University of Massachusetts
Polymer Research Center

CUMIRP AGREEMENT VI

This Agreement made this _____day of _____19__ by and between the University of Massachusetts at Amherst, Massachusetts through its Polymer Research Institute, said University being a state university within the Commonwealth of Massachusetts as established under Chapter 648 of the Acts of 1962, as amended with offices at Amherst, Massachusetts (hereinafter called "UNIVERSITY") and _____

_____

_____

WHEREAS, the signatories to this Agreement, together with the signatories of other Agreements of like tenor, intend to join together in a cooperative effort to support a "Center for University of Massachusetts-Industry Research on Polymers" (hereinafter called "CUMIRP") in the Polymer Research Institute at the University of Massachusetts at Amherst, Massachusetts to maintain a mechanism whereby the unique character of the University environment can be used to derive a deeper understanding of polymers through research, stimulate industrial innovation, and at the same time provide the University with enhanced educational capability in the field of polymers.

NOW THEREFORE, for the mutual benefits and considerations each to the other, the parties hereto agree to the following terms, conditions and convenants:

1. The research will be conducted by members of the Polymer Research Institute of the University. From 1980 through 1985, CUMIRP will be supported jointly by industrial sponsors and the National Science Foundation (NSF); continuation of CUMIRP during this period being conditional on the National Science Foundation's participation at the level acceptable to the University. Thereafter, support will be provided solely by the industrial sponsors.

2. Any industrial company incorporated in the United States may become a sponsor of CUMIRP, consistent with applicable state and federal laws and statutes.

3. Any company that becomes a sponsor agrees to maintain sponsorship for at least two consecutive 12 month periods (hereinafter called "sponsor years"); thereafter, such sponsor may continue its participation for subsequent two-year periods. Should any sponsor wish to withdraw from CUMIRP at the end of any year, it must give at least six months' written notice to the Director of the Office of Grant and Contract Administration of the Amherst campus of the University. Should the University wish to terminate CUMIRP following the initial five-year period, it may do so by giving each then participating sponsor one years' written notice of intent to terminate. Should NSF support be decreased or withdrawn, the parties hereto shall be given the opportunity to renegotiate this Agreement. To sponsor a two-year term of CUMIRP commencing on _____, 198_, _____shall contribute $30,000 at the beginning of each year of its sponsorship up to September 1, 1985. Dues for years subsequent to September 1, 1985 will be established by the University upon recommendation of the CUMIRP Steering Committee (hereinafter described). Payment of these dues shall be made to the Controller of the University of Massachusetts at Amherst, and shall be applied to CUMIRP Direct Costs and University Indirect Costs assessed at the rate of 50% of Direct Costs.

4. The research conducted under the CUMIRP, the goals, and the apportionment of research effort will be the responsibility of the CUMIRP Steering Committee consisting of the Principal Investigators, the Head of the Polymer Science and Engineering Department, the Project Director (ex officio), and the Director of the Polymer Research Institute (ex officio). There will be a

CUMIRP Advisory Committee that will include, in addition to University personnel, one representative from each sponsor; the CUMIRP Advisory Committee will function in an advisory capacity. The CUMIRP Advisory Committee will meet semi-annually or at other intervals as required, but not less than once a year. An agenda of the subjects to be addressed at each meeting will be sent to members in advance.

5. There shall be Industry Program Monitors, selected by the sponsors, whose function is to provide a mechanism for technical interchange between sponsor technical personnel and Polymer Research Institute personnel, it being intended thereby to facilitate technology transfer to the sponsors as well as to provide some access to persons in industry who are aware of needs at the marketplace.

6. At least once a year the University will present a review of research activities to sponsors. That review will include a written and oral presentation at a meeting to be held at the University at Amherst, Massachusetts; the meeting will have an agenda, provided to sponsors in advance.
In addition, the University will provide to sponsors: (a) written quarterly summary reports and (b) copies of written progress reports submitted by CUMIRP researchers to the Steering Committee or the project director.

7. The University reserves the right to publish in scientific journals the results of the research conducted under this Agreement. The sponsoring companies, however, shall have the opportunity to review any paper containing any of the results of the research program conducted hereunder prior to submission of the paper for publication and shall have the right, collectively or individually, to delay publication for a period not to exceed one (1) year from the date of submission to the sponsors to permit the filing of desired patent applications on any invention or discovery made under this Agreement.

8. Inventions conceived or first actually reduced to practice in the course of research performed under this Agreement, and all patent rights thereto, will belong to the University. The University will grant a non-exclusive, royalty-free license for the life of any U.S. patent (or patent application) to each industrial company which is a sponsor at the time the particular invention covered by the patent is conceived or first actually reduced to practice, which requests the same in writing, and which agrees to pay a share of patenting costs. These costs will be borne equally by the sponsors who request the license. The University will apply for foreign patents and will grant non-exclusive, royalty-free licenses to such patents under the same terms and conditions as established for U.S. patent application and license issuance in this Paragraph (8) for CUMIRP sponsors and in Paragraph (9) for non-sponsors. Any sponsor that had elected not to request a U.S. license at the time an invention or discovery was first disclosed to the sponsors, and had not agreed to pay a share of patenting costs, may later become entitled to a non-exclusive, royalty-free license for the life of the patent by payment of: (a) a pro-rated share of the costs of patent procurement for the discovery and (b) a one-time fee to be negotiated with the University at the time the license is requested.

9. The University will grant companies not participating as sponsors in the CUMIRP a non-exclusive royalty-bearing license under any United States or foreign patent applications and patents, upon request for such license made in writing to the University, and upon payment of a fee to be determined by the University at the time of license negotiations. In addition, any such license granted to such company will bear a royalty rate reasonable in the field of the invention covered by the patent. Requests from non-participating companies for licenses shall be reviewed by the Steering Committee. Companies which become

sponsors after an invention has first actually been reduced to practice may obtain licenses under this paragraph in the same way as companies not participating as sponsors. No license granted in accordance with this Agreement will be sublicensed by the licensee except to affiliate and subsidiary companies.

10. Although the University will seek the recommendation of the CUMIRP Steering Committee and the advice of the CUMIRP Advisory Committee, determination of whether to file patent applications in the United States or foreign countries will be within the sole discretion of the University. Proposals for patent applications will be submitted to the Steering Committee and placed on the agenda of the next meeting of the Advisory Committee. Outlines of proposals will be transmitted ahead of time to Advisory Committee members.

Patent prosecution procedures will be developed cooperatively by the CUMIRP Advisory Committee, the CUMIRP Steering Committee and the University Patent Committee.

11. Any royalties and fees received by the University under this Agreement will be paid into a CUMIRP Trust Fund to be administered by the CUMIRP Steering Committee and will be applied to facilitate research consistent with furthering CUMIRP objectives including but not thereby limited to paying any University expenses that may occur in the patenting process; EXCEPT THAT in any calendar year, should the amount recovered from said royalties and fees from any individual invention exceed $100,000 after subtracting therefrom appropriate expenditures, the remainder above $100,000 shall be distributed as follows:

(a) 66 2/3% to the University to be distributed as follows:

(1) Payment of inventor's royalty share in accordance with University royalty-sharing schedule

(2) The remainder after payment of inventor's share to be distributed in a ratio of 33 1/3% to the University of Massachusetts/Amherst Research Trust Fund and 66 2/3% to the CUMIRP Trust Fund.

(b) 33 1/3% to be divided equally among the sponsors who were sponsors at the time said individual invention was conceived and first actually reduced to practice.

12. No person in the United States, shall on the grounds of race, creed, color, national origin, sex, physical handicap, religion, veteran status or age be excluded from participation in, be denied the proceeds of, or be subject to discrimination in the performance of this Agreement.

13. This agreement constitutes the entire understanding between the parties hereto and no amendments, modifications, or changes shall have any force and effect unless set forth in a subsequent instrument duly executed by the parties hereto with all the formalities herein.

14. This agreement and all amendments, modifications and changes hereto will be governed by the laws of the Commonwealth of Massachusetts.

Executed as a sealed instrument by the parties hereto through their duly authorized representatives as hereinafter set forth on the date first above written.

	The University of Massachusetts
By:	By:

North Carolina State University

VI. UNIVERSITY/INDUSTRY COOPERATIVE RESEARCH CENTER FOR COMMUNICATIONS AND SIGNAL PROCESSING

PROPOSED AGREEMENT

This Agreement is made this _____ day of _____ 19___ by and between North Carolina State University at Raleigh (hereinafter called "UNIVERSITY") and _____

_____

_____

(hereinafter called "COMPANY").

WHEREAS, the parties to this Agreement intend to join together in a cooperative effort to support a University/Industry Research Center for Communications and Signal Processing (hereinafter called "CENTER") at the UNIVERSITY to maintain a mechanism whereby the UNIVERSITY environment can be used to develop better understandings of communications and signal processing, stimulate industrial innovation, and at the same time provide the UNIVERSITY with strengthened educational capability in these fields.

Now, therefore. for the mutual benefits and considerations each to the other, the parties hereto agree to the following terms and conditions:

A. The center will be operated by certain faculty and students at North Carolina State UNIVERSITY. For the first five years, the center will be supported jointly by industrial sponsors, the National Science Foundation (NSF) and the UNIVERSITY; implementation of the center being conditional on the National Science Foundation's participation and funding at a level acceptable to the UNIVERSITY. Thereafter, support will be provided solely by the industrial sponsors.

B. Any COMPANY incorporated in the United States may become a sponsor of the center, consistent with applicable state and federal laws and statutes.

C. COMPANY agrees to contribute $50,000 annually in support of the center and thereby becomes a sponsor. Payment of these dues shall be made to the North Carolina State University. as a lump sum on or before July 1, October 1, January 1 or April 1 of each year of sponsorship; or in four equal quarterly installments on July 1, October 1, January 1 and April 1, of each year of sponsorship. Checks should be mailed to the Dean of Engineering, P.O. Box 5518, North Carolina State University. Raleigh, NC 27650. Because research of the type to be done by the center takes time and research results may not be obvious immediately, COMPANY should join the center with the intention of remaining a dues paying member for at least three years. However, COMPANY may terminate this agreement by giving the UNIVERSITY 90 days written notice prior to the termination date.

D. The organization and operation of the center will be specified by the center bylaws.

E. There will be an Industrial Research Board composed of one representative from each sponsor. This board makes recommendations on (a) the research projects to be carried out by the center (b) the apportionment of resources to these research projects and (c) changes in the bylaws. The operation of this board is specified in the bylaws.

F. The UNIVERSITY reserves the right to publish in scientific journals the results of the research by the center. COMPANY, however, shall have the opportunity to review any paper containing any of the results of the research program of the center prior to submission of the paper for publication and shall have the right to request a delay in publication for a period not to ex-

ceed one (1) year from the date of submission to the COMPANY to permit the filing of patent applications on any invention or discovery made by the center, provided that COMPANY makes a written request and justification for such delay within ninety (90) days from the date the proposed publication is mailed to the COMPANY. Publication of information shall be permitted at any time, however, following the disclosure of this information by a sponsoring company in any patent application or product.

G. All patents derived from inventions conceived or first actually reduced to practice in the course of research conducted by personnel of the center shall belong to the UNIVERSITY. The UNIVERSITY will obtain an institutional patent waiver from the National Science Foundation to enable the UNIVERSITY to have ownership of all patents developed from this work. The UNIVERSITY agrees that all center sponsors are entitled to a nonexclusive royalty-free license if such license is requested by the sponsors. Companies requesting that patents be taken out on inventions to exercise their rights to a royalty-free license agree to pay for the costs of patent application. In the event that a COMPANY sponsor seeks an exclusive license and such requests are approved by the other company sponsors and the UNIVERSITY, then the UNIVERSITY will negotiate an exclusive fee bearing license through one of its agents. COMPANY has the right to sublicense its subsidiaries and affiliates. In the event of joint inventorship with a COMPANY employee, COMPANY has the right to sub-license subsidiaries and affiliates and other parties required to be licensed by Company's cross-license agreements related to the patent.

H. At the request of the Company, software developed by the center will be copyrighted. Such copyrights will belong to the University. Company shall

be entitled to a nonexclusive, royalty-free license to all copyrights developed by the center. Company will have the right to sub-license its subsidiaries and affiliates.

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FOR THE NORTH CAROLINA STATE UNVERSITY

March 16, 1982

Preliminary Agreement
Washington University and Sungene Technologies Corporation

RESEARCH AGREEMENT

THIS AGREEMENT is entered into this 16th day of February, 1987, and by and between Washington University, whose address is No. 1 Brookings Drive, St. Louis, Missouri 63130 hereinafter called "University," and Sungene Technologies Corporation, a California corporation, with its office and place of business at 3330 Hillview Avenue, Palo Alto, CA 94304 hereinafter called "Sungene".

W I T N E S S E T H:

WHEREAS, University has expertise in, and facilities for research in elucidating the genetic and biochemical basis for virulence of bacterial pathogens and has ongoing research directed at design, construction and evaluation of various protocols to effect protective immunity against said bacterial pathogens;

WHEREAS, Sungene, as part of its ongoing research in molecular biology and plant biotechnology wishes to collaborate with the University on a research program in biochemical products or agents that could be incorporated into animal feeds to induce immunity against bacterial infectious disease agents;

WHEREAS, University is interested in continuing further research on developing novel means for immunization to protect against human and animal infectious diseases;

WHEREAS, Sungene is agreeable to funding and collaborating in the aforementioned research and to providing such technical and patent assistance as the University might require to expedite the research program

and insure patent protection for the results of the research program in exchange for a grant of a right of first refusal from the University to obtain a royalty-bearing, exclusive license for any proprietary technology and patent rights which emanate from the funded research program including previous discoveries and recombinant clones necessary to construct genetically engineered plants and are available from the University as a result of previous research directed by Dr. Roy Curtiss III.

WHEREAS, University, on its part, is desirous of receiving the necessary funding from Sungene for said research, together with the aforesaid technical assistance and assistance in establishing a patent position thereon in exchange for granting to Sungene a right of first refusal to obtain an exclusive, royalty-bearing license for any proprietary technology conceived and developed in said funded research, said proprietary technology being in the form of patentable and unpatentable inventions and discoveries and including use of existing recombinant clones expressing bacterial virulence antigens and available DNA sequence information to facilitate plant genetic engineering by Sungene and are available from the University as a result of previous research directed by Dr. Roy Curtiss III.

NOW, THEREFORE, in consideration of the mutual convenants and premises herein contained, the parties hereto agree as follows:

1. SCOPE OF RESEARCH WORK

A. The work to be performed by the University under this Agreement shall be carried out in accordance with the protocol for the proposed research program in the research protocol entitled "Plant Biotechnology Collaborative Research Between Dr. Roy Curtiss, III of Washington University and Sungene Technologies Corporation" by Dr. Roy Curtiss, III which is attached.

B. The University hereby represents and warrants to Sungene that it has the full right and ability to enter into this Agreement, to transfer to Sungene the tangible technical materials described in Article 8, below, and to perform the research program set forth in Appendix A.

C. The University shall be responsible for obtaining all licenses and consents, if any, required to perform the research program set forth in Appendix A.

2. PERFORMANCE PERIOD

A. The research work under this Agreement shall be performed over a one-(1-)year period beginning on 16 February 1987, and terminating on 15 February 1988 ("Performance Period").

B. In the event research leads are conceived but not fully developed in the Performance Period and/or Sungene determines that it has an interest in the funding beyond the end of the Performance Period, of research work initiated in the Performance Period, the parties hereto agree that Sungene shall have the first option to fund the research work for an additional time period of agreed-upon length. It is further agreed that if the option to fund the research work is taken up by Sungene, the conditions governing the rights of the parties for the results of the research work in any additional performance period shall be identical to those detailed in this Agreement, with the exception that the level of funding may be altered to reflect the agreed upon research program in any subsequent performance period.

3. ESTIMATED COSTS AND PAYMENT

A. The cost to Sungene for performance of research work by Washington University under this Agreement is estimated to be $54,000.00 as detailed in the budget attached hereto as Appendix B. Payments for performance of the research work hereunder shall be made quarterly in equal

payments ($13,500 each) in advance by Sungene, on receipt of appropriate notice from the University, with the first quarterly payment being due within thirty (30) days after the date on which this Agreement is last executed.

B. Checks for all payments under this Agreement shall be made payable to Washington University. If, at any time, University has reason to believe that the cost for the performance will be greater than the estimated costs in the Agreement, University shall notify Sungene in writing to that effect, giving a revised estimate of the cost of completion of performance. Sungene shall not be obligated to reimburse University for the costs incurred in excess of the estimated costs specified above, and University shall not be obligated to incur costs in excess of such estimated costs unless and until Sungene has notified University in writing that the estimated costs have been increased appropriately. Upon expenditure of the estimated costs specified in this Agreement, or increased by mutual agreement, University's obligation to continue performance shall cease.

4. ACCOUNTING

The funds paid by Sungene to University for research carried out under this Agreement shall be placed in a Separate Sungene Research Account and expended in performance of the research work in a manner to be determined by University. Sungene shall have the right to obtain an accounting of funds spent by University in carrying out the research programs detailed herein. In this regard, University agrees that upon thirty (30) days' notice, Sungene may send a mutually acceptable auditor to examine the books of University solely for the purpose of the aforementioned accounting. Sungene's right to audit University records shall extend only for two (2) years after termination of this Agreement.

5. PRINCIPAL INVESTIGATOR

The work under this Agreement will be performed under the direction of Roy Curtiss, III, PhD, Principal Investigator. It is agreed that he will be responsible for the direction of effort hereunder, including all budgeting and revisions to the budget, in accordance with applicable University policies. Dr. Guy A. Cardineau is the Research and Development Contact for Sungene.

6. REPORTING OF RESEARCH PROGRESS

To keep Sungene informed of the performance of the research work under this Agreement, University agrees to make frequent informal verbal reports to Sungene and to respond to Sungene's reasonable inquiries regarding the status of the research work. In particular, University's Principal Investigator agrees to meet with Sungene's Research and Development Contact periodically during the Performance Period at University's facilities to discuss the progress of the research work. Further, University also agrees to provide to Sungene brief (1-2 page) letter reports on a quarterly basis and more detailed written progress reports at the end of the first six (6) months of the Performance Period and at the conclusion of the project.

7. PUBLICATION AND REPORTS ON DATA

A. The Principal Investigator and the Sungene Research and Development Contact will cooperate and mutually determine when to copyright, publish, disclose, disseminate and use, in whole or in part, data, information, inventions, commercially useful products, and associated technical information received or developed under this Agreement. University agrees to permit Sungene to review the content of any intended scientific publication or presentation by submission of all such scientific manuscripts to Sungene's Research and Development Contact, prior to their public

presentation or submission to a publisher. The Research and Development Contact shall, as soon as possible, but at least with thirty (30) days of receipt of such manuscript or paper, render his (or her) suggestions or comments, if any, to University.

B. If Sungene has reason to believe a manuscript or paper, as provided in Article 7A, reveals a potentially patentable invention, Sungene shall immediately notify University's Patent Administrator. University agrees to delay such publication or public presentations until a U.S. patent application has been filed, or University's Patent Administrator has determined, in consultations with Sungene, that no patentable invention exists, or for a period not to exceed ninety (90) days, whichever occur first. University may also edit such manuscripts to protect any patentable inventions if that is possible, and thereby proceed with submission or presentation.

8. TRANSFER OF TANGIBLE TECHNICAL MATERIALS

A. Sungene desires access to pre-existing tangible technical materials deemed necessary by Dr.'s Curtiss and Cardineau to permit the initiation of the collaborative effort at Sungene Technologies Corporation as well as the tangible technical materials produced by the research work at the earliest possible date to assist Sungene's collaborative research endeavors and commercial development efforts. Since Sungene's efforts in this regard will optimize University's return under any license agreement entered into with Sungene in accordance with this Agreement, University agrees to make available and transfer to Sungene those tangible technical materials, including recombinant clones expressing bacterial virulence antigens as a result of research work conducted by University and which are requested by Sungene. University agrees to provide such tangible technical materials to Sungene with two (2) weeks of receipt of Sungene's written

request for samples of such tangible technical materials. Any extra costs incurred by University over and above the costs itemized in the Budget (Appendix B) in supplying such tangible technical materials to Sungene shall be paid by Sungene on receipt of an appropriate University invoice.

B. Sungene agrees that all tangible technical materials transferred under Article 8A above, their progeny or derivatives; shall:

(i) be used only for scientific research;

(ii) not be used on human beings;

(iii) not be used for commercial purposes without express written consent of University in the form of an exclusive license which shall not be unreasonably denied.

Sungene agrees that it will keep University informed on the results of its uses and analyses of tangible technical materials. Sungene further agrees that, except as indicated above, no right or license to these materials, their progeny or derivatives, is granted or implied as a result of University transmission of the materials.

C. In the event this Agreement is terminated by Sungene for any reason prior to the end of the Performance Period, Sungene will return to the University all tangible technical materials then in Sungene's possession which were received from the University.

9. PATENT AND TECHNICAL ASSISTANCE BY SUNGENE

A. University, will utilize Sungene's Patent Council by requesting advice and assistance from Sungene on obtaining patent coverage for any invention or discovery resulting from the research work performed under this Agreement. Such use of Sungene's Patent Council will be at Sungene's expense, to be reimbursed to Sungene according to Section 10.A. Sungene agrees to provide such patent advice and assistance on the nature

and scope of commercially useful patent claims which may be supportable by the invention or discovery and the form and content of the patent application which supports such commercially useful patent claims. University expressly recognizes that Sungene, itself, has no legal expertise in patent applications.

B. Sungene will also provide collaborative technical assistance to expedite the research work under this Agreement. This technical assistance may take the form of technical consulting services or assistance in performing one (1) or more parts of the research work in the Research Proposal attached hereto as Appendix A. If the need for Sungene's technical assistance is mutually agreed, then Sungene's Research and Development Contact agrees to meet with University's Principal Investigator to discuss and agree upon the nature and extent of technical assistance which Sungene will provide.

10. PATENT RIGHTS

A. University shall promptly disclose to Sungene in writing on a confidential basis any New Technology (defined as all discoveries, inventions, improvements and/or other useful research processes and products, patentable or unpatentable, conceived and developed by University as a result of research performed under this Agreement), with patentable inventions being particularly identified. University scientists will work closely with Sungene to determine which aspects of the New Technology may have patent potential. It is the intent and agreement of the parties hereto that all inventions made by participants in the research work covered by this Agreement, whether they be inventions conceived or made solely by University personnel or inventions made by University personnel together with personnel of Sungene, along with any patent application filed thereon and patent maturing therefrom, be assigned to the University, and be disposed of in accordance with University policy. To the extent that

University shall have the legal right to do so, Sungene shall be given a right of first refusal to obtain an exclusive, worldwide, royalty-bearing license, to continue in perpetuity under the terms of this Agreement, to any patentable inventions or discoveries derived from and including New Technology regardless of application and conceived, made, or developed during the course of the research project. Said license shall contain reasonable terms based on industry standards for similar products and technology, and shall include payments by Sungene of University's costs in filing, prosecuting, issuing, and maintaining any patent so licensed, should Sungene fail to provide these services at no charge to University, said payments being creditable against future royalties. The license agreement shall also contain provision for payment of a royalty to the University for sales of any product in any country which is based on or derived from the results of the research program, regardless of University patent coverage, provided Sungene is the exclusive commercial source of said product in the country in question. The royalty payable for either patented or unpatented products or processes under any license entered into by the parties pursuant to this Agreement shall be mutually agreed upon between Sungene and the University, but shall not be greater than (i) two percent (2%) for patented products or processes or one percent (1%) for unpatented products of the net selling price of any product made and used or made and sold by Sungene pursuant to the rights to practice granted by the license in the animal feed field; (ii) eight percent (8%) for patented products or processes or four percent (4%) for unpatented products of the net selling price of any product made and used or made and sold by Sungene pursuant to the rights to practice granted by the license outside the animal feed field; (ii) up to 50% of any net income received by Sungene as a result of sub-licensing any of the rights of (i) and (ii) above but in no case more than an amount equal to

that indicated in (i) and (ii) above. The License Agreement shall not provide for any advance lump-sum fees for the license or any sublicenses.

B. To establish its option for the right of first refusal to an exclusive, royalty-bearing, worldwide license, Sungene shall advise University within forty-five (45) days of disclosure of New Technology required by Article 10.A to Sungene whether or not Sungene wishes to secure a commercial license to any patentable subject matter. University shall promptly initiate good faith negotiations with Sungene on the terms and conditions of said exclusive license.

C. Sungene shall elect within six (6) months after the filing of the first U.S. patent application on any invention, those foreign countries in which Sungene desires foreign patent protection and thereafter timely file foreign patent applications in the name of the University on any such invention in all the foreign countries elected. The cost and expenses current and accrued relating to obtaining, issuing, and maintaining of patents protecting any such invention in all the foreign countries elected as provided above shall be paid by Sungene. On a country-by-country basis, Sungene shall receive a credit for such costs and expenses against royalties or payments due.

D. If Sungene evidences no interest in any invention, either (1) by direct notification to the University; (2) by failing to notify University of its interest or disinterest within forty-five (45) days of receipt of a written disclosure of such invention from University; or (3) by failure to pay the full $54,000.00 due under the provisions of this Agreement for any reason other than default by the University, it shall be considered to have waived its right of first refusal for an exclusive license [illegible] University shall be free to dispose of the

invention in accordance with University policies, with no further obligation to Sungene.

E. For New Technology for which patent protection is not desirable or is not obtainable by law, the parties shall negotiate in good faith separate agreements to provide Sungene an exclusive commercial license. The terms of any agreement entered into by the parties pursuant to this paragraph 10E shall include a royalty which shall not exceed the maximum royalty rates specified in paragraph 10A above. For purposes of this paragraph 10E, New Technology shall include existing recombinant clones expressing bacterial virulence antigens which are available from the University as a result of previous research at the University under the direction of Dr. Roy Curtiss III.

11. SUPPLIES AND EQUIPMENT

In the event that University purchases supplies or equipment hereunder, title to such supplies and equipment shall vest in University. All purchases of supplies or equipment shall be in accordance with the budget in Appendix A.

12. TERMINATION

A. Sungene shall have the right to terminate this Agreement anytime within the Performance Period if Sungene determines that unsatisfactory progress is being made on research objectives or that no business opportunities exist, by giving the University two (2) months' written notice of termination. Sungene shall reimburse the University for any expenditures or uncancellable obligations incurred prior to the effective date of such termination, and shall continue to pay the salaries of University personnel specifically assigned to the research work at the salary levels indicated in Appendix A hereto for a maximum of six (6) months

following the written notification of termination or the end of the Performance Period as described in Section 2.A., whichever occurs first.

B. University may terminate this Agreement upon sixty (60) days' prior written notice to Sungene for any of the following reasons;

(i) If employment of the Principal Investigator with University terminates; or

(ii) If University determines that replacement of the Principal Investigator is necessary for reasons other than employment termination and the parties are unable to agree upon a replacement, or the University is unable to identify a replacement; or

(iii) If, after consultation with Sungene, University determines that continuation of the research will not contribute to the advancement of science.

C. Should the University terminate this Agreement prior to its expiration date, Sungene shall be granted a royalty free, non-exclusive license to all unpatented materials developed under this Agreement.

D. If University terminates this Research Agreement as provided under this Article 12B, University shall exert its best efforts to limit and terminate all outstanding commitments. Sungene agrees to reimburse University for all costs incurred by it for the research, including uncancellable obligations, but excluding any obligation or commitments for salaries for individuals extending beyond the date of University termination.

13. INDEPENDENT CONTRACTOR

Sungene will not have the right to direct or control the activities of the University in performing the services provided herein and the University shall perform services hereunder only as an independent

contractor; and nothing herein contained shall be construed to be inconsistent with the relationship or status. Under no circumstances shall the University be considered to be an employee or agent of Sungene. This Agreement shall not constitute, create, or in any way be interpreted as a joint venture, partnership, or formal business organization of any kind.

14. EXCUSABLE DELAYS

In the event of a delay caused by inclement weather, fire, flood, strike, or other labor dispute, act of God, act of governmental officials or agencies, or any other cause beyond the control of the University or Sungene, either of the parties shall be excused from performance hereunder for the period of time attributable to such delay, which may extend beyond the time lost due to one (1) or more of the causes mentioned above. In the event of any such delay, this Agreement may be revised by changing the estimated cost, performance period, and other provisions, as appropriate, by mutual agreement of the parties.

15. NOTICES

All notices of every kind and description whatsoever required or permitted under this Agreement shall be in writing and shall be deemed to have been received when personally delivered or when mailed through the U.S. Postal Service, postage prepaid, as evidenced by a postmarked certificate of mailing for U.S. Mail, or by other similar means for personal delivery, such as a signed receipt acknowledging personal delivery, to the party to whom delivery shall be made at the respective, specific addresses as set out below:

University: Washington University
Campus Box 1054
One Brookings Drive
St. Louis, Missouri 63130
Attn: H. S. Leahey

Sungene: Sungene Technologies Corporation
3330 Hillview Avenue
Palo Alto, California 94304
Attn: Dr. David McGee, V.P. Operations

16. NON-ASSIGNABLITY AND INUREMENT

This Agreement is personal in its character, and no party or parties hereto shall assign, sell, transfer, or encumber this Agreement or the interest therein, or permit any other arrangement having similar effect, without the express written consent of the remaining party, except as a result of a sale, consolidation, reorganization, or other transfer involving Sungene's business or assets relating to plant biotechnology. This Agreement shall be binding on and inure to the benefit of the successors or permitted assigns of the parties hereto, and all entities controlled by them.

17. SEVERABILITY

All agreements and covenants contained herein are severable; and if any of the provisions hereof, with the exception of those establishing the research investigation and protection for confidential information of the parties, shall be held to be invalid by any competant court, this Agreement shall be interpreted as if such invalid agreement or covenant were not contained herein.

18. ENTIRETY

This Agreement contains the complete and exclusive agreement of the parties concerning the services to be performed hereunder and merges and supersedes all prior understandings and representations (oral or written) between the parties concerning such services. Neither this Agreement nor any

subsequent agreement amending, supplementing or terminating this Agreement shall be binding on the parties unless and until it has been signed by duly authorized representatives of the parties hereto.

19. CONTRACT TERMS

The waiver by any party hereto of any right hereunder or failure to perform or breach by the other party(ies) shall not be deemed as a waiver of any right hereunder or of any other breach or failure by said other party(ies), whether of similar nature or otherwise. The failure of either party hereto to enforce at any time the provisions of this Agreement, or any rights with respect thereto, or to exercise any election herein provided, shall in no way be considered to be a waiver of such provisions, rights, or elections, or in any way affect the validity of this Agreement. The exercise by any party hereto of any rights or elections under the terms or covenants herein shall not preclude or prejudice either party hereto from exercising the same or any other right it may have under this Agreement, irrespective of any previous action or proceeding taken by the parties hereunder.

20. WAIVER AND MODIFICATION

No waiver or modification of this Agreement or of any covenant, condition, or limitation herein contained shall be valid unless in writing and duly executed by the party to be charged therewith, and no evidence of any waiver or modification shall be offered or received in evidence in any proceeding, arbitration, or litigation between the University and Sungene arising out of or affecting this Agreement, or the rights or obligations of any party hereunder, unless such waiver or modification is in writing duly executed as aforesaid, and all parties further agree that the provisions of this paragraph may not be waived, except as herein set forth.

21. GOVERNING LAW

It is mutually agreed and understood by the parties hereto that the laws, statutes, rules, and court decisions prevailing in the State of California shall control and prevail in all matters affecting this Agreement.

22. THIRD PARTY RIGHTS

University agrees that it shall use reasonable efforts not to permit the research funded hereunder to be conducted in a manner or under circumstances that would provide any third party, including the United States Government or any agency thereof, any claim to rights for such research or any invention made during the course thereof.

23. USE OF NAMES

Neither party shall use the name of the other party in any announcement, publication or publicity without the express written permission of the other party.

24. INDEMNIFICATION

The Sungene agrees to hold harmless, indemnify and defend the University from all liabilities, demands, damages, expenses and losses arising out of the use of the Sungene, Sungene employees, or by any third party acting on behalf of or under authorization from Sungene, of any information, materials or samples received from the University or out of any use, sale or other disposition by Sungene by any third party acting on behalf of or under authorization from Sungene of products made by use of information, materials or samples received from University.

Executed by the respective duly authorized officers agents of the University and Sungene to be effective the day and year set out in paragraph 2 above.

SUNGENE TECHNOLOGIES CORPORATION

By _____

Title Pres. Asst

Date 3/12/87

WASHINGTON UNIVERSITY

By _____

Title Director,
Industrial Contracts & Licensing

Date 3/10/87

RESEARCH AND LICENSE AGREEMENT

THIS AGREEMENT, effective as of , 1985 (EFFECTIVE DATE) between THE GENERAL HOSPITAL CORPORATION, a not for profit corporation doing business as Massachusetts General Hospital, having a place of business at Fruit Street, Boston, Massachusetts 02114 (MGH) and Company, a corporation having a principal place of business at , , (Company).

WITNESSETH;

WHEREAS, under research programs funded by the MGH, and the Department of Health and Human Services (hereinafter, with all other sponsors of research, if any referred to as "SPONSORS"), the MGH Department of _____ through research conducted by Dr. Jones has developed and are continuing to develop certain scientific information relating to _____.

WHEREAS, as a center for research and education, MGH is interested in disseminating RESEARCH INFORMATION and licensing PATENT RIGHTS in a manner that will benefit the public by facilitating the distribution of useful products, but is without capacity to commercially develop, manufacture, and distribute any such product; and

WHEREAS, Company, as a leader in the development and use of _____ has such capacity, and desires to commercially develop, manufacture, use and distribute such products throughout the world;

NOW THEREFORE, in consideration of the premises and of the faithful performance of the covenants herein contained, the parties hereto agree as follows:

1. DEFINITIONS

1.1 The term "MATERIAL" shall mean the disclosed to Company by PRINCIPAL INVESTIGATOR during the term of SPONSORED RESEARCH.

1.2 The term "FIELD" shall mean the use of MATERIAL in the diagnosis, treatment or maintenance of any normal or pathological physiological function in humans or animals.

1.3 The term "SPONSORED RESEARCH" shall mean scientific research pertaining to the identification, synthesis, manufacture or use of any MATERIAL funded in whole or in part by Company and

conducted in the MGH Deppartment of _____ in accordance with the RESEARCH PROPOSAL (hereinafter defined in Paragraph 1.10) set forth in the document entitled "_____" attached hereto as Appendix A and incorporated herein.

1.4 The term "INVENTION" shall mean any new and useful process, manufacture, or composition of matter;

(a) disclosed to Company by PRINCIPAL INVESTIGATOR in Appendix A, or

(b) conceived or first reduced to practice during the conduct of SPONSORED RESEARCH in which MGH has rights by virtue of sole or joint inventorship by an "INVESTIGATOR".

1.5 The term "PRINCIPAL INVESTIGATOR" shall mean Dr. Jones.

1.6 The term "INVESTIGATOR" shall mean PRINCIPAL INVESTIGATOR and any other member of MGH's professional staff graduate student, postdoctoral fellow, under graduate student, or employee of MGH who shall participate in SPONSORED RESEARCH.

1.7 The term "PATENT RIGHT" shall mean any United States or foreign patent application, or the equivalent of such applications, including any division, continuation, or continuation-in-part thereof, or any Letters Patent or the equivalent thereof issuing thereon or reissue or extension thereof, containing one or more claims to an INVENTION.

1.8 The term "RESEARCH INFORMATION" shall mean any research data, formulas, process information, clinical data and other information pertaining to SPONSORED RESEARCH produced during the conduct of SPONSORED RESEARCH.

1.9 The term "PRODUCT" shall mean any MATERIAL, composition containing MATERIAL or other article of manufacture that incorporates MATERIAL or whose manufacture, composition or use employs RESEARCH INFORMATION.

1.10 The term "RESEARCH PROPOSAL" shall mean Appendix A and any other written description of SPONSORED RESEARCH appended hereto pursuant to paragraph 2.3 and shall include a reasonably detailed description of the goals and scope of such research, the research design to the extent that it is known and a budget that details the equipment, materials, personnel, and the funds to be supplied by Company to support the research described in such proposal.

2. MGH RESEARCH AND COMPANY SUPPORT THEREOF

2.1 During the one (1) year next following the EFFECTIVE DATE, MGH shall:

(a) through PRINCIPAL INVESTIGATOR and any other INVESTIGATOR conduct SPONSORED RESEARCH;

(b) as to all SPONSORED RESEARCH;

i. promptly and systematically disclose to Company, RESEARCH INFORMATION which Company shall be entitled to use to the extent such use does not infringe any patent not licensed hereunder;

ii. permit duly authorized employees of or representatives of Company to visit the laboratories of MGH's Department of _____, at the invitation and convenience of Dr. Jones, for the purpose of facilitating disclosure to Company of RESEARCH INFORMATION;

iii. promptly advise Company of the conception or reduction to practice of any INVENTION and the filing of PATENT RIGHT, except as otherwise provided by 3.2, and 4.1, below; and

iv. promptly provide Company with a reasonable amount of any MATERIAL synthesized by INVESTIGATOR:

2.2 In consideration of said undertaking by MGH, during the period SPONSORED RESEARCH is being conducted, Company shall at Company's expense:

(a) make research grants to MGH in accordance with the following schedule:

Paid by:	The Amount of:
within thirty (30) days of the Effective Date	$
within thirty (30) days of _____	$

Additional grants for SPONSORED RESEARCH may be added in accordance with Paragraph 2.3. Every grant paid pursuant to this 2.2 or RESEARCH PROPOSAL added pursuant to 2.3, so long as PRINCIPAL INVESTIGATOR is employed by The Division of Radiological Sciences, shall be expended under the direction of PRINCIPAL INVESTIGATOR for SPONSORED RESEARCH; and

(b) with respect to all research relating to Sponsored Research and PRODUCT development conducted by Company, promptly inform MGH of all results, data and analytic protocol unless such disclosure would be contrary to 3.1.

2.3 At any time during the term of this Agreement either party may propose in writing additional research not previously described in the RESEARCH PROPOSAL appended hereto as Appendix A. Each such Proposal shall include a description of the additional research proposed and a budget of the costs to be funded by Company and a schedule of payment of such costs. Unless the parties shall otherwise agree in writing, negotiations between them over any such Proposal shall not extend beyond the sixtieth (60) day next following the date when the Proposal shall have first been so made, and whenever such negotiations shall end without agreement between the parties to proceed with the proposed project, the party originating the Proposal may undertake such project without the other party and seek funding for such Proposal from any source. When such Proposal and budget is accepted by MGH and Company, the Proposal shall be appended hereto as a RESEARCH PROPOSAL and the SPONSORED RESEARCH described therein shall commence and budgeted amounts shall be paid as set forth in the Proposal or as agreed by the parties. In no event shall any additional research be added to SPONSORED RESEARCH or shall the direction of SPONSORED RESEARCH be altered without the concurrence of the Director, Office of Technology Administration, MGH.

3. CONFIDENTIALITY AND PUBLICATION RIGHTS

3.1 MGH cannot assure confidential treatment of any Company proprietary information that might be disclosed to MGH or any INVESTIGATOR. In the event that Company wishes to disclose to any INVESTIGATOR any information which relates to SPONSORED RESEARCH that Company considers confidential, Company may enter into a separate Confidentiality Agreement with the INVESTIGATOR. Such Confidentiality Agreement must be approved as to form by the Director, Office of Technology Administration, MGH and shall provide a means for clearly identifying the information Company considers to be proprietary and not abridge MGH's or the INVESTIGATOR's traditional rights to publish and communicate with academic colleagues as set forth in the following 3.2.

3.2 Recognizing MGH's desire to publish research results and COMPANY's desire to develop the results of Sponsored Research for the earliest introduction to the public:

(a) MGH agrees to submit to Company an early draft of documents disclosing the results of SPONSORED RESEARCH as follows:

i. Each manuscript at least thirty (30) days prior to its submission for publication and

ii. Each abstract at least seven (7) days prior to its submission for publication.

Company shall have the right to advise MGH as to the patentability of any INVENTIONS disclosed therein. At the end of such thirty (30) day or seven (7) day period, MGH shall have the right, in its discretion, to submit such manuscript or abstract for publication.

(b) Nothing in the Agreement shall be construed to prohibit or limit in any way;

i. The filing by MGH of any report required by any public authority pertaining to SPONSORED RESEARCH, except that MGH agrees to obtain confidential treatment for RESEARCH INFORMATION included in said report to the extent that such public authority permits such confidential treatment.

ii. the non-public disclosure and discussion of RESEARCH INFORMATION between MGH INVESTIGATORS and their academic colleagues. MGH shall advise MGH INVESTIGATORS that when making such non-public disclosures, consideration should be given to MGH's and Company's interest in obtaining the benefits of worldwide patent coverage of any INVENTIONS included in RESEARCH INFORMATION; and

iii. MGH's right to disclose to any party RESEARCH INFORMATION pertaining to any INVENTION to which Company does not exercise its option to a license in accordance with paragraph 4.3 or which MGH shall be entitled to license to another pursuant to paragraph 4.4 or any other term of this Agreement.

4. PATENTS AND LICENSES

4.1 Each INVESTIGATOR who during the course of SPONSORED RESEARCH shall make an INVENTION, solely or jointly, ("MGH INVENTOR") shall promptly report such INVENTION to MGH. Each MGH INVENTOR shall assign all of his rights, title and interest in any INVENTION to MGH. Each employee of Company who makes an INVENTION, whether solely or jointly, shall report such INVENTION to Company and shall assign all of his rights, title and interest to Company unless such assignment is contrary to federal law. Inventions made jointly by assignors to MGH and Company shall be jointly owned whenever legally possible.

MGH promptly shall advise Company in writing, of each INVENTION disclosed to MGH. Representatives of MGH and Company shall then discuss whether a patent application or applications pertaining to such invention should be filed and in which countries. Applications assigned solely to MGH shall be filed by MGH, applications assigned solely to Company shall be filed by Company and jointly assigned applications shall be filed as mutually agreed upon by the parties.

All patent costs pertaining to INVENTIONS filed by mutual agreement of MGH and Company, including preparation, filing, prosecution, issuance and maintenance costs shall be borne by Company except as provided for below.

In the event Company is not interested in having a patent application filed with respect to a particular INVENTION, Company shall advise MGH of such fact within ninety (90) days from the date on which the INVENTION was disclosed to Company by MGH or sooner if necessary to avoid the loss of PATENT RIGHTS. MGH, at its own expense then may file and prosecute such patent application in any country where Company elects not to file, and such patent applications and patents shall not be included within the rights licensed to Company pursuant to paragraph 4.3 of this Agreement and MGH shall be free to license such patent to any other party.

In the event that MGH does not wish to file a patent application with respect to a particular INVENTION, or does not wish to file patent applications with respect to specific countries, it shall without delay notify Company, and Company shall be free, where not contrary to United States law, to file at its expense patent applications in the name of MGH, if necessary, and MGH shall render Company, at Company's expense, all necessary assistance in order to facilitate such filing. All information given to Company by MGH in accordance with this paragraph 4.1, will be held in confidence by Company so long as such information remains unpublished or publicly undisclosed by MGH and all Company information concerning any Company invention provided in

writing to the Director of Office of Technology Administration shall be maintained in confidence by MGH until such information shall be made public.

4.2 With respect to any patent application filed by mutual agreement of the parties, each patent application, office action, response to office action, request for terminal disclaimer, and request for reissue or reexamination of any patent issuing from such application shall be provided to Company sufficiently prior to the filing of such application, response or request to allow for review and comment by Company.

4.3 As to each PATENT RIGHT assigned in whole or in part to MGH and filed by mutual consent of the parties, MGH grants to Company for the twelve (12) months next following the filing of such a PATENT RIGHT the exclusive option to obtain a world-wide royalty bearing exclusive license, to the extent not precluded by law. The option is to be exercised by written notice to MGH during said twelve month period and the negotiation of a license agreement containing license terms standard for agreements between universities and industry including without limitation clauses providing for payment of reasonable royalties to MGH and objective time-limited due diligence provisions for the development and commercialization and marketing of a PRODUCT. In the absence of such notice by Company and agreement on license terms, MGH may grant a license to such PATENT RIGHT to any other entity.

Nothing herein shall be construed to prevent MGH from licensing any INVENTION, PATENT RIGHT, or RESEARCH INFORMATION to any other for the purpose of manufacturing, using or selling of any product or method outside of the FIELD.

5. LIABILITY

MGH and Company shall each be responsible and shall hold the other harmless for any injury to persons or damage to property caused by the negligent acts or omissions of their employees or staff in carrying out the SPONSORED RESEARCH.

6. TERMINATION

6.1 The SPONSORED RESEARCH provided for under this Agreement is intended to be for a term of one (1) year beginning with the EFFECTIVE DATE of this Agreement and may be extended thereafter by mutual agreement in writing on an annual basis on substantially the same terms as provided for in this Agreement.

6.2 So long as PRINCIPAL INVESTIGATOR is available to direct the SPONSORED RESEARCH at MGH, Company may not terminate the SPONSORED RESEARCH except for breach of the provisions of paragraph 2.1 or 2.2. If for any reason the PRINCIPAL INVESTIGATOR shall no longer be available at MGH, the parties agree to negotiate in good faith, the continuance of the SPONSORED RESEARCH. However, if a PRINCIPAL INVESTIGATOR acceptable to Company cannot be agreed upon, Company may terminate this agreement except for an obligation to continue for up to six (6) months beyond notification of PRINCIPAL INVESTIGATOR'S departure, salary support at the pretermination level of all Ph.D. personnel who have been committed to the SPONSORED RESEARCH on a half-time or greater basis.

6.3 If either party shall fail to faithfully perform any of its obligations under this Agreement, the nondefaulting party may give written notice of the default to the defaulting party. Unless such default is corrected within thirty (30) days after such notice, the notifying party may terminate this Agreement upon thirty (30) days prior written notice.

7. MISCELLANEOUS

7.1 This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof, and supersedes and replaces all prior agreements, understandings, writings and discussions between the parties relating to said subject matter.

7.2 In order to facilitate implementation of this Agreement, MGH and COMPANY are designating the following individuals to act on their behalf with respect to this Agreement for the matters indicated below.

(a) with respect to matters concerning the conduct of SPONSORED RESEARCH, budgets, manuscripts for publication, written transmittal of Research Information and transmittal of materials; for MGH, Dr. Jones; for Company, _____.

(b) with respect to any Research Proposal submitted pursuant to paragraph 2.3, the receipt of research payments made pursuant to 2.2 or any Research Proposal appended hereto, the form of any Confidentiality Agreement to be signed by any Investigator, the disclosure of any Invention or any correspondence pertaining to any Invention or Patent Right, any notice of the use of MGH's name, or the notice of intent to exercise the paragraph 4.3 option; for

MGH, the Director, Office of Technology Administration; for Company, _____.

(c) any amendment of or waiver under this Agreement, any written notice or other communication pertaining to the Agreement: for MGH, the Director of Research; for Company, _____.

(d) the above designations may be superseded from time to time by alternative designations made by: for MGH, the General Director; for Company, _____.

7.3 This Agreement may be amended and any of its terms or conditions may be waived only by a written instrument executed by the parties or, in the case of a waiver, by the party waiving compliance. The failure of either party at any time or times to require performance of any provision hereof shall in no manner affect its rights at a later time to enforce the same. No waiver by either party of any condition or term in any one or more instances shall be construed as a further or continuing waiver of such condition or term of an other condition or term.

7.4 This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors and permitted assigns.

7.5 Any delays in or failures of performance by either party under this Agreement shall not be considered a breach of this Agreement if and to the extent caused by occurrences beyond the reasonable control of the party affected, including but not limited to: Acts of God; acts, regulations or laws of any government; strikes or other concerted acts of workers; fires; floods; explosions; riots; wars; rebellion; and sabotage; and any time for performance hereunder shall be extended by the actual time of delay caused by such occurrence.

7.6 Company shall not use the name of MGH or of any MGH staff member, employee or student or any adaption thereof in any advertising, promotional or sales literature without the prior written approval of The Director of News and Public Affairs at MGH. Company shall give notice to MGH of the use of its name of reference to this agreement in any document employed by Company to obtain funds or financing by providing MGH with a copy of the pertinent language from such document. Such notice shall include a disclosure of the nature and circulation of such document.

7.7 This Agreement shall not be assignable by MGH without Company's written consent except for the right to receive royalties payable herein. Company shall not assign this agreement or any portion thereof or any license obtained hereunder to any party without the prior written consent of MGH.

7.8 This Agreement shall be governed by and construed and interpreted in accordance with the laws of the Commonwealth of Massachusetts.

7.9 If any provision(s) of this Agreement are or become invalid, are ruled illegal by any court of competent jurisdiction or are deemed unenforceable under then current applicable law from time to time in effect during the term hereof, it is the intention of the parties that the remainder of this agreement shall not be affected thereby. It is further the intention of the parties that in lieu of each such provision which is invalid, illegal, or unenforceable, there be substituted or added as part of this Agreement a provision which shall be as similar as possible in economic and business objectives as intended by the parties to such invalid, illegal or unenforceable provision, but shall be valid, legal and enforceable.

THE PARTIES have duly executed this Agreement as of the date first above written.

COMPANY	MGH
BY_____	BY_____
TITLE_____	TITLE_____
DATE_____	DATE_____