may SIGA take, send or otherwise provide the Chiron Materials to any third party except as expressly permitted herein, without Chiron's prior written approval.

2.1.1 Chiron acknowledges that SIGA plans to perform part or all of the Evaluation at laboratory facilities located at Rockefeller University, Oregon State University and/or Emory University under the direction of one or more SIGA employees as described in Exhibit A, and Chiron hereby consents to such performance.

2.1.2 SIGA represents and warrants that all personnel, including employees of SIGA, Rockefeller University, Oregon State University and/or Emory University, who will be involved in the performance of the Evaluation are and shall be bound by: (a) confidentiality obligations at least as strict as those set forth herein; and (b) an obligation to assign all Inventions (as defined in Section 3 herein) to SIGA and to cooperate with SIGA in connection with patenting such Inventions. SIGA agrees that it will not permit persons not bound by such obligations to work on the Evaluation.

2.2 SIGA Materials: SIGA owns and/or has licensed certain gram-

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positive commensal bacteria and related technology, including without limitation the gram-positive commensal bacteria and related technology licensed from Rockefeller University, Oregon State University and/or Emory University (the "SIGA Materials"). SIGA retains sole ownership of the SIGA Materials.

2.3 Joint Materials: Using the SIGA Materials, SIGA shall make

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recombinant constructs expressing heterologous genes contained within the Chiron Materials (the "Joint Materials") and shall provide the Joint Materials to Chiron solely for its performance of the Evaluation. Subject to the terms of this Agreement, Chiron and SIGA shall jointly own the Joint Materials. Neither Chiron nor SIGA may take, send or otherwise provide the Joint Materials to any

third party without the prior written approval of both Chiron and SIGA.

3. Results, Inventions and Invention Disclosures.  
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3.1 Chiron and SIGA shall jointly evaluate the results of the Evaluation and the Joint Materials and shall consult with each other as needed regarding the proposed course of the Evaluation. For the purposes of this Agreement, the results of the Evaluation shall be considered Confidential Information of Chiron and SIGA as defined in Section 4 herein.

3.2 Invention; Invention Disclosure. Each party shall promptly  
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provide a full written disclosure to the other (an "Invention Disclosure") describing any invention, improvement, or discovery arising out of its conduct of the Evaluation (an "Invention").

4. Confidentiality and Non-Use Obligations. During the course of the  
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Evaluation Chiron and SIGA may each provide confidential information, including but not limited to each party's proprietary materials, research and development data and plans, proprietary technologies, business or research strategies, trade secrets and material embodiments thereof (each party's "Confidential Information"), to the other solely for the recipient's conduct of the Evaluation.

4.1 Confidential Information shall be provided in writing, marked "confidential", or if disclosed orally, reduced to writing, marked "confidential", and provided to the recipient within thirty (30) days of such oral disclosure.

4.2 The recipient shall maintain the disclosing party's Confidential Information in confidence. The recipient shall use the disclosing party's Confidential Information solely for its conduct of the Evaluation, unless the recipient has received the prior written approval of the disclosing party.

4.3 The recipient's obligations hereunder shall not apply to any information which: (i) can be shown by contemporaneous documentation of the recipient to have been in its possession prior to receipt from the disclosing party; (ii) is or becomes, through no fault of the recipient, publicly known; (iii) is furnished to the recipient by a third party without breach of a duty to the disclosing party; (iv) is independently developed by the recipient without access to the disclosing party's Confidential Information; or (v) is required to be disclosed by operation of law, provided that the disclosing party has received advance notice of the proposed disclosure by the recipient.

4.4 Upon request by the disclosing party, the recipient shall return or provide satisfactory evidence of the destruction of all Confidential Information furnished hereunder and any notes, copies, summaries or extracts thereof, provided that the recipient may retain one (1) copy of the disclosing party's Confidential Information in its legal archives in order to monitor its obligations hereunder.

5. Intellectual Property Rights. Chiron and SIGA acknowledge that the  
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conduct of the Evaluation may result in Inventions or know-how of commercial value, and they agree to collaborate so as to protect the proprietary nature of such Inventions or know-how. Inventorship of any Inventions arising from the conduct of the Evaluation shall be determined by the patent laws of the

United States and, subject to the terms of this Agreement, ownership shall follow therefrom. SIGA represents and warrants that its conduct of the Evaluation will not result in the creation of any rights to any third parties. Except as expressly set forth in this Agreement, no party shall obtain rights in or a license to any patent, copyright, trademark or other property right of the other.

5.1 Definitions: As used in this Agreement:  
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5.1.1 "Chiron Inventions" shall mean Inventions invented solely by Chiron employees or persons obligated to assign their Inventions to Chiron. Chiron retains all right, title, and interest in and to all Chiron Inventions.

5.1.2 "SIGA Inventions" shall mean Inventions invented solely by employees of SIGA or persons obligated to assign their Inventions to SIGA. Subject to the provisions of Section 6 herein, SIGA retains all right, title, and interest in and to all SIGA Inventions.

5.1.3 "Joint Inventions" shall mean Inventions invented jointly by employees of Chiron or persons obligated to assign Inventions to Chiron, and employees of SIGA or persons obligated to assign Inventions to SIGA. Subject to the provisions of Section 6 herein, Chiron and SIGA shall jointly own all Joint Inventions.

5.2 Right to File Patents:  
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5.2.1 Each party shall have the sole right to file, prosecute and maintain patent applications and patents with respect to its solely owned materials and Inventions, at its sole expense.

5.2.2 With respect to Joint Inventions, the parties shall mutually determine which party shall file, prosecute and maintain patent applications and patents on behalf of the parties jointly. Unless otherwise agreed, the parties shall share equally all out-of-pocket patent costs with respect to such Joint Inventions.

6. License and Option Rights.  
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6.1 Subject to each party's obligations hereunder regarding the Joint Materials and each party's Confidential Information, Chiron and SIGA shall each have a co-exclusive license, without the right to sublicense, to use the results of the Evaluation solely for its internal research purposes.

6.2 Chiron shall also have a right of first negotiation with regard to a license in any patents or patent applications relating to any SIGA Invention or Joint Invention, and in any patents or patent applications owned or licensed by SIGA necessary to practice SIGA Inventions and Joint Inventions. Chiron must notify SIGA in writing of its intent to negotiate such license within ninety (90) days after its receipt of SIGA's Invention Disclosure and completion of the Evaluation or termination of this Agreement, whichever is later. If Chiron does not so notify SIGA or if the parties are unable to enter into a license agreement on mutually satisfactory terms, then SIGA shall have the

right to license any such patents or patent applications to any third party.

7. Publications. Chiron and SIGA are free to present or publish the

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findings of the Evaluation in a thesis, scientific publication, or public, noncommercial conference provided that: (a) no Chiron Confidential Information is revealed by SIGA, and no SIGA Confidential Information is revealed by Chiron thereby; and (b) at least thirty (30) days prior to submission thereof to a publisher or any third party, the publishing party shall have delivered copies of the proposed presentation or publication to the other party for review. Said other party may, within forty five (45) days of such delivery, object to the publication or presentation because there would be a disclosure of Chiron or SIGA Confidential Information, or because there is patentable subject matter in which said other party has an interest which needs protection. Upon written objection, Chiron or SIGA shall refrain from disclosing the other's Confidential Information. Upon written objection regarding disclosure of patentable subject matter, Chiron and SIGA shall, for up to ninety (90) days from initial delivery, delay disclosing such patentable subject matter in order to permit the filing of patent applications thereon. The parties shall, in any publication, acknowledge the contributions and publications of the other as scientifically appropriate.

8. Compliance with Law. Each party shall conduct the Evaluation in

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compliance with all applicable laws and regulations including, where applicable, those relating to the treatment of laboratory animals and current NIH guidelines. Each party shall use any materials received from the other only in laboratory animals or in in vitro experiments, and not in human beings.

9. Indemnification. Except to the extent caused by the negligence or

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willful misconduct of the indemnified party, its employees, agents or representatives, each party shall indemnify and hold the other harmless from and against any loss, cost, expense, damages or liability, including reasonable attorney's fees, arising at any time in connection with the indemnified party's conduct of the Evaluation.

10. Notices. Routine notices of conditions or situations affecting the

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Evaluation shall be given in writing between Drs. Hruby, Fischetti and Jones of SIGA and Dr. Gail Barchfeld of Chiron. All other notices will be given in writing and delivered by mail or facsimile to the parties as follows:

In the case of SIGA:

SIGA Pharmaceuticals  
666 Third Avenue, 30<sup>th</sup>/ Floor  
New York, New York 10017  
Attention: Joshua D. Schein, Ph.D., Chief Financial Officer

In the case of Chiron:

Chiron Corporation  
4560 Horton Street  
Emeryville, California 94608  
Attention: Contracts Administrator, Legal Department

11. Independent Contractor. Neither party, nor their respective employees,

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consultants or representatives, shall be considered employees, partners, or agents of the other party. Neither party may make any representations or commitments on the other party's behalf nor may one party use the other party's name or trademarks in any public disclosure, without the named party's prior written consent.

12. Term, Termination, Amendment and Survival.

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12.1 This Agreement shall terminate on the first anniversary of the effective date of this Agreement.

12.2 This Agreement may be terminated by either party upon thirty (30) days prior written notice to the other party.

12.3 This Agreement may be amended or renewed only with the written agreement of both parties.

12.4 The obligations of Sections 2, 3, 4, 5, 6, 7 and 9 shall survive termination or expiration of this Agreement.

13. Assignment. Neither party not assigned or transfer this Agreement

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without the written consent of the other party, which consent shall be not be unreasonably withheld.

15. Entire Agreement. This Agreement is the entire agreement of the

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parties relating to the Evaluation.

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

CHIRON CORPORATION

SIGA PHARMACEUTICALS

By: /s/ Leander Lauffer

By: /s/ David H. de Weese

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Leander Lauffer, Ph.D.  
Vice President, Business Development  
Chiron Vaccines

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Authorized Representative  
Name: David H. de Weese  
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Title: President and CEO  
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[Consulting Agreement between the Company and Dr. Scott Hultgren]

AGREEMENT

This Agreement made this 9th day of July, 1997 ("Effective Date"), by and between SIGA PHARMACEUTICALS, INC. a Delaware corporation having a place of business at 666 Third Avenue, 30th Floor, New York, NY 10017 (hereinafter "SIGA"), and Dr. SCOTT HULTGREN, an individual residing at 1637 Country Hill Lane, Ballwin, MO 63021 (hereinafter "Individual").

WHEREAS, SIGA is in the business of researching and developing antibiotic products (hereinafter "SIGA Business"); and

WHEREAS, SIGA has and will have certain materials, compounds, compositions, chemicals, biologics owned or controlled by SIGA and/or which SIGA has received from third parties under an obligation of confidentiality (individually and collectively "SIGA Materials") and certain technical and business information which pertains to SIGA Business and/or SIGA Materials which information is owned or controlled by SIGA and/or which is received individually and collectively as "SIGA Information"; and

WHEREAS, Individual is desirous of becoming a consultant to SIGA with respect to SIGA Business; and

WHEREAS, SIGA is desirous of retaining Individual as a consultant with respect to SIGA Business; and

WHEREAS, Individual will have access to SIGA Material and SIGA Information; and

NOW, THEREFORE, in consideration of the mutual promises and other good and valuable consideration, the parties hereto agree as follows:

1.(a) Individual shall provide consulting services, as requested by SIGA with respect to SIGA Business for a period of one (1) year from the Effective Date of this Agreement. This Agreement may be extended for up to four (4) additional one year terms by mutual agreement.

(b) Individual's consulting services will include:

I) providing scientific scrutiny of programs funded by SIGA with respect to the appropriateness of its research and development programs and potential impact of alternative technologies;

II) advising SIGA concerning developments in research and the potential of such developments as a basis for developing new products;

III) recommending persons who might be appropriate as consultants or scientific staff for SIGA;

IV) membership on the Scientific Advisory Board ("SAB") of SIGA, at meetings to be held not more frequently than quarterly.

(c) Individual will also be available for consultation with SIGA by correspondence or telephone, the latter at SIGA's expense, and when necessary for meetings at mutually agreed times and locations, such activities not to exceed twenty (20) days per year.

(d) Individual will consult exclusively for SIGA in the area of SIGA Business while retained as a consultant by SIGA.

2. As compensation for consulting services, pursuant to this agreement, Individual will receive:

(a) Thirty thousand dollars (\$30,000) per year, payable in four equal installments on the first day of each quarter. Payments for partial quarters will be pro rata based on the number of days this Agreement is in effect during such quarters. The first payment will be made within thirty (30) days of the Effective Date.

(b) Individual will also receive reimbursement made in accordance with policy and practice of SIGA for reasonable, authorized, out-of-pocket expenses for each visit to SIGA or such other place as authorized by SIGA, upon presentation of appropriate expense vouchers.

(c) Five thousand (5,000) six (6) year warrants to purchase five thousand (5,000) shares of SIGA common stock at the initial public offering price (the "IPO Price") of the SIGA's Common Stock, par value \$.0001 (the "Warrants"). The Warrants shall vest in 50% increments on the first and second anniversaries of the Effective Date of this Agreement and shall expire on the sixth anniversary of the Effective Date of this Agreement.

(d) The Compensation, reimbursement and Warrants described in this paragraph shall be the only amounts due or payable to the Individual for consulting services provided under this Agreement.

3. Individual hereby agrees to disclose to SIGA promptly in writing any invention, development, information or idea whether patentable or not made and/or conceived by Individual alone or with others in the course of performing consulting services as defined in Paragraph 1 and/or which is based on SIGA Materials or SIGA Information (hereinafter "Developed Technology"). Individual hereby waives whatever rights he may now or hereafter

have in and to any Developed Technology and agrees to execute whatever additional documents may be necessary to perfect such waiver.

4. Individual agrees to assign and hereby does assign to SIGA or its nominee or successor all right, title and interest in and to Developed Technology, and further agrees to execute such further papers, and perform all such acts as may be necessary to perfect such assignment.

5. In the event that SIGA makes or proposes to make any United States or foreign patent applications relating to Developed Technology owned by SIGA pursuant to Paragraph 4, Individual shall cooperate fully with SIGA and its patent counsel in preparing and prosecuting any such application.

6. Individual further agrees tary to enable SIGA to publish or protect Developed Technology owned by SIGA by patent or otherwise in any and all countries and vest title to said patents, inventions, improvements, ideas and applications in SIGA or its nominees, successors or assigns and to render all such assistance as SIGA may require in any patent office proceeding or litigation involving the Developed Technology owned by SIGA.

7. Unless excluded pursuant to Paragraph 8 below, Developed Technology owned by SIGA will be considered to be confidential and will be maintained in confidence by Individual and will not be transferred or disclosed to any person or entity or used by Individual for any purpose other than for the benefit of SIGA.

8. Specifically excluded from the obligations of confidentiality of this Agreement are SIGA Information, SIGA Materials, and Developed Technology:

(a) which at the time of disclosure are already in the public domain;

(b) which Individual can demonstrate by written evidence were in the possession of Individual prior to disclosure by SIGA;

(c) which subsequently become part of the public domain through no fault of Individual;

(d) which become known to Individual subsequent to the disclosure by SIGA through a third party who is not under any obligation of confidentiality to SIGA.

9. The fact that general information may be in or become part of the public domain, in and of itself, does not exclude any specific information or specific material from the obligations of this Agreement.

10. No rights or licenses in or to SIGA Information, SIGA Materials or Developed Technology are granted to Individual by virtue of this Agreement.

11. At the request of SIGA, Individual shall return to SIGA any and all materials and physical documents, whether prepared by SIGA or by Individual, when such materials or documents are, include or incorporate SIGA Materials, SIGA Information or Developed Technology. The term document is used in its broadest sense and include electronic information in the form of discs, tapes, etc.

12. Individual represents and warrants that to the best of his knowledge he is permitted to enter into this Agreement and perform the obligations contemplated thereby and that this Agreement and the terms and obligations thereof are not inconsistent with or in violation of his present employment or with any other obligation he may have.

13. This Agreement constitutes the entire and exclusive Agreement between Individual and SIGA with respect to the subject matter thereof and supersedes any prior or contemporaneous agreements, representations and understandings of the parties with respect thereto. No supplement, modification or amendment of this Agreement shall be binding upon SIGA or Individual unless set forth in a written agreement executed by SIGA and Individual.

14. Except for his present employment with Washington University School of Medicine, Individual agrees that while employed as a consultant for SIGA and for one year after termination of such consulting services he will not directly or indirectly be engaged or be connected with or assist any business, activity or person competing or intending to compete with SIGA Business, whether his involvement shall be as an officer, director, owner, employee, partner, affiliate, consultant, or otherwise.

15. It is the desire and intent of the parties hereto that the provisions of this Agreement shall be enforced to the fs sought. Accordingly, to the extent that a restriction contained in this Agreement is more restrictive than permitted by the laws of any jurisdiction where this Agreement may be subject to review and interpretation, the terms of such restriction, for the purpose only of the operation of such restriction in such jurisdiction, shall be the maximum restriction allowed by the laws of such jurisdiction and such restriction shall be deemed to have been revised accordingly herein.

Individual further consents to personal jurisdiction in the State of New York for the purposes of enforcing this Agreement and further agrees that the State of New York is and shall be a convenient forum and the law of the State of New York shall govern this Agreement without regard to choice of law principles.

16. Individual represents, warrants and agrees that he can and will perform the services required by this Agreement without disclosing or using any confidential information

and/or proprietary information of a third party.

17. If Individual breaches any of his obligations hereunder, in addition to any other remedies it may have, SIGA shall have the right to terminate this Agreement and SIGA's subsequent obligations hereunder and the consulting services of Individual by written notice to Individual.

18. The obligations of Paragraphs 4-12, 14-16, 18 and 19 of this Agreement shall survive any termination of this Agreement.

19. Individual and/or SIGA shall have the right to terminate the consulting services of Individual and SIGA's obligation to compensate Individual by sixty (60) days prior written notice. In the event that the consulting services of Individual are terminated by SIGA under this Paragraph 19 prior to the first anniversary of this Agreement, the obligations of Paragraph 14 shall not be applicable.

20. This Agreement is also terminated (i) if a Technology Transfer Agreement between SIGA and MedImmune, Inc. and related agreements, including an agreement which provides for the funding of the Individual's research program at Washington University, are not executed prior to December 31, 1997; or (ii) if Washington University's conflict of interest review group determines that this Agreement does not meet Washington University's conflict of interest standards.

21. This Agreement is also terminated if it is not subsequently approved by Michael Richman at MedImmune, Inc. and Susan Cullen at Washington University.

IN WITNESS WHEREOF, the parties have signed this Agreement as of the date indicated above.

SIGA PHARMACEUTICALS, INC.

By: /s/ David H. de Weese  
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David H. de Weese  
President and Chief Executive Officer

DR. SCOTT HULTGREN

/s/ Scott Hultgren  
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[Letter of Intent between the Company and MedImmune, Inc.]

July 10, 1997

MedImmune, Inc.  
35 W. Watkins Mill Road  
Gaithersburg, MD 20878

Gentlemen:

This letter sets forth the intention of MedImmune, Inc. ("MedImmune") to enter into an agreement or related series of agreements with SIGA Pharmaceuticals, Inc. ("Siga") pursuant to which Siga will purchase certain technology, intellectual property and related rights in the field of gram negative antibiotics from MedImmune as described below. If acceptable to you, this will evidence our mutual intention to proceed promptly and in good faith to negotiate a definitive agreement substantially on the following terms:

1. Purchase Price. In consideration of the sale of the "Assets" (as

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defined below) to Siga, and the other agreements of MedImmune set forth below, Siga shall issue and transfer to MedImmune 335,530 shares of Siga's common stock (representing 7.5% of the number of shares of common stock outstanding on a fully diluted basis on May 19, 1997), \$.0001 par value per share, pursuant to a separate Stock Purchase Agreement, which shall include provisions related to the registration and resale of the shares acquired by MedImmune. Such shares will be subject only to those restrictions on transferability applicable to the shares held by other 5% stockholders of Siga in connection with the initial public offering of Siga's common stock or applicable securities laws.

2. Sale of Assets. MedImmune shall sell to Siga all of its right, title

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and interest in and to all discoveries and inventions, and related patents and patent filings, if any, related to the field of gram negative antibiotic targets, products, processes and services for all human and animal uses, and all related intellectual property owned by MedImmune as of the effective date (the "Assets"). The Assets do not include certain intellectual property and related rights which the parties intend will be acquired or licensed by Siga directly from certain universities, faculty members of such Universities, and prior research sponsors of such universities (collectively, the "Collaborators"), as previously discussed by the parties. MedImmune shall in good faith take all reasonable actions necessary to transfer and assign the Assets to Siga, including the execution of documents, instruments and further agreements as Siga may request, and will allow Siga personnel to visit and work with MedImmune personnel directly to effect such transfer and assignment.

3. Further Assignments. MedImmune and Siga will assist each other in

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good faith to execute appropriate agreements with each of the Collaborators in order to enable Siga

to acquire, or otherwise receive an appropriate grant of rights to, the intellectual property of each of the Collaborators in the field of gram negative antibiotics previously identified by

Siga and MedImmune, including without limitation (i) appropriate amendments to and assignments of existing agreements between MedImmune and the Collaborators, respectively, (ii) continuing research agreements with certain of the Collaborators on terms and conditions substantially similar to those currently or previously in effect between MedImmune and such Collaborators, and (iii) license agreements as appropriate on terms and conditions substantially similar to those currently in effect or offered to MedImmune by any of the Collaborators.

4. Further Covenants. MedImmune and Siga will define certain services

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which at its discretion MedImmune will provide to Siga in the field of gram negative antibiotics, including guidance and support in the development by Siga of compounds based on the Assets, development of patent protection strategies, and the conduct of animal testing on Siga compounds and products. MedImmune shall also have the right to perform certain clinical, clinical trial and regulatory compliance and development services as requested by Siga from time to time. MedImmune will also provide Siga with appropriate representations and warranties concerning MedImmune's ownership or other interests in the Assets as of the effective date, and the parties will provide each other with customary indemnifications concerning the sale of the Assets to Siga and the use of the Assets by Siga. (The foregoing does not include a representation by MedImmune as to the validity of any patents, however.) Further, for a period of five years from the execution of definitive agreements, Siga will agree to refrain from attempting to develop or develop any vaccine technology using the Assets, and MedImmune will agree to refrain from attempting to develop or develop any product or technology within the field of gram negative antibiotics; provided, however, that this restriction shall not apply to MedImmune if there is a change in the ownership of MedImmune due to sale, merger or similar transaction.

Siga and MedImmune agree to use their good faith efforts to expeditiously negotiate and finalize the agreements necessary to implement the foregoing transactions at the earliest reasonable date, but acknowledge and agree that this letter is not binding and neither party shall be obligated to proceed with the transaction described above prior to the execution of definitive agreements and instruments acceptable to each party. The definitive agreements shall contain such additional matters as are customary in transactions of the nature described above and which are mutually acceptable to the parties. Such termination shall not affect, limit or otherwise terminate any agreements of confidentiality entered into between the parties prior or subsequent to the date of this Letter of Intent. Each party shall bear its own legal and other expenses in connection with this letter of intent, the purchase and sale of the Assets, the issuance of the Shares, and the negotiation and execution of definitive agreements.



We look forward to your acceptance by returning to us a fully-executed copy of this Letter of Intent where indicated below.

Sincerely,

SIGA Pharmaceuticals, Inc.

By: /s/ Joshua D. Schein

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Its Executive Vice President

Accepted and agreed as of the date written above, by:

MedImmune, Inc.

By: /s/ David Mott

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Its President & C.O.O.  
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SIGA Pharmaceuticals, Inc.  
Computation of Per Share Earnings

Exhibit 11

|                                                                                 | December 31, 1996 |                  |                                  | December 31, 1995 |                                  |
|---------------------------------------------------------------------------------|-------------------|------------------|----------------------------------|-------------------|----------------------------------|
|                                                                                 | Shares            | Days Outstanding | Weighted Avg. shares outstanding | Days Outstanding  | Weighted Avg. shares outstanding |
| Shares to founders                                                              | 2,079,170         | 365              | 2,079,170                        | 4                 | 2,079,170                        |
| Shares issued in March 1996 private placement                                   | 1,038,008         | 308              | 875,908                          | -                 | -                                |
| Shares issued in September 1996 private placement                               | 250,004           | 95               | 65,070                           | -                 | -                                |
| Cheap stock consideration for shares issued in September 1996 private placement | 100,004(1)        | 270              | 73,976                           | 4                 | 100,004                          |
| Cheap stock consideration for stock options and warrants issued during 1996     | 319,407(2)        | 365              | 319,407                          | 4                 | 319,407                          |
| Weighted average shares outstanding                                             |                   |                  | 3,413,531                        |                   | 2,498,581                        |
| Net loss for period                                                             |                   |                  | \$ (2,268,176)                   |                   | \$ (1,000)                       |
| Net loss per common share                                                       |                   |                  | \$ (0.66)                        |                   | -                                |

|                                                                                 | March 31, 1997 |                  |                                  | March 31, 1996   |                                  |
|---------------------------------------------------------------------------------|----------------|------------------|----------------------------------|------------------|----------------------------------|
|                                                                                 | Shares         | Days Outstanding | Weighted Avg. shares outstanding | Days Outstanding | Weighted Avg. shares outstanding |
| Shares to founders                                                              | 2,079,170      | 90               | 2,079,170                        | 91               | 2,079,170                        |
| Shares issued in March 1996 private placement                                   | 1,038,008      | 90               | 1,038,008                        | 34               | 387,827                          |
| Shares issued in September 1996 private placement                               | 250,004        | 90               | 250,004                          | -                | -                                |
| Cheap stock consideration for shares issued in September 1996 private placement | 100,004        | -                | -                                | 91               | 100,004                          |
| Cheap stock consideration for stock options and warrants issued during 1996     | 319,407        | 90               | 319,407                          | 91               | 319,407                          |
| Weighted average shares outstanding                                             |                |                  | 3,686,589                        |                  | 2,886,408                        |
| Net loss for period                                                             |                |                  | \$ (550,773)                     |                  | \$ (614,700)                     |
| Net loss per common share                                                       |                |                  | \$ (0.15)                        |                  | \$ (0.21)                        |

(1) Gross proceeds from private placement \$750,000  
 Divided by assumed initial offering price per share \$ 5.00  
 -----  
 Calculated shares at offering price 150,000  
 Actual shares issued 250,004  
 -----  
 Cheap stock consideration 100,004  
 =====

(2) Gross proceeds upon exercise of stock options and warrants \$1,708,050  
 Divided by assumed initial offering price per share \$ 5.00  
 -----  
 Calculated shares at offering price 341,610  
 Actual shares issuable upon exercise of stock options and warrants 661,017  
 -----  
 Cheap stock consideration 319,407  
 =====

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the use in the Prospectus constituting part of this Registration Statement on Form SB-2 of our report dated March 3, 1997 relating to the financial statements of SIGA Pharmaceuticals, Inc., which appears in such Prospectus. We also consent to the reference to us under the heading "Experts" in such Prospectus.

PRICE WATERHOUSE LLP  
New York, New York  
July 11, 1997