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Apendices

CIAT CONFIDENTIAL

Documento Interno
(uso restringido)
Permisos Dr Aart
van Schoonhoven

CIAT Proprietary Property Audit

Review of Procedures and Selected Projects at CIAT
Regarding the Management of Intellectual Property Technical Property and
information
primarily of Biotechnology Related Activities

Appendices
22 November 2000

Appendix 1	Patent Cover Pages Rice Hoja blanca virus Product Clearance Spreadsheet
Appendix 2	Plasmid construct pVR3 used by CIAT in rice transformation
Appendix 3	Plasmid Map pRT100 (pRT101)
Appendix 4	Plasmid Map pGSFR761A
Appendix 5	Plasmid Map pBS +/ phagemid vector
Appendix 6	Biolistic® PDS 1000/He Purchase Agreement
Appendix 7	March 11 1993 Letter from William Roca to Bio Rad indicating how PDS 1000/He system will be used at CIAT
Appendix 8	CIAT Intellectual Property Rights Policy
Appendix 9	CIAT Material Transfer Agreement
Appendix 10	Agreement Between Semillas Papalotla, S A de C V and The Centro Internacional de Agricultura Tropical on Exclusive rights for the commercial distribution and registration of Brachiaria hybrid CIAT 36061
Appendix 11	Agreement Between the Centro Internacional de Agricultura Tropical (CIAT) and the Food and Agriculture Organization of the United Nations (FAO) Placing Collections of Plant Germplasm Under the Auspices of FAO
Appendix 12	Data input for SAMMDATA
Appendix 13	Digital Chart of the World (DCW) for use with ARC/INFO® software License Agreement & Customer Service Information
Appendix 14	MapObjects LT Product Description
Appendix 15	ESRI MapObjects™ License Terms
Appendix 16	ESRI Copyright Permission and Release Form
Appendix 17	CIAT Trademarks Etc FloraMap Correspondence
Appendix 18	FloraMap Word Mark Filing U S Trademark Electronic Search System (TESS)

Appendix 1

Patent Cover Pages
Rice Hoja blanca virus Product Clearance Spreadsheet

Patent Cover Pages, Rice Hoja blanca virus Product Clearance Spreadsheet

EP 0 186 425	A selectable marker for development of vectors and transformation systems in plants	1
EP 0 236 069	Apparatus and method for performing automated amplification of nucleic acid sequences and assays using heating and cooling steps	2
EP 0 240 331	Virus resistant plants having coat protein	3
EP 0 258 017	Purified thermostable enzyme and process for amplifying detecting and/or cloning nucleic acid sequences using said enzyme	4
EP 0 286 200	DNA cloning vector with in vivo excisable plasmids	5
EP 0 331 855	Apparatus for delivering substances into cells and tissues in a non lethal manner	6
EP 0 502 588 A2	Process for amplifying nucleic acid sequences	7
EP 0 502 589 A2	Kit for use in amplifying and detecting nucleic acid sequences	8
EP 0 509 612 A2	Process for amplifying and detecting nucleic acid sequences	9
EP 0 776 967 A2	Heat exchanger for use in a temperature cycling instrument	10
JP 1 256 381	Induction and propagation of rice callus	11
US 4 407 956	Cloned cauliflower mosaic virus DNA as a plant vehicle	12
US 4 666 844	Process for regenerating cereals	13
US 4 683 195	Process for amplifying detecting and/or cloning nucleic acid sequences	14
US 4 683,202	Process for amplifying nucleic acid sequences	15
US 4 889 818	Purified thermostable enzyme	16
US 4 945 050	Method for transporting substances into living cells and tissues and apparatus therefor	17
US 4 965 188	Process for amplifying detecting and/or cloning nucleic acid sequences using a thermostable enzyme	18
US 5 036 006	Method for transporting substances into living cells and tissues and apparatus therefor	19
US 5 100 792	Method for transporting substances into living cells and tissues	20
US 5 128 256	DNA cloning vectors with in vivo excisable plasmids	21
US 5 188 957	Lambda packaging extract lacking beta galactosidase activity	22
US 5 204 253	Method and apparatus for introducing biological substances into living cells	23
US 5 286 636	DNA cloning vectors with in vivo excisable plasmids	24
US 5 316 931	Plant viral vectors having heterologous subgenomic promoters for systemic expression of foreign genes	25
US 5 322 938	DNA sequence for enhancing the efficiency of transcription	26
US 5 350 688	Method for regeneration of rice plants	27
US 5 352 605	Chimeric genes for transforming plant cells using viral promoters	28
US 5 550,318	Methods and compositions for the production of stably transformed, fertile monocot plants and cells thereof	29
US 5 589,367	Recombinant plant viral nucleic acids	30
US 5 656 493	System for automated performance of the polymerase chain reaction	31
US 5 668 005	Cloned genes encoding reverse transcriptase lacking rnase H activity	32
US 5 668 298	Selectable marker for development of vectors and transformation systems in plants	33
US 5 858 742	Chimeric genes for transforming plant cells using viral promoters	34
US 6 004 287	Biolistic apparatus for delivering substances into cells and tissues	35
US 6 048 730	Selectable marker for development of vectors and transformation systems in plants	36
WO 00/16828	Biolistic apparatus for delivering substances into cells and tissues	37
WO 84/02913	Chimeric genes suitable for expression in plant cells	38
WO 88/05085	DNA cloning vectors with *in vivo* excisable plasmids	39
WO 91/18991	Improved method and apparatus for introducing biological substances into living cells	40
WO 92/20809	Method of creating a transformed rice plant	41
WO 94/19930	Enhanced regeneration system for cereals	42
WO 96/12028	Production of peptides in plants as viral coat protein fusions	43

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(54) A selectable marker for development of vectors and transformation systems in plants.

(57) The present invention discloses functional and selectable micro-Ti plasmids. The hygromycin phosphotransferase (*aphIV*) gene from *Escherichia coli* was inserted between the 5' promoter and associated amino terminal region-encoding sequence of an octopine synthetase gene and the 3 terminator signal sequence of anopaline synthetase gene. These constructs were assembled between T-DNA border fragments in a broad-host-range vector and used to create antibiotic-resistant plant cells.

EP 0 186 425 A2

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(84) Designated Contracting States: AT BE CH DE ES FR GB GR IT LI LU NL SE

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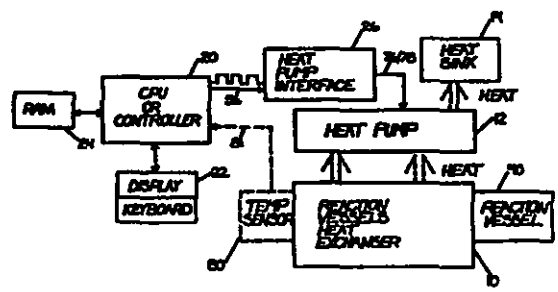
(54) Apparatus and method for performing automated amplification of nucleic acid sequences and assays using heating and cooling steps.

(57) There is disclosed herein a machine for performing nucleic acid amplification under computer control. The machine utilizes any one of a number of heating and cooling systems under control of a host computer which directs the heating and cooling systems to heat and cool a reaction-chamber-containing heat exchanger at appropriate times in the process. The reaction chambers are pre-loaded with the nucleic acid(s) to be amplified, a thermostable enzyme to catalyze polymerization, specific oligonucleotide primers, and four different nucleotide triphosphates. Also disclosed is the process for the amplification chain reaction implemented by the machine, which utilizes a thermostable enzyme.



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(54) Virus resistant plants having coat protein.

(57) The present invention discloses the making of plant cells which contain coat protein of a target plant virus. Construction of coat protein genes and transformation of coat protein genes into plant cells is also taught. Such cells are relatively resistant to infection by the target virus when compared with cells not containing coat protein. Furthermore, methods and DNA molecules useful for producing plant cells containing coat protein are also disclosed.

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The applicant has filed a statement in accordance with Rule 28 (4) EPC (issue of a sample only to an expert) Accession number(s) of the deposit(s) ATCC 40336, 67421 67422.

(54) **Purified thermostable enzyme and process for amplifying, detecting, and/or cloning nucleic acid sequences using said enzyme.**

(57) A purified thermostable enzyme is obtained that has unique characteristics. Preferably the enzyme is isolated from the Thermus aquaticus species and has a molecular weight of about 86,000-90,000 daltons. The thermostable enzyme may be native or recombinant and may be used in a temperature-cycling chain reaction wherein at least one nucleic acid sequence is amplified in quantity from an existing sequence with the aid of selected primers and nucleotide triphosphates. The amplification process comprises treating separate complementary strands of the nucleic acid with a molar excess of two oligonucleotide primers extending the primers with a thermostable enzyme to form complementary primer extension products which act as templates for synthesizing the desired nucleic acid sequence and detecting the sequence so amplified. The steps of the reaction can be repeated as often as desired and involve temperature cycling to effect hybridization, promotion of activity of the enzyme and denaturation of the hybrids formed. The enzyme is preferably stored in a buffer of non-ionic detergents that lends stability to the enzyme.

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Bundesdruckerei Berlin

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(54) **DNA cloning vector with in vivo excisable plasmids.**

(57) Vectors are described that circumvent traditional DNA cloning and subcloning procedures, and that contain a unique DNA cartridge that permits both cloning of DNA directly into DNA sequences present within the cartridge and in vivo removal and circularization of the cartridge thereby yielding an *autonomously replicating* structure. Because the DNA cartridge can include a wide variety of functional DNA sequences the cloned DNA can be subjected to a plethora of molecular biological procedures without having to remove the cloned DNA from the cartridge thereby obviating the need to perform additional subcloning techniques. A particularly useful example of the this type of vector is bacteriophage lambda containing the DNA cartridge

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The title of the invention has been amended (Guidelines for Examination in the EPO A-III 7.3)

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(84) Designated Contracting States: AT BE CH DE ES FR GB GR IT LI LU NL SE

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(54) Apparatus for delivering substances into cells and tissues in a non-lethal manner

(57) An apparatus for delivering substances into living cells and tissues includes an impeller of the type adapted to use an explosive charge for sending a macroprojectile through an accelerator passage into a vacuum chamber. The vacuum chamber is divided into an upper vacuum chamber having an impact receiving plate against which the macroprojectile will impact and a lower vacuum chamber in which the biological material to be impregnated by the substance is located. The substance may be carried by a plurality of microprojectiles adhered to the base of the macroprojectile so that upon impact of the macroprojectile against the impact plate in the upper vacuum chamber the microprojectiles carrying the substance will pass through an aperture in the impact plate and enter the biological material. Alternatively the microprojectiles carrying the substance may be mounted on the surface of the impact plate facing the biological material so that upon impact of the macroprojectile against the impact plate, the microprojectiles will be impelled into the biological material.

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(19) Europäisches Patentamt
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(54) Process for amplifying nucleic acid sequences.

(57) The present invention is directed to a process for amplifying at least one specific nucleic acid sequence contained in a nucleic acid or a mixture of nucleic acids wherein each nucleic acid consists of two separate complementary strands, of equal or unequal length which process comprises:

(a) treating each of the two strands of each different specific nucleic acid sequence being amplified with a primer under conditions such that for each different sequence being amplified an extension product of each primer is synthesized which is complementary to a nucleic acid strand wherein said primers are selected so as to be substantially complementary to the different strands of each specific sequence such that the extension product synthesized from one primer when it is separated from its complement, serves as a template for synthesis of an extension product of the other primer

(b) separating the primer extension product from the templates on which they were synthesized to produce single-stranded molecules; and

(c) treating the single-stranded molecules generated from step (b) with the primers of step (a) under conditions such that a primer extension product is synthesized using each of the single strands produced in step (b) as a template

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(54) Kit for use in amplifying and detecting nucleic acid sequences.

(57) The present invention is directed to a kit for the amplification and detection of at least one specific nucleic acid sequence in a sample, which kit comprises in packaged form a multicontainer unit comprising:

(a) primer for each different specific nucleic acid sequence being amplified and detected selected so as to provide a primer substantially complementary to each strand of each specific sequence such that the extension product synthesized from one primer when it is separated from its complement, serves as a template for synthesis of an extension product of the other primer;

(b) means for synthesizing primer extension products; and

(c) means for detecting the amplified sequence or sequences.

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(54) Process for amplifying and detecting nucleic acid sequences.

(57) The present invention provides a process for detecting the presence or absence of at least one specific nucleic acid sequence in a sample or distinguishing between two different nucleic acid sequences in said sample wherein each nucleic acid sequence to be detected consists of two separate strands which process comprises amplifying the specific sequence or sequences (if present) by

(a) treating the sample with one oligonucleotide primer for each of the two strands of each different specific nucleic acid sequence being detected under hybridizing conditions such that for each strand of each different sequence being detected an extension product of each primer is synthesized which is complementary to each nucleic acid strand wherein said primers are selected so as to be substantially complementary to each strand of each specific sequence such that the extension product synthesized from one primer when it is separated from its complement, serves as a template for synthesis of an extension product of the other primer;

(b) treating the product of step (a) under denaturing conditions to separate the primer extension products from their templates

(c) treating the product of step (b) with oligonucleotide primers such that a primer extension product is synthesized using each of the single strands produced in step (b) as a template and

detecting the thus amplified sequence or sequences (if present)

EP 0 509 612 A2

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87301669.5 / 0 236 069

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Remarks.
This application was filed on 12 10 1996 as a divisional application to the application mentioned under INID code 62.

(54) Heat exchanger for use in a temperature cycling instrument

(57) The invention provides heat exchanger apparatus for use in a temperature-cycling instrument for automated temperature cycling of a plurality of reaction wells comprising.

a heat-conducting metal block having a top surface and a plurality of recesses communicating with said top surface for holding said reaction wells and

computer controllable means for heating and cooling said block repeatedly in a user-defined manner

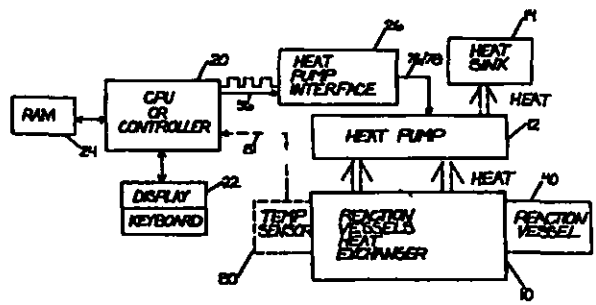

FIG. 1

EP 0 776 967 A2

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⑲日本国特許庁（JP）　⑪特許出願公開

⑫公開特許公報（A）　平1－256381

⑤Int.Cl	識別記号	庁内整理番号	⑬公開　平成1年(1989)10月12日
C 12 N 5/00		F－8515－4B	
A 01 G 1/00	302	C－8602－2B	

審査請求　未請求　請求項の数 2　（全10頁）

⑭発明の名称　イネカルスの誘導　増殖方法

⑳特　願　昭63－80211
㉒出　願　昭63(1988)3月31日

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明細書

1　発明の名称

イネカルスの誘導　増殖方法

2　特許請求の範囲

1　少なくとも無機塩類　炭素源　1種または2種以上のオーキシンおよび浸透圧調節剤を含む液体培地でイネ外植片を培養し　胚形成能を有するカルスを誘導する方法

2　特許請求の範囲第1項の方法で得たカルスを同様の培地に継代し　該カルスを増殖する方法

3　発明の詳細な説明

（産業上の利用分野）

本発明は　植物組織培養技術を用いた　イネ（Oryza sativa L）の大量増殖技術に関するものである　より詳しくは　胚形成能を有するイネカルスの誘導　増殖方法に関するものである

（従来の技術）

近年　組織培養技術の発達により　多数の植物で大量増殖による商業化の可能性が拓けつつあるイネ（Oryza sativa L）についても　大量増殖の可能性を示唆する技術がいくつか報告されているが　商業的に適用可能な技術に至っているとは言い難い

イネを組織培養によって増殖しようとする場合次の2通りが考えられる　まず第1の方法としては　イネ植物体組織片より　直接　不定芽又は不定胚を分化　誘導してイネを増殖する方法が考えられる　この技術については既にD E Lingら〔Plant Cell Reports 2:172(1983)〕　W Wernickeら〔Z Pflanzenphysiol 103 361(1981) E　J Cell Biol 24:347(1981)〕　D A Stuart and S G Strickland（国際公開公報 WO 87/02701）などによって報告されているが　個体若しくは不定胚の分化　誘導率は大変低く　増殖効率の点から　商業的な大量増殖技術には至っていない

第2の方法として　イネ植物体組織片よりカルスを誘導　増殖し　カルスから不定胚または不定芽を誘導　作出し　それらを植物体に再生する方法がある　イネカルスの誘導には　子房　葯　未熟胚　完熟種子　幼若葉　根　茎頂　幼穂など多

United States Patent [19]

Howell

[11] **4,407,956**

[45] **Oct. 4, 1983**

[54] **CLONED CAULIFLOWER MOSAIC VIRUS DNA AS A PLANT VEHICLE**

[75] Inventor: **Stephen H. Howell, Del Mar Calif.**

[73] Assignee: **The Regents of the University of California, Berkeley Calif**

[21] Appl. No. **243,330**

[22] Filed. **Mar 13, 1981**

[51] Int. Cl.³ **C12N 15/00; C12N 5/00; C12N 1/00**

[52] U.S. Cl. ... . **435/172; 435/240; 435/317 47/1 R, 47/DIG 1**

[58] Field of Search **435/172, 235 317 240**

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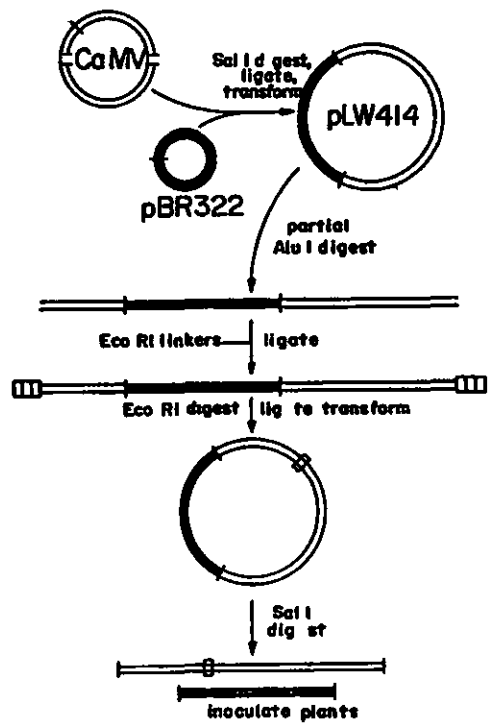
Shepherd, Ann. Rev Plant Physol vol. 30, pp. 405–423 (1979).
Szeto et al., Science vol. 196, pp. 210–212 (1977).
Meagher et al., Vinology vol. 80, pp. 362–375 (1977).
Howell et al., Science vol. 208, pp. 1265–1267 (Jun. 13, 1980).

Primary Examiner—Alvin E. Tanenholtz
Attorney, Agent, or Firm—Bertram I. Rowland

[57] **ABSTRACT**

Novel methods and compositions are provided for preparing vectors for the introduction of DNA into plant cells for transcription and expression of the DNA. Particularly cauliflower mosaic virus DNA is inserted into a bacterial cloning vehicle to provide a recombinant plasmid for cloning in a microorganism. The resulting cloned plasmid is genetically manipulated to introduce exogenous or heterologous DNA. Conveniently linkers can be inserted which provide for a unique restriction site for insertion of exogenous or heterologous DNA. At each stage the modified plasmid may be cloned to provide for relatively large amounts of material for modification and isolation. Besides insertions, deletions may be made, removing non-essential portions of the virus. After completion of the viral modifications, the CaMV is excised from the hybrid plasmid by restriction enzyme cleavage and may be used for systemic infection of plants.

10 Claims, 4 Drawing Figures



United States Patent [19]

Cheng

[11] Patent Number: 4,666,844

[45] Date of Patent: May 19, 1987

[54] PROCESS FOR REGENERATING CEREALS

[75] Inventor: David S. K. Cheng, Foster City Calif

[73] Assignee: Sungene Technologies Corporation, Palo Alto, Calif

[21] Appl. No. 648,388

[22] Filed. Sep. 7 1984

[51] Int. Cl.[4] C12N 5/00; C12N 5/02

[52] U.S. Cl. 435/240; 435/241 800/1

[58] Field of Search 435/240, 241 800/1

[56] References Cited

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The Yearbook of Agriculture 1961 Congressional Document, No. 29 2 plates.

Primary Examiner—Thomas G Wiseman

Assistant Examiner—David T Fox

Attorney, Agent, or Firm—Robbins & Laramie

[57] ABSTRACT

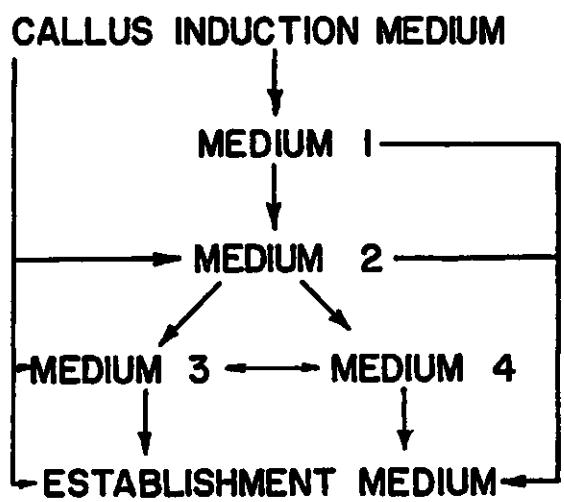
The present invention relates to the regeneration of cereals including barley corn, wheat, rice and sorghum. The process comprises the steps of

(a) culturing tissue obtained from a cereal plant on an induction medium comprising mineral salts, vitamins, sucrose and a hormone in an amount sufficient to ensure callus formation,

(b) culturing the callus on a series of media, said series comprising at least one medium and each medium comprises mineral salts, vitamins, sucrose and a hormone in an amount sufficient to insure differentiating to plantlets having shoots and roots at the completion of the series, and

(c) culturing the plantlets on an establishment medium comprising mineral salts, vitamins and sucrose, whereby the plantlets are established so that they can be transplanted to soil.

40 Claims, 1 Drawing Figure



United States Patent [19]

Mullis et al.

[11] **Patent Number: 4,683,195**

[45] **Date of Patent: * Jul. 28, 1987**

[54] **PROCESS FOR AMPLIFYING DETECTING, AND/OR-CLONING NUCLEIC ACID SEQUENCES**

[75] Inventors: Kary B. Mullis, Kensington, Henry A. Erlich, Oakland Norman Arnheim, Woodland Hills; Glenn T Horn, Emeryville; Randall K. Saiki, Richmond, Stephen J Scharf Berkeley all of Calif

[73] Assignee: Cetus Corporation, Emeryville, Calif

[ ] Notice: The portion of the term of this patent subsequent to Jul. 28 2004 has been disclaimed.

[21] Appl. No. 828,144

[22] Filed. Feb. 7 1986

Related U.S. Application Data

[60] Continuation-in-part of Ser No. 824,044, Jan. 30, 1986, abandoned, which is a division of Ser No. 791,308, Oct. 25, 1985, which is a continuation-in-part of Ser No. 716,975, Mar 28, 1985, abandoned.

[51] Int. Cl.[4] ..... C12Q 1/68; C12P 19/34 C12N 1/00; C12N 15/00; G01N 33/48 G01N 33/00; G01N 33/566; G01N 33/564· C07H 21/02, C07H 21/04

[52] U.S. Cl. ..... 435/6; 435/91 435/172.3; 435/317 436/63 436/94· 436/501 436/508, 536/27 536/28, 536/29· 935/17 935/18, 935/76; 935/77 935/78

[58] Field of Search ..... 435/91 172.3, 317 435/6; 536/27 28 29· 935/17 18, 78, 77 76; 436/63, 94, 501 508

[56] **References Cited**

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Rossi et al., *J Biol. Chem.*, 257 9226-9229 (1982).

Primary Examiner—James Martinell

Attorney, Agent, or Firm—Janet E. Hasak, Albert P Halluin

[57] **ABSTRACT**

The present invention is directed to a process for amplifying and detecting any target nucleic acid sequence contained in a nucleic acid or mixture thereof The process comprises treating separate complementary strands of the nucleic acid with a molar excess of two oligonucleotide primers, extending the primers to form complementary primer extension products which act as templates for synthesizing the desired nucleic acid sequence, and detecting the sequence so amplified. The steps of the reaction may be carried out stepwise or simultaneously and can be repeated as often as desired.

In addition, a specific nucleic acid sequence may be cloned into a vector by using primers to amplify the sequence, which contain restriction sites on their non-complementary ends, and a nucleic acid fragment may be prepared from an existing shorter fragment using the amplification process.

26 Claims, 12 Drawing Figures

United States Patent [19]

Mullis

[11] **Patent Number: 4,683,202**

[45] **Date of Patent: * Jul. 28, 1987**

[54] **PROCESS FOR AMPLIFYING NUCLEIC ACID SEQUENCES**

[75] Inventor: Kary B. Mullis, Kensington, Calif

[73] Assignee: Cetus Corporation, Emeryville, Calif

[ ] Notice: The portion of the term of this patent subsequent to Jul. 28, 2004 has been disclaimed.

[21] Appl. No. 791,308

[22] Filed. Oct. 25, 1985

Related U.S. Application Data

[63] Continuation-in-part of Ser No 716,975 Mar 28, 1985, abandoned.

[51] Int. Cl.[4] ..... C12P 19/34, C12N 15/00· C12N 1/00; C07H 21/04· C07H 21/02

[52] U.S. Cl. ..... 435/91, 435/177.3 435/317 536/27 536/28, 536/29· 935/17 935/18, 935/16

[58] Field of Search ..... 435/91 172.3 317 536/27 28, 29· 935/17 18

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Rossi et al *J Biol. Chem.* 257 9226–9229 (1982)

Primary Examiner—James Martinell

Attorney, Agent, or Firm—Janet E. Hasak, Albert P Hallum

[57] **ABSTRACT**

The present invention is directed to a process for amplifying any desired specific nucleic acid sequence contained in a nucleic acid or mixture thereof The process comprises treating separate complementary strands of the nucleic acid with a molar excess of two oligonucleotide primers, and extending the primers to form complementary primer extension products which act as templates for synthesizing the desired nucleic acid sequence. The steps of the reaction may be carried out stepwise or simultaneously and can be repeated as often as desired

21 Claims, 12 Drawing Figures

United States Patent [19]

Gelfand et al.

[11] **Patent Number: 4,889,818**

[45] **Date of Patent: Dec. 26, 1989**

[54] **PURIFIED THERMOSTABLE ENZYME**

[75] Inventors. **David H. Gelfand, Oakland, Susanne Stoffel, El Cerrito; Frances C. Lawyer Oakland; Randall K. Saiki, Richmond, all of Calif.**

[73] Assignee: **Cetus Corporation, Emeryville, Calif.**

[21] Appl. No.. **63,509**

[22] Filed. **Jun. 17 1987**

Related U.S. Application Data

[63] **Continuation-in-part of Ser No. 899,241, Aug. 22, 1986, abandoned.**

[51] **Int. Cl.[4] C12N 9/00**

[52] **U.S. Cl. 435/194; 135/183 935/14**

[58] **Field of Search 435/183, 194; 935/14**

[56] **References Cited**

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4,683,195 7/1987 Mullis et al.
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A. Chien et al., *J Bacteriol.* (1976) 127 1550–1557

Primary Examiner—Thomas G Wiseman
Assistant Examiner—Patricia Carson
Attorney, Agent, or Firm—Janet E. Hasak; Kevin R. Kaster· Albert P Halluin

[57] **ABSTRACT**

A purified thermostable enzyme is obtained that has unique characteristics. Preferably the enzyme is isolated from the *Thermus aquaticus* species and has a molecular weight of about 86,000–90,000 daltons. The thermostable enzyme may be native or recombinant and may be used in a temperature-cycling chain reaction wherein at least one nucleic acid sequence is amplified in quantity from an existing sequence with the aid of selected primers and nucleotide triphosphates. The enzyme is preferably stored in a buffer of non-ionic detergents that lends stability to the enzyme.

3 Claims, 2 Drawing Sheets

United States Patent [19]

Sanford et al.

[11] **Patent Number: 4,945,050**

[45] **Date of Patent: Jul. 31, 1990**

[54] **METHOD FOR TRANSPORTING SUBSTANCES INTO LIVING CELLS AND TISSUES AND APPARATUS THEREFOR**

[75] Inventors: John C. Sanford, Geneva; Edward D Wolf, Ithaca; Nelson K. Allen, Newfield, all of N Y

[73] Assignee: Cornell Research Foundation, Inc., Ithaca, N.Y

[21] Appl. No.. 670,771

[22] Filed. Nov 13, 1984

[51] Int. Cl.[5] C12N 15/00; C12N 15/89

[52] U.S. Cl. 435/172.1; 435/172.3; 435/173, 435/240.1 435/240.2; 424/3; 935/53; 935/54; 935/57 604/131, 604/140; 604/141 604/143

[58] Field of Search 435/172.1, 172.3, 173, 435/240, 243, 29 34, 35, 240.1, 240.2, 240.4, 252, 3, 6, 7 235; 935/52, 53, 55, 57 222/630; 604/131, 140, 141 143, 68, 70; 424/3, 7 1

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(List continued on next page.)

Primary Examiner—Randall F Deck

Attorney, Agent, or Firm—Sughrue, Mion, Zinn, Macpeak & Seas

[57] ABSTRACT

Inert or biologically active particles are propelled at cells at a speed whereby the particles penetrate the surface of the cells and become incorporated into the interior of the cells. The process can be used to mark cells or tissue or to biochemically affect tissues or tissue in situ as well as single cells in vitro. Apparatus for propelling the particles toward target cells or tissues are also disclosed. A method for releasing particles adhered to a rotor device is also disclosed.

22 Claims, 10 Drawing Sheets

United States Patent [19]

Mullis et al.

[11] Patent Number: 4,965,188

[45] Date of Patent: * Oct. 23, 1990

[54] **PROCESS FOR AMPLIFYING, DETECTING, AND/OR CLONING NUCLEIC ACID SEQUENCES USING A THERMOSTABLE ENZYME**

[75] Inventors: Kary B. Mullis, La Jolla; Henry A. Erlich; David H. Gelfand, both of Oakland, Glenn Horn, Emeryville; Randall K. Saiki, Richmond, all of Calif.

[73] Assignee: Cetus Corporation, Emeryville, Calif.

[ ] Notice: The portion of the term of this patent subsequent to Jul. 28, 2004 has been disclaimed.

[21] Appl. No. 63,647

[22] Filed. Jun. 17 1987

Related U.S. Application Data

[60] Continuation-in-part of Ser. No. 899,513, Aug. 22, 1986, abandoned, which is a continuation-in-part of Ser. No. 839,331, Mar. 13, 1986, abandoned, and a continuation-in-part of Ser. No. 828,144, Feb. 7 1986, Pat. No. 4,683,195, which is a continuation-in-part of Ser. No. 824,044, Jan. 30, 1986, abandoned, which is a division of Ser. No. 791,308, Oct. 25, 1985, Pat. No. 4,683,202, which is a continuation-in-part of Ser. No. 716,975, Mar. 28, 1985, abandoned.

[51] Int. Cl.[5] C12Q 1/68; C12P 21/00; C12P 19/34; C12N 15/00

[52] U.S. Cl. 435/6; 435/69 1, 435/91; 435/172.3; 935/17 935/78

[58] Field of Search ..... 435/6, 91, 172.3, 172.1 435/320, 69 1, 536/27· 935/17 18, 76, 77 78 436/63, 94, 501 508

[56] **References Cited**

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4,889,818	12/1989	Gelfand et al.	435/194

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200362	12/1986	European Pat. Off.	
201184	12/1986	European Pat. Off.	
0258017	2/1988	European Pat. Off.	435/172.3

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Primary Examiner—James Martinell
Attorney, Agent, or Firm—Kevin R. Kaster· Janet E. Hasak; Albert P Halluin

[57] **ABSTRACT**

A process for amplifying any target nucleic acid sequence contained in a nucleic acid or mixture thereof comprises treating separate complementary strands of the nucleic acid with a molar excess of two oligonucleotide primers and extending the primers with a thermostable enzyme to form complementary primer extension products which act as templates for synthesizing the desired nucleic acid sequence. The amplified sequence can be readily detected. The steps of the reaction can be repeated as often as desired and involve temperature cycling to effect hybridization, promotion of activity of the enzyme, and denaturation of the hybrids formed.

50 Claims, No Drawings

United States Patent [19]

Sanford et al.

[11] **Patent Number: 5,036,006**

[45] **Date of Patent: * Jul. 30, 1991**

[54] **METHOD FOR TRANSPORTING SUBSTANCES INTO LIVING CELLS AND TISSUES AND APPARATUS THEREFOR**

[75] Inventors: **John C. Sanford, Geneva, Edward D. Wolf, Ithaca, Nelson K. Allen, Newfield, all of N Y**

[73] Assignee: **Cornell Research Foundation, Inc., Ithaca, N Y**

[ ] Notice: **The portion of the term of this patent subsequent to Jul. 31 2007 has been disclaimed.**

[21] Appl. No. **394,899**

[22] Filed. **Aug. 17 1989**

Related U.S. Application Data

[63] *Continuation of Ser No. 877,619 Jun. 23, 1986, abandoned, Continuation-in-part of Ser No. 670,771 Nov 13, 1984, Pat. No. 4,945,050.*

[51] Int. Cl.[5] **C12N 15/00; C12N 5/00; C12N 1/00; C12N 7/00**

[52] U.S. Cl. ..... **435/170.1, 435/172.3 435/240.1 435/240.2, 435/240.4· 435/243; 435/235 1 435/254; 435/29· 935/52, 935/53, 424/3· 424/7 1**

[58] Field of Search ..... **435/172.1 29 34, 35 435/172.3, 173, 240, 240.2, 240.4, 243 252.3, 254, 6, 7 235· 935/52, 53; 424/3, 7 1 222/630; 604/131, 140, 141 143 68, 70**

[56] **References Cited**

U.S. PATENT DOCUMENTS

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3,207,445	9/1965	Court et al.	222/630 X
3,515 130	6/1970	Tsujino	604/143 X
3,853,125	12/1974	Clark et al.	604/70
4,124,024	11/1978	Schwebel et al.	604/140 X
4,446,990	5/1984	Stevenson et al.	222/630 X
4,473,328	9/1984	Hengesbach	222/630 X
4,527 884	7/1985	Nusser	222/630 X

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0270356	6/1988	European Pat. Off.	
0076091	5/1983	Japan	935/53

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Primary Examiner—David L. Lacey
Assistant Examiner—William H. Beisner
Attorney, Agent, or Firm—Sughrue, Mion, Zinn, Macpeak & Seas

[57] **ABSTRACT**

Inert or biologically active particles are accelerated or propelled at cells at a speed such that the particles can penetrate the surface of the cells and become incorporated into the interior of the cells. The process can be used to mark cells or tissue or to biochemically affect tissues or tissue in situ as well as single cells in vitro. Apparatus for accelerating or propelling the particles toward target cells or tissues are also disclosed. A method for releasing particles adhered to a rotor device is also disclosed.

13 Claims, 14 Drawing Sheets

US005100792A

United States Patent [19]

Sanford et al.

[11] Patent Number* 5,100,792

[45] Date of Patent: * Mar 31, 1992

[54] METHOD FOR TRANSPORTING SUBSTANCES INTO LIVING CELLS AND TISSUES

[75] Inventors. John C. Sanford, Geneva, Edward D Wolf, Ithaca, Nelson K. Allen, Newfield, all of N Y

[73] Assignee: Cornell Research Foundation, Inc., Ithaca, N Y

[ ] Notice The portion of the term of this patent subsequent to Jul. 30, 2008 has been disclaimed.

[21] Appl. No. 303,503

[22] Filed. Jan. 24, 1989

Related U.S. Application Data

[63] Continuation of Ser No. 670,771 Nov 13, 1984 Pat. No. 4,945,050.

[51] Int. Cl.[5] C12N 15/87

[52] U.S. Cl. ..... 435/172.1, 435/172.3· 435/173· 935/52, 935/53 935/57

[58] Field of Search 435/172.1 172.3, 173, 435/240.1 240.2, 240.4, 243, 252.3, 235, 6, 7 29 34, 35; 935/52, 53, 55, 57 222/630; 604/131 140 141 143, 68, 70; 424/3, 7 1

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Primary Examiner—David L. Lacey
Assistant Examiner—William H. Beisner
Attorney, Agent, or Firm—Sughrue, Mion, Zinn, Macpeak & Seas

[57] ABSTRACT

Inert or biologically active particles are propelled at cell at a speed whereby the particles penetrate the surface of the cells and become incorporated into the interior of the cells. The process can be used to mark cells or tissue or to biochemically affect tissues or tissue in situ as well as single cells in vitro. Apparatus for propelling the particles toward target cells or tissues are also disclosed. A method for releasing particles adhered to a rotor device is also disclosed.

18 Claims, 10 Drawing Sheets

US005128256A

United States Patent [19]

Huse et al.

[11] Patent Number: 5,128,256

[45] Date of Patent: Jul. 7, 1992

[54] DNA CLONING VECTORS WITH IN VIVO EXCISABLE PLASMIDS

[75] Inventors: William Huse, Del Mar; Joseph A. Sorge, Rancho Sante Fe; Jay M. Short, Encinitas, all of Calif

[73] Assignee: Stratagene, La Jolla, Calif

[21] Appl. No. 341,261

[22] Filed Apr 20, 1989

Related U.S. Application Data

[63] Continuation of Ser No. 2,441 Jan. 12, 1987 abandoned.

[51] Int. Cl.[5] C12N 15/10; C12N 15/70

[52] U.S. Cl. 435/172.3; 435/320.1

[58] Field of Search 435/320.1 172.3

[56] References Cited

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Primary Examiner—Richard A. Schwartz
Assistant Examiner—S. L. Nolan

[57] ABSTRACT

Vectors are described that circumvent traditional DNA cloning and subcloning procedures, and that contain a unique DNA cartridge that permits both cloning of DNA directly into DNA sequences present within the cartridge, and in vivo removal and circularization of the cartridge thereby yielding an autonomously replicating structure. Because the DNA cartridge can include a wide variety of functional DNA sequences, the cloned DNA can be subjected to a plethora of molecular biological procedures without having to remove the cloned DNA from the cartridge thereby obviating the need to perform additional subcloning techniques. A particularly useful example of this type of vector is bacteriophage lambda containing the DNA cartridge.

8 Claims, 16 Drawing Sheets

US005188957A

United States Patent [19]

Short et al.

[11] Patent Number: 5,188,957

[45] Date of Patent: Feb 23, 1993

[54] LAMBDA PACKAGING EXTRACT LACKING BETA-GALACTOSIDASE ACTIVITY

[75] Inventors: Jay M. Short, Encinitas; Patricia Kretz, San Marcos, both of Calif

[73] Assignee: Stratagene, La Jolla, Calif.

[21] Appl. No.: 661,396

[22] Filed: Feb. 26, 1991

Related U.S. Application Data

[63] Continuation-in-part of Ser No. 661,439, Feb. 25, 1991 abandoned.

[51] Int. Cl.[5] C12N 7/06; C12N 1/21

[52] U.S. Cl. 435/235.1; 435/252.33 435/69.1

[58] Field of Search 536/27 435/69.1 239 435/235.1 252.33 320.1

[56] References Cited

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Primary Examiner—Richard A. Schwartz
Assistant Examiner—James Ketter
Attorney, Agent, or Firm—Thomas Fitting

[57] ABSTRACT

A beta-galactosidase-free bacteriophage lambda DNA packaging extract is described. The extract can be produced from beta-galactosidase deficient lambda lysogens. Bacteriophage lambda lysogens having the genotype lacZ are provided.

7 Claims, No Drawings

US005204253A

United States Patent [19]

Sanford et al.

[11] Patent Number: 5,204,253

[45] Date of Patent: Apr 20, 1993

[54] **METHOD AND APPARATUS FOR INTRODUCING BIOLOGICAL SUBSTANCES INTO LIVING CELLS**

[75] Inventors: John C. Sanford; Michael J DeVit, both of Geneva, N Y Ronald F Bruner Sewell, N.J Stephen A. Johnston, Durham, N C.

[73] Assignee: E. I. Du Pont de Nemours and Company Wilmington, Del.

[21] Appl. No. 529,989

[22] Filed. May 29 1990

[51] Int. Cl.[5] ..... C12N 15/00; C12N 15/89· C12M 1/00

[52] U.S. Cl. ..... 435/172.3; 435/172.1 435/287 435/52, 435/53· 435/85

[58] Field of Search 435/172.1-172.3, 435/240.2, 240.1 284, 287 935/52, 53, 85 604/68-70; 124/61 71, 73

[56] References Cited

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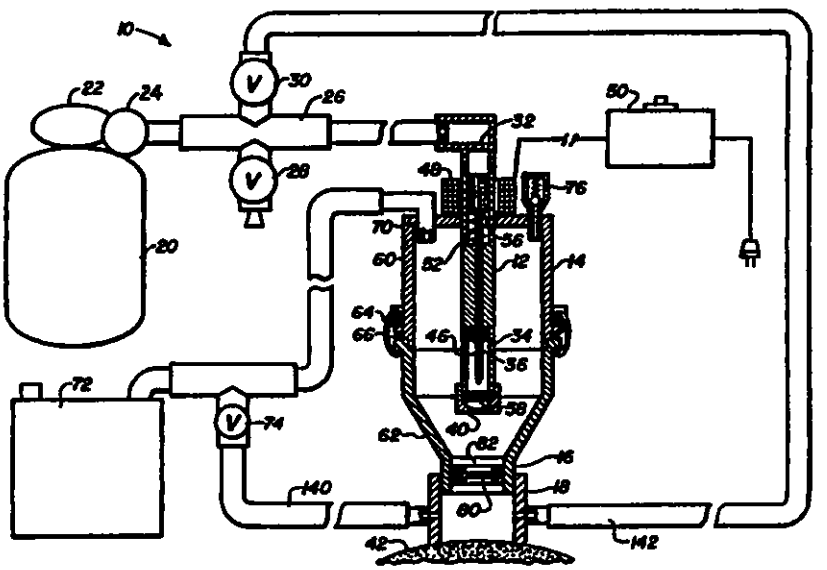
Primary Examiner—Robert J Warden
Assistant Examiner—William H. Beisner

[57] ABSTRACT

A process is described which uses a "cold" gas shock to accelerate microprojectiles wherein particles are presented to the gas shock on a planar surface perpendicular to the plane of expansion of the gas shock wave. Several different apparatus capable of accomplishing this method are described.

35 Claims, 9 Drawing Sheets



US005286636A

United States Patent [19]

Huse et al.

[11] Patent Number: 5,286,636

[45] Date of Patent: * Feb. 15, 1994

[54] DNA CLONING VECTORS WITH IN VIVO EXCISABLE PLASMIDS

[75] Inventors: William Huse, Del Mar; Joseph A. Sorge; Jay M. Short, both of San Diego, all of Calif.

[73] Assignee: Stratagene, La Jolla, Calif

[ ] Notice: The portion of the term of this patent subsequent to Jul. 7 2009 has been disclaimed.

[21] Appl. No. 856,556

[22] Filed. May 21, 1992

Related U.S. Application Data

[63] Continuation of Ser No. 341,261, Apr 20, 1989, Pat. No. 5,128,256, which is a continuation of Ser No. 2,441, Jan. 12, 1987 abandoned.

[51] Int. Cl.[5] C12N 15/10; C12N 15/70

[52] U.S. Cl. 435/172.3; 435/320.1

[58] Field of Search 435/172.3, 320.1

[56] References Cited

U.S. PATENT DOCUMENTS

5,128,256 7/1992 Huse et al. 435/172.3

Primary Examiner—Richard A. Schwartz
Assistant Examiner—Philip W Carter
Attorney, Agent, or Firm—J R. Wetherell, Jr

[57] ABSTRACT

Vectors are described that circumvent traditional DNA cloning and subcloning procedures, and that contain a unique DNA cartridge that permits both cloning of DNA directly into DNA sequences present within the cartridge, and in vivo removal and circularization of the cartridge thereby yielding an autonomously replicating structure. Because the DNA cartridge can include a wide variety of functional DNA sequences, the cloned DNA can be subjected to a plethora of molecular biological procedures without having to remove the cloned DNA from the cartridge thereby obviating the need to perform additional subcloning techniques. A particularly useful example of this type of vector is bacteriophage lambda containing the DNA cartridge.

11 Claims, 16 Drawing Sheets

US005316931A

United States Patent [19]

Donson et al.

[11] Patent Number: 5,316,931

[45] Date of Patent: May 31, 1994

[54] **PLANT VIRAL VECTORS HAVING HETEROLOGOUS SUBGENOMIC PROMOTERS FOR SYSTEMIC EXPRESSION OF FOREIGN GENES**

[75] Inventors: Jon Donson, Davis, Calif; William O Dawson, Winter Haven, Fla., George L. Granthan, Riverside, Calif; Thomas H. Turpen, Vacaville, Calif; Ann M. Turpen, Vacaville, Calif; Stephen J Garger Vacaville, Calif; Laurence K. Grill, Vacaville, Calif

[73] Assignee: Biosource Genetics Corp Vacaville, Calif

[21] Appl. No. 923,692

[22] Filed Jul. 31, 1992

Related U.S. Application Data

[63] Continuation-in-part of Ser No. 600,244, Oct. 22, 1990, abandoned, Ser No. 641,617 Jan. 16, 1991 abandoned, Ser No. 737,899 Jul. 26, 1991 abandoned, and Ser No. 739 143, Aug. 1, 1991 abandoned said Ser No. 600,244 is a continuation of Ser No. 310,881 Feb. 17 1989 abandoned, which is a continuation-in-part of Ser No. 160,766, Feb. 26, 1988, abandoned, and Ser No. 160,771 Feb. 26, 1988, abandoned, said Ser No. 641,617 is a continuation of Ser No. 347 637 May 5, 1989 abandoned, said Ser No. 737,899 is a continuation of Ser No. 363 138, Jun. 8, 1989 abandoned, which is a continuation-in-part of Ser No. 219,279 Jul. 15 1988, abandoned.

[51] Int. Cl.[5] C12N 15/83 A01H 5/00; C07H 21/04

[52] U.S. Cl. ..... 435/172.3; 435/69 1 435/70.1 435/320.1 536/23 72, 536/24 1 800/205 935/25· 935/57 935/64 935/67

[58] Field of Search ..... 435/69 1 70.1 172.3 435/320.1 536/23 72, 24 1 800/205· 935/25 57 64 67

[56] References Cited

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(List continued on next page.)

Primary Examiner—Patricia R. Moody
Attorney, Agent, or Firm—Albert P Halluin

[57] ABSTRACT

The present invention is directed to recombinant plant viral nucleic acids and to hosts infected thereby The recombinant plant viral nucleic acids comprise a native plant viral subgenomic promoter at least one non native plant viral subgenomic promoter a plant viral coat protein coding sequence, and optionally at least one non-native nucleic acid sequence to be transcribed or expressed in the infected host plant. The recombinant plant viral nucleic acids are stable, capable of systemic infection and capable of stable transcription or expression in the plant host of the non-native nucleic acid sequences.

38 Claims, 8 Drawing Sheets

US005322938A

United States Patent [19]

McPherson et al.

[11] Patent Number: 5,322,938

[45] Date of Patent: Jun. 21 1994

[54] **DNA SEQUENCE FOR ENHANCING THE EFFICIENCY OF TRANSCRIPTION**

[75] Inventors: Joan C. McPherson, Vancouver; Robert Kay West Vancouver both of Canada

[73] Assignee: Monsanto COmpany St. Louis, Mo.

[21] Appl No 977,600

[22] Filed Nov 17 1992

Related U.S. Application Data

[63] Continuation of Ser No. 395,155, Aug. 17 1989 Pat. No. 5,164,316, which is continuation of Ser No. 147 887 Jan. 25 1988, abandoned, which is a continuation-in-part of Ser No. 2,780, Jan. 13, 1987 abandoned.

[51] Int. Cl.[5] C07H 21/04 C12N 15/67 C12N 15/82

[52] U.S Cl. 536/24.1, 435/69 1 435/70.1 435/172.3 435/240 4 435/320.1 800/205 935/35 935/36

[58] Field of Search 435/172.3 320.1 69 1 435/70.1 240 4 800/205 935/35 36; 536/24 1

[56] References Cited

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Kumar et al 1986 Proc Natl Acad Sci 83.3199–3203

Primary Examiner—Patricia R. Moody

Attorney, Agent, or Firm—Grace L. Bonner; Dennis R. Hoerner; Richard H. Shear

[57] ABSTRACT

Novel transcription initiation regions that provide for enhanced transcription or a DNA sequence, particularly a plant sequence, are provided

6 Claims, 4 Drawing Sheets

US005350688A

United States Patent [19]

Matsuno et al.

[11] Patent Number: 5,350,688

[45] Date of Patent: Sep 27 1994

[54] METHOD FOR REGENERATION OF RICE PLANTS

[75] Inventors: Tsukanori Matsuno; Keiichiro Ishizaki, both of Kitsuregawa, Japan

[73] Assignee: Kirin Beer Kabushiki Kaisha, Tokyo, Japan

[21] Appl. No. 899,218

[22] Filed. Jun. 16, 1992

Related U.S. Application Data

[63] Continuation of Ser. No. 661,839 Feb. 27 1991, abandoned, which is a continuation of Ser No. 331,679 Mar 30, 1989, abandoned.

[30] Foreign Application Priority Data

Mar. 31, 1988 [JP] Japan 63-80211

[51] Int. Cl.[5] A01H 4/00

[52] U.S. Cl. 435/240.5; 435/240.48, 800/DIG 57

[58] Field of Search 435/240.4, 240.48, 240.49 435/240.5, 240.54; 800/DIG 57

[56] References Cited

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Primary Examiner—Che S. Chereskin
Attorney, Agent, or Firm—Gray Cary Ware & Freidenrich

[57] ABSTRACT

A method is provided for inducing rice callus having embryogenic potency by culturing a rice explant in a liquid medium containing at least inorganic salts, a carbon source, one or more auxins and an osmotic regulator and for proliferating the callus obtained by subculturing in a similar medium. This method enables the clonal proliferation of rice, so that the invention is useful for the industrial large-scale production of seedlings of all cultivars of rice including non-true bred cultivars and non-true bred lines.

4 Claims, 7 Drawing Sheets

US005352605A

United States Patent [19]

Fraley et al.

[11] Patent Number: 5,352,605

[45] Date of Patent: Oct. 4, 1994

[54] **CHIMERIC GENES FOR TRANSFORMING PLANT CELLS USING VIRAL PROMOTERS**

[75] Inventors: Robert T Fraley Ballwin, Robert B. Horsch; Stephen G. Rogers, both of St. Louis, all of Mo.

[73] Assignee: Monsanto Company St. Louis, Mo.

[21] Appl. No. 146,621

[22] Filed. Oct. 28, 1993

Related U.S. Application Data

[63] Continuation of Ser No. 625,637 Dec. 7 1990, abandoned, which is a continuation of Ser No. 931,492, Nov 17 1986, abandoned, which is a continuation-in-part of Ser No. 485,568, Apr. 15, 1983, abandoned, which is a continuation-in-part of Ser. No. 458,414, Jan. 17 1983, abandoned.

[51] Int. Cl.[5] C12N 5/00; C12N 15/00; C07H 21/04

[52] U.S. Cl. 435/240.4; 435/172.3, 435/320.1, 536/23.2; 536/24.1

[58] Field of Search 536/23.2, 24.1 435/172.3, 240.4, 320.1 800/205

[56] References Cited

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5,034,322	7/1991	Rogers et al.	435/172.3

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0116718	5/1990	European Pat. Off.	C12N 15/00
0131623	3/1991	European Pat. Off.	C12N 15/11
0142924	4/1992	European Pat. Off.	C12N 15/05
WO82/03087	9/1982	PCT Int'l Appl.	C12N 15/00

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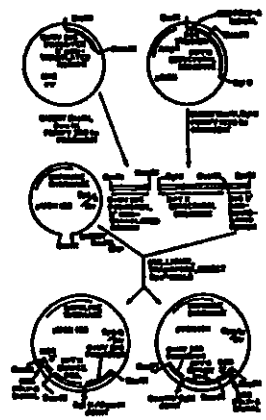
Primary Examiner—David T Fox

Attorney, Agent, or Firm—Lawrence M. Lavin, Jr Dennis R. Hoerner, Jr Howard C. Stanley

[57] ABSTRACT

In one aspect the present invention relates to the use of viral promoters in the expression of chimeric genes in plant cells. In another aspect this invention relates to chimeric genes which are capable of being expressed in plant cells, which utilize promoter regions derived from viruses which are capable of infecting plant cells. One such virus comprises the cauliflower mosaic virus (CaMV). Two different promoter regions have been derived from the CaMV genome and ligated to heterol ogous coding sequences to form chimeric genes. These chimeric genes have been shown to be expressed in plant cells. This invention also relates to plant cells, plant tissue, and differentiated plants which contain and express the chimeric genes of this invention.

19 Claims, 10 Drawing Sheets



US005550318A

United States Patent [19]

Adams et al.

[11] Patent Number: 5,550,318

[45] Date of Patent: Aug. 27, 1996

[54] **METHODS AND COMPOSITIONS FOR THE PRODUCTION OF STABLY TRANSFORMED FERTILE MONOCOT PLANTS AND CELLS THEREOF**

[75] Inventors: **Thomas R. Adams**, No. Stonington, **Sheryl A. Chambers**, Groton, **Richard J Daines**, Ledyard, **William J. Gordon-Kamm**; **Albert P Kausch**, both of Stonington, **Peggy G Lemaux**, Mystic; **Catherine J Mackey** Old Lyme, all of Conn., **Mary L. Mangano**, Westerly R.I. **James V O'Brien**, Mystic, Conn., **Thomas B. Rice**, Waterford, Conn., **T. Michael Spencer** Mystic, Conn., **William G Starr**, North Stonington, Conn., **Nancy G. Willetts**, Niantic, Conn.

[73] Assignee: **Dekalb Genetics Corporation**, Dekalb, Ill.

[21] Appl No.: **565,844**

[22] Filed: **Aug. 9, 1990**

Related U.S. Application Data

[63] Continuation of Ser. No. 513,298, Apr. 17 1990, abandoned.

[51] Int. Cl.[6] C12N 15/00; C12N 15/82; A01H 1/06, A01H 4/00

[52] U.S. Cl. 800/205, 800/DIG. 56, 435/172.1 435/172.3 435/240.4

[58] Field of Search 800/200, 205 47/58, 435/172.1 172.3, 240.4, 240.5, 172.1 13, 287

[56] **References Cited**

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0141373	5/1985	European Pat. Off.	
0154204	9/1985	European Pat. Off.	
0160390	11/1985	European Pat. Off.	
0193259	9/1986	European Pat. Off.	C12N 15/00
0204549	10/1986	European Pat. Off.	C12N 15/00
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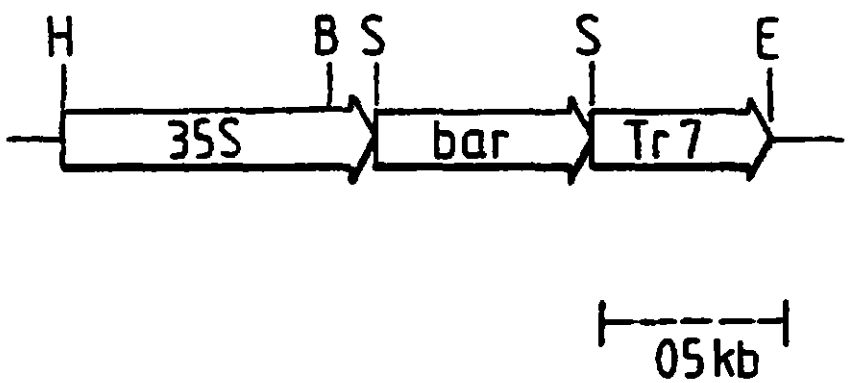
Primary Examiner—Gary Benzion
Attorney, Agent, or Firm—Arnold, White & Durkee

[57] **ABSTRACT**

This invention relates to a reproducible system for the production of stable, genetically transformed maize cells, and to methods of selecting cells that have been transformed. One method of selection disclosed employs the Streptomyces bar gene introduced by microprojectile bombardment into embryogenic maize cells which were grown in suspension cultures, followed by exposure to the herbicide bialaphos. The methods of achieving stable transformation disclosed herein include tissue culture methods and media, methods for the bombardment of recipient cells with the desired transforming DNA, and methods of growing fertile plants from the transformed cells. This invention also relates to the transformed cells and seeds and to the fertile plants grown from the transformed cells and to their pollen.

16 Claims, 11 Drawing Sheets



US005589367A

United States Patent [19]

Donson et al.

[11] Patent Number* 5,589,367

[45] Date of Patent. *Dec. 31, 1996

[54] RECOMBINANT PLANT VIRAL NUCLEIC ACIDS

[75] Inventors. Jon Donson, Davis, Calif., William O Dawson, Winter Haven, Fla. George L. Grantham, Riverside, Calif., Thomas H. Turpen, Vacaville, Calif Ann M. Turpen, Vacaville, Calif. Stephen J Garger Vacaville, Calif., Laurence K. Grill, Vacaville, Calif.

[73] Assignee: Biosource Technologies, Inc., Vacaville, Calif.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,316,931

[21] Appl. No. 184,237

[22] Filed. Jan. 19, 1994

Related U.S. Application Data

[63] Continuation of Ser. No. 923,692, Jul. 31, 1992, Pat. No. 5,316,931 which is a continuation-in-part of Ser. No. 600, 244, Oct. 22, 1990, abandoned, Ser. No. 641,617 Jan. 16, 1991 abandoned, Ser. No. 737,899, Jul. 26, 1991, abandoned, and Ser. No. 739,143, Aug. 1, 1991, abandoned, said Ser. No. 600,244, is a continuation of Ser. No. 310,881, Feb. 17 1989, abandoned, which is a continuation-in-part of Ser. No 160,766, Feb. 26, 1988, abandoned, and Ser. No. 160,771 Feb. 26, 1988, abandoned, said Ser. No. 641,617 is a continuation of Ser. No. 347,637 May 5, 1989 abandoned, said Ser. No. 737,899 is a continuation of Ser. No. 363,138, Jun. 8, 1989, abandoned, which is a continuation-in-part of Ser. No. 219,279 Jul. 15, 1988, abandoned.

[51] Int. Cl.[6] C12N 15/83; C12N 15/33 C12N 15/68

[52] U.S. Cl. ..... 435/172.3; 435/69 1 435/70.1 435/320.1 536/23 72; 536/24 1 800/205, 935/25 935/57· 935/64 935/67

[58] Field of Search 435/320.1 69 1 435/70.1 536/24.1 23.72; 800/205 935/25 57 64, 67

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Primary Examiner—Patricia R. Moody
Attorney, Agent, or Firm—Albert P Halluin, Pennie & Edmonds

[57] ABSTRACT

The present invention is directed to recombinant plant viral nucleic acids and to hosts infected thereby The recombinant plant viral nucleic acids comprise a native plant viral subgenomic promoter, at least one non-native plant viral subgenomic promoter, a plant viral coat protein coding sequence, and optionally at least one non-native nucleic acid sequence to be transcribed or expressed in the infected host plant. The recombinant plant viral nucleic acids are stable, capable of systemic infection and capable of stable transcription or expression in the plant host of the non-native nucleic acid sequences.

9 Claims, 8 Drawing Sheets

US005656493A

United States Patent [19]

Mullis et al.

[11] Patent Number* 5,656,493

[45] Date of Patent *Aug. 12, 1997

[54] **SYSTEM FOR AUTOMATED PERFORMANCE OF THE POLYMERASE CHAIN REACTION**

[75] Inventors: Kary B. Mullis, LaJolla, Larry Johnson, San Jose; Richard A. Leath, Berkley; Timothy J Wennberg, Mariposa, all of Calif. Louis M. Mezel, Madison, Wis. Joseph T. Widunas, Fremont, Calif

[73] Assignee: The Perkin-Elmer Corporation, Norwalk, Conn.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,038,852.

[21] Appl. No.: 199,505

[22] Filed: Feb. 18, 1994

Related U.S. Application Data

[63] Continuation of Ser. No. 21,624, Feb. 22, 1993, Pat. No. 5,333,675, which is a continuation of Ser. No. 709,374, Jun. 3, 1991 abandoned, which is a continuation of Ser. No. 899,061, Aug. 22, 1986, abandoned, which is a continuation-in-part of Ser. No. 833,368, Feb. 25, 1986, abandoned, said Ser. No. 709,374, is a continuation of Ser. No. 716,975, Mar. 28 1985, abandoned.

[51] Int. Cl.[6] C12M 3/02, C12M 1/00; G01N 21/00; C12N 15/00

[52] U.S. Cl. ..... 435/286.1, 435/6; 435/91.1, 435/91.2; 435/287.2, 435/285.1, 422/50; 422/62; 236/1 C; 236/15 RG; 236/91 R, 236/97; 935/76; 935/77 935/87 935/88

[58] Field of Search ..... 435/6, 183, 91.1, 435/91.2, 286.11, 287 1, 287.2, 285.1, 536/23.1, 24.3, 24.33, 25.3 935/76, 77 85, 87 88, 422/50, 62, 236/91 R, 97 1 C, 15 BG

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Primary Examiner—Bradley L. Sisson
Attorney, Agent, or Firm—William J Hone; Richard P Ferrara

[57] **ABSTRACT**

There is disclosed herein a machine for performing nucleic acid amplification under computer control. The machine utilizes any one of a number of heating and cooling systems under control of a host computer which directs the heating and cooling systems to heat and cool a reaction-chamber containing heat exchanger at appropriate times in the process. The reaction chambers are pre-loaded with the nucleic acid(s) to be amplified, a thermostable enzyme to catalyze polymerization, specific oligonucleotide primers, and four different nucleotide triphosphates. Also disclosed is the process for the amplification chain reaction implemented by the machine, which utilizes a thermostable enzyme.

17 Claims, 19 Drawing Sheets

Microfiche Appendix Included
(1 Microfiche, 88 Pages)

US005668005A

United States Patent [19]

Kotewicz et al.

[11] Patent Number 5,668,005

[45] Date of Patent *Sep 16, 1997

[54] CLONED GENES ENCODING REVERSE TRANSCRIPTASE LACKING RNASE H ACTIVITY

[75] Inventors: Michael Leslie Kotewicz, Columbia, Gary Floyd Gerard, Frederick, both of Md.

[73] Assignee: Life Technologies, Inc. Rockville, Md.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,405,776.

[21] Appl. No.: 614,260

[22] Filed: Mar. 12, 1996

Related U.S. Application Data

[63] Continuation of Ser. No. 404,907 Mar. 15, 1995, abandoned, which is a continuation of Ser. No. 825,260, Jan. 24 1992, Pat. No. 5,405,776, which is a division of Ser. No. 671,156, Mar. 18, 1991 Pat. No. 5,244,797 which is a continuation of Ser. No. 143,396, Jan. 13, 1988, abandoned.

[51] Int. Cl.[6] C12N 9/12; C12N 15/00; C12N 15/54, C12N 15/70

[52] U.S. Cl. 435/194, 435/69.1 435/91.51 435/172.3 435/320.1 435/69.7 435/252.3 435/252.33 435/810; 536/23.2, 536/23.4 935/10; 935/14 935/29; 935/36; 935/47 935/66; 935/73 935/18

[58] Field of Search 435/69.1, 69.7 435/91.51, 172.3 252.3 252.33, 320.6, 810; 536/23.2, 23.4

[56] References Cited

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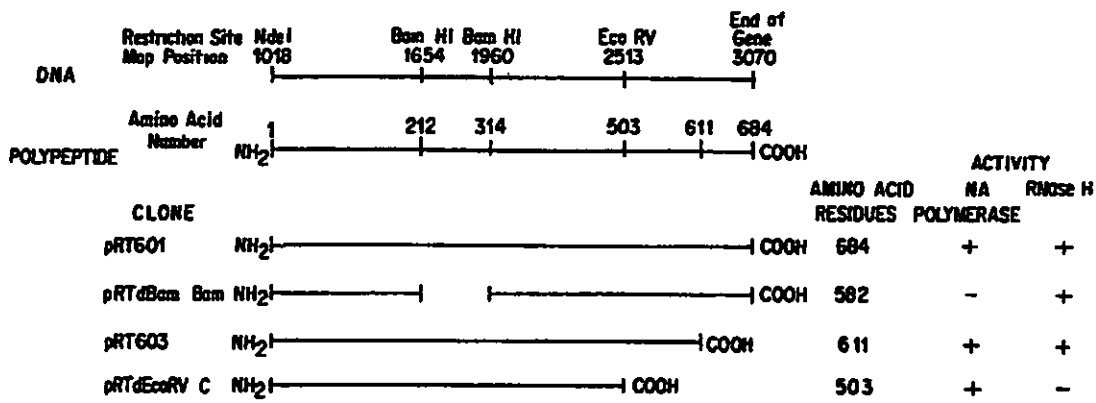
Primary Examiner—Robert A. Wax
Assistant Examiner—William W Moore
Attorney, Agent, or Firm—Sterne, Kessler, Goldstein & Fox P.L.L.C.

[57] ABSTRACT

The invention relates to a gene which encodes reverse transcriptase having DNA polymerase activity and substantially no RNase H activity. The invention also relates to vectors containing the gene and hosts transformed with the vectors of the invention. The invention also relates to a method of producing reverse transcriptase having DNA polymerase activity and substantially no RNase H activity by expressing the reverse transcriptase genes of the present invention in a host. The invention also relates to a method of producing cDNA from mRNA using the reverse transcriptase of the invention. The invention also relates to a kit for the preparation of cDNA from mRNA comprising the reverse transcriptase of the invention.

37 Claims, 8 Drawing Sheets



US005668298A

United States Patent [19]

Waldron

[11] Patent Number: 5,668,298

[45] Date of Patent: Sep 16, 1997

[54] SELECTABLE MARKER FOR DEVELOPMENT OF VECTORS AND TRANSFORMATION SYSTEMS IN PLANTS

[75] Inventor: Clive Waldron, Indianapolis, Ind.

[73] Assignee: Eli Lilly and Company Indianapolis, Ind.

[21] Appl. No.: 485,572

[22] Filed: Jun. 7 1995

Related U.S. Application Data

[63] Continuation of Ser. No. 586,317 Sep. 19 1990 which is continuation of Ser. No. 169,560, Mar. 17 1988 abandoned, which is a continuation of Ser. No. 685,824, Dec. 24, 1984, abandoned.

[51] Int. Cl.[6] A01H 5/00; A01H 5/10; C12N 15/31 C12N 15/84, C12N 5/04

[52] U.S. Cl. 800/205; 800/250; 800/255, 536/23.2, 536/23.4, 536/23.7 435/69.1 435/69.7 435/70.1 435/172.3 435/194 435/252.2, 435/320.1, 435/418

[58] Field of Search 435/172.3 320.1, 435/69.1, 70.1, 240.4, 194, 252.2, 69.7 536/23.2, 23.4, 23.7 800/205, 250, 255

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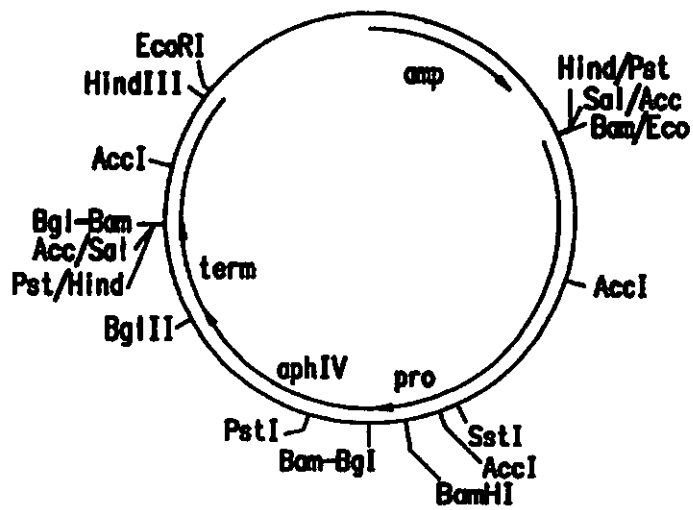
(List continued on next page.)

Primary Examiner—David T. Fox
Attorney, Agent, or Firm—Pennie & Edmonds, LLP

[57] ABSTRACT

The present invention discloses functional and selectable micro-Ti plasmids. The hygromycin phosphotransferase (aphIV) gene from *Escherichia coli* was inserted between the 5' promoter and associated amino terminal region-encoding sequence of an octopine synthetase gene and the 3' terminator signal sequence of a nopaline synthetase gene. These constructs were assembled between T-DNA border fragments in a broad-host-range vector and used to create antibiotic-resistant plant cells.

27 Claims, 3 Drawing Sheets



RESTRICTION SITE AND FUNCTION MAP OF PLASMID pCEL40
(8.45 kb)

US005858742A

United States Patent [19]

Fraley et al.

[11] Patent Number* 5,858,742

[45] Date of Patent *Jan 12, 1999

[54] CHIMERIC GENES FOR TRANSFORMING PLANT CELLS USING VIRAL PROMOTERS

[75] Inventors: Robert Thomas Fraley Robert Bruce Horsch, both of St. Louis, Stephen Gary Rogers, Chesterfield, all of Mo

[73] Assignee Monsanto Company St. Louis, Mo

[ ] Notice The term of this patent shall not extend beyond the expiration date of Pat. Nos 5,530 196 and 5,352,605

[21] Appl No. 669,672

[22] Filed Jun. 24, 1996

Related U.S. Application Data

[63] Continuation of Ser. No. 300,029 Sep. 2, 1994 Pat. No 5,530,196, which is continuation of Ser. No. 146,621 Oct. 28, 1993 Pat. No. 5,352,605, which is continuation of Ser. No. 625,637 Dec. 7 1990, abandoned, which is continuation of Ser. No. 931,492, Nov 17 1986 abandoned, which is a continuatio -in-part f Ser. No. 485,568, Apr. 15 1983 abandoned, which is a continuation-in-part of Ser. No. 458,414 Jan. 17 1983, abandoned.

[51] Int. Cl. C12N 15/34 C12N 15/54 C12N 15/82, C12N 15/83

[52] U.S. Cl. ..... 435/172.3 435/69 1, 435/320 1 435/418, 435/419· 536/23 72; 536/24 1

[58] Field of Search 536/24 1 23 72, 536/69 1 435/172.3, 320 1, 418 419

[56] References Cited

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Primary Examiner—David T Fox
Attorney Agent, or Firm—Lawrence M Lavin, Jr Arnold, White & Durkee

[57] ABSTRACT

In one aspect the present invention relates to the use of viral promoters in the expression of chimeric genes in plant cells. In another aspect this invention relates to chimeric genes which are capable of being expressed in plant cells, which utilize promoter regions derived from viruses which are capable of infecting plant cells One such virus comprises the cauliflower mosaic virus (CaMV). Two different promoter regions have been derived from the CaMV genome and ligated to heterologous coding sequences to form chimeric genes. These chimeric genes have been shown to be expressed in plant cells. This invention also relates to plant cells, plant tissue, and differentiated plants which contain and express the chimeric genes of this invention.

6 Claims, 10 Drawing Sheets

US006004287A

United States Patent [19]

Loomis et al.

[11] Patent Number: 6,004,287

[45] Date of Patent: Dec. 21, 1999

[54] **BIOLISTIC APPARATUS FOR DELIVERING SUBSTANCES INTO CELLS AND TISSUES**

[76] Inventors. **Dale J Loomis**, 334 S George Rd Freeville N Y 13068 **Joe Celeste** 3411 Rte 414 Burdett, N Y 14819 **John Sanford**, 43 Sunset Dr. Geneva, N Y 14456

[21] Appl No **09/158,816**

[22] Filed. **Sep 23, 1998**

Related U.S. Application Data

[60] Provisional application No 60/059 771 Sep. 23 1997

[51] **Int. Cl.** **A61M 11/00**

[52] **U.S Cl.** ... **604/68, 604/141**

[58] **Field of Search** ... 604/68, 69 70 604/71, 151, 152, 140, 141 143

[56] **References Cited**

U.S PATENT DOCUMENTS

5,569 190 10/1996 D'Antonio ... 604/68 X
5,599,302 2/1997 Lilley et al. ... 604/68
5,851,198 12/1998 Castellano et al. ... 604/68
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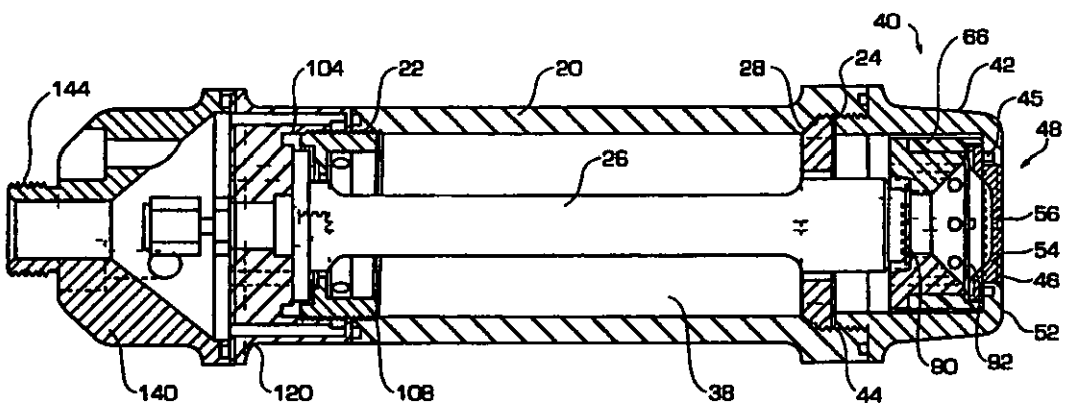
Primary Examiner—John D Yaskos
Attorney Agent or Firm—Sughrue Mion, Zinn Macpeak & Seas, PLLC

[57] **ABSTRACT**

A biolistic apparatus is provided with a housing having a carrier membrane disposed in a chamber for movement relative to an outlet plate having a plurality of apertures therein The carrier membrane has a plurality of macroparticles adhered thereto on the surface of the membrane adjacent the apertures for delivery into cells or tissue. A plurality of rupturable membranes are mounted in spaced relation to the carrier membrane Initially a vacuum is provided within the assembly including the outlet opening to purge the apparatus of any undesirable gasses. High pressure helium is then delivered to the rupturable membranes and upon reaching a predetermined pressure, will cause the membranes to rupture allowing a shock front of high pressure helium to strike the carrier membrane and impel the articles through the outlet openings.

6 Claims, 7 Drawing Sheets



US006048730A

United States Patent [19]

Waldron

[11] Patent Number* 6,048,730

[45] Date of Patent *Apr 11, 2000

[54] **SELECTABLE MARKER FOR DEVELOPMENT OF VECTORS AND TRANSFORMATION SYSTEMS IN PLANTS**

[75] Inventor Clive Waldron, Indianapolis, Ind

[73] Assignee Novartis AG Basel, Switzerland

[ ] Notice This patent is subject to a terminal disclaimer

[21] Appl No 07/586,317

[22] Filed Sep. 19 1990

Related U.S. Application Data

[63] Continuation of application No. 07/169,560, Mar. 17 1988, abandoned, which is continuation of application No 06/685,824, Dec. 24 1984 abandoned.

[51] Int. Cl. C12N 15/54 C12N 5/04 C12N 15/82, C12N 15/84

[52] U.S. Cl. ..... 435/468, 435/69.1 435/69 7 435/194 435/320 1 435/418, 435/419 435/469· 800/288, 800/294 800/300· 536/23 4 536/23 7

[58] Field of Search 536/27 23.4 23 7 435/69 1, 69 7 70 1 172.3, 183 320 1 240.4, 468, 194 469 418, 419 935/30 47 67 800/205 250, 288, 294 298 300

[56] References Cited

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5,668,298	9/1997	Waldron	800/205

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80893/87	11/1987	Australia	435/172.3
0140556	9/1984	European Pat. Off	435/172.3
0289478	4/1988	European Pat. Off	435/172.3
2100738	6/1982	United Kingdom	C12N 15/00
WO 94/02913 PCT/US85/ 02488	8/1984 6/1986	WIPO WIPO	C12N 5/00

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(List continued on next page)

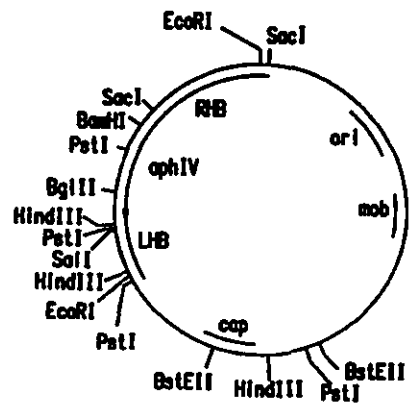
Primary Examiner—David T Fox

Attorney Agent, or Firm—George C. Jen

[57] ABSTRACT

The present invention discloses functional and selectable micro-Ti plasmids. The hygromycin phosphotransferase (aphIV) gene from *Escherichia coli* was inserted between the 5' promoter and associated amino terminal region encoding sequence of an octopine synthetase gene and the 3 terminator signal sequence of a nopaline synthetase gene These constructs were assembled between T DNA border fragments in a broad-host-range vector and used to create antibiotic-resistant plant cells.

17 Claims, 3 Drawing Sheets



RESTRICTION SITE AND FUNCTION MAP OF PLASMID pCEL44 (17.5 kb)

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6
A61M 5/30

A1

(11) International Publication Number: WO 00/16828

(43) International Publication Date: 30 March 2000 (30.03.00)

(21) International Application Number: PCT/US99/21746

(22) International Filing Date: 23 September 1999 (23.09.99)

(30) Priority Data.
09/158,816 23 September 1998 (23.09.98) US

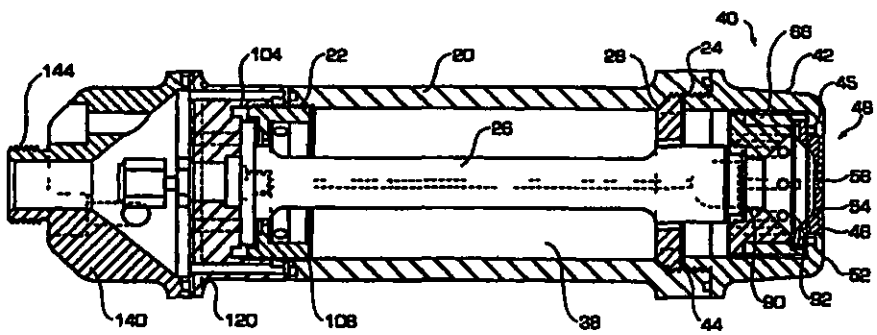
(71)(72) Applicants and Inventors: LOOMIS Dale, J [US/US]; 334 So. George Road, Freeville, NY 13068 (US). CELESTE, Joe [US/US] 3411 Route 414, Burdett, NY 14819 (US) SANFORD John [US/US] 43 Sunset Drive, Geneva, NY 14456 (US).

(74) Agents: NEILS Paul, F et al., Sughrue, Mion, Zinn, MacPeak & Seas, PLLC, Suite 800, 2100 Pennsylvania Avenue, N.W Washington, DC 20037–3213 (US).

(81) Designated States: JP European patent (AT BE, CH, CY DE, DK, ES, FI, FR, GB GR IE, IT LU MC, NL, PT SE).

Published
With international search report.

(54) Title. BIOLISTIC APPARATUS FOR DELIVERING SUBSTANCES INTO CELLS AND TISSUES



(57) Abstract

A biolistic apparatus is provided with a housing (20) having a carrier membrane disposed in a chamber for movement relative to an outlet plate (48) having a plurality of apertures (56) therein. The carrier membrane (90) has a plurality of micro-particles adhered thereto on the surface of the membrane adjacent the apertures for delivery into cells or tissue. A plurality of rupturable membranes are mounted in spaced relation to the carrier membrane. Initially a vacuum is provided within the assembly including the outlet opening to purge the apparatus of any undesirable gasses. High-pressure helium is then delivered to the rupturable membranes, and upon reaching a predetermined pressure, will cause the membranes to rupture allowing a shock front of high-pressure helium to strike the carrier membrane, and impel the articles through the outlet openings.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 3
C07H 15/12, C12N 15/00, 1/20
C12Q 1/68

A1

(11) International Publication Number WO 84/ 02913

(43) International Publication Date 2 August 1984 (02.08 84)

(21) International Application Number PCT/US84/00048

(22) International Filing Date 16 January 1984 (16 01.84)

(31) Priority Application Numbers 458,414
485,568

(32) Priority Dates 17 January 1983 (17 01 83)
15 April 1983 (15 04.83)

(33) Priority Country US

(71) Applicant MONSANTO COMPANY [US/US] 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US).

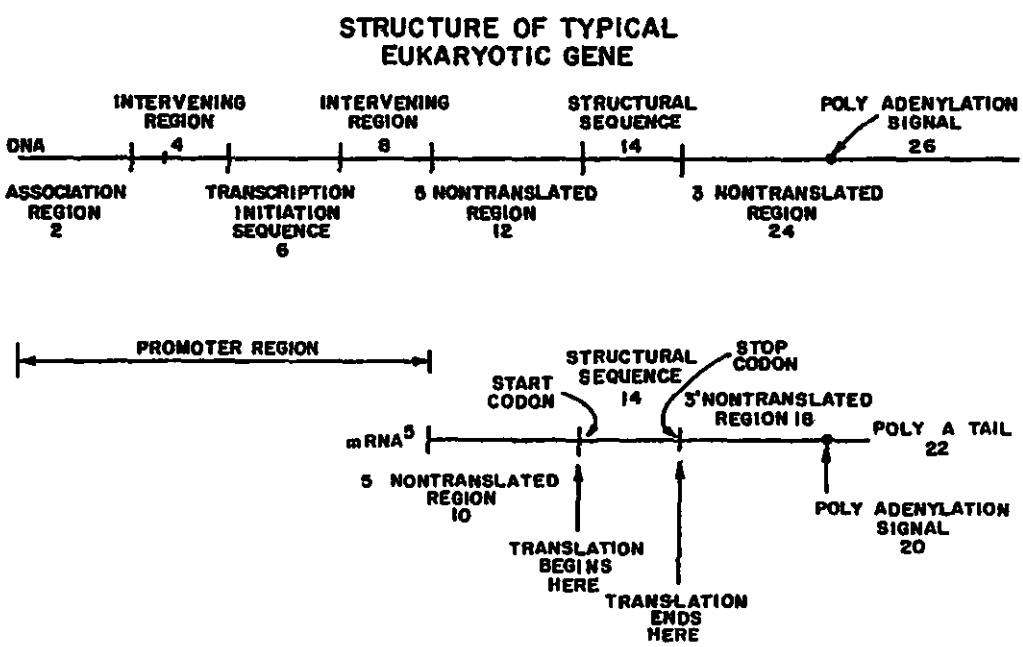
(72) Inventors FRALEY Robert, Thomas 828 Lisakay Drive, Glendale, MO 63167 (US). ROGERS, Stephen, Gary 312 Sylvester Avenue, Webster Groves, MO 63119 (US).

(74) Agent BRUSOK, Fabian, A. 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US)

(81) Designated States AT (European patent), BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), JP LU (European patent), NL (European patent), SE (European patent).

Published
With international search report

(54) Title CHIMERIC GENES SUITABLE FOR EXPRESSION IN PLANT CELLS



(57) Abstract

Chimeric genes which are capable of being expressed in plant cells. Such genes contain (a) a promoter region derived from a gene which is expressed in plant cells, such as the nopaline synthase gene (b) a coding or structural sequence which is heterologous with respect to the promoter region and (c) preferably an appropriate 3 non-translated region. Such genes have been used to create antibiotic-resistant plant cells they are also useful for creating herbicide-resistant plants, and plants which contain mammalian polypeptides.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 4 C12P 19/34 C12N 15/00 7/00 C07H 15/12	A1	(11) International Publication Number (43) International Publication Date	WO 88/ 05085 14 July 1988 (14 07 88)

(21) International Application Number PCT/US88/00020
(22) International Filing Date 12 January 1988 (12.01.88)
(31) Priority Application Number 002,441
(32) Priority Date 12 January 1987 (12.01.87)
(33) Priority Country US

(71) Applicant STRATAGENE, INC. [US/US] 11099 North Torrey Pines Road, La Jolla, CA 93037 (US).

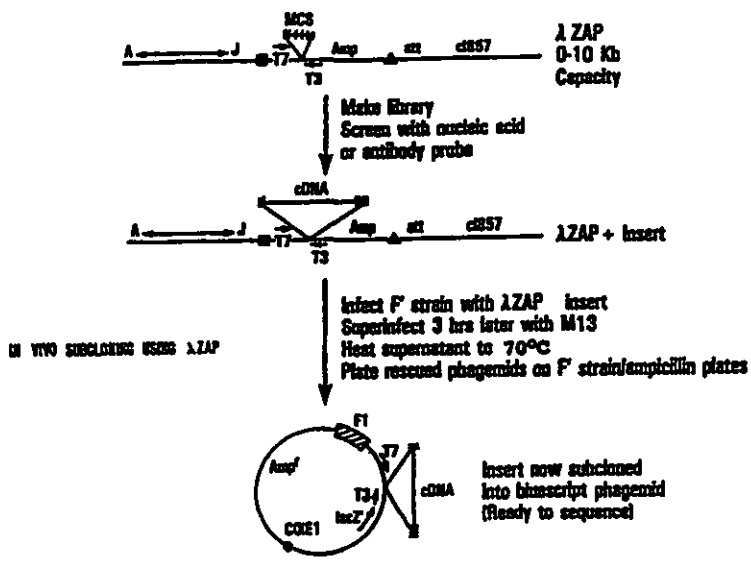
(72) Inventors HUSE, William 471 Avenida Primavera, Del Mar CA 92014 (US). SORGE, Joseph, A. 13468 Kibbings Road, San Diego CA 92130 (US). SHORT Jay M. 4355-18 Nobel Drive, San Diego CA 92122 (US)

(74) Agents KENNEY J Ernest 625 Slaters Lane Fourth Floor Alexandria, VA 22314 (US) et al.

(81) Designated State JP

Published
With international search report.

(54) Title DNA CLONING VECTORS WITH *IN VIVO* EXCISABLE PLASMIDS



(57) Abstract

Vectors that circumvent traditional DNA cloning and subcloning procedures, and that contain a unique DNA cartridge that permits both cloning of DNA directly into DNA sequences present within the cartridge, and *in vivo* removal and circularization of the cartridge thereby yielding an autonomously replicating structure. Because the DNA cartridge can include a wide variety of functional DNA sequences, the cloned DNA can be subjected to a plethora of molecular biological procedures without having to remove the cloned DNA from the cartridge thereby obviating the need to perform additional subcloning technique. A particularly useful example of this type of vector is bacteriophage lambda containing the DNA cartridge.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5
C12N 15/87 C12M 1/00, 3/00

A1

(11) International Publication Number: WO 91/18991

(43) International Publication Date: 12 December 1991 (12.12.91)

(21) International Application Number: PCT/US91/02816

(22) International Filing Date: 29 April 1991 (29.04.91)

(30) Priority data
529,989 29 May 1990 (29.05.90) US

(71) Applicants: E.I. DU PONT DE NEMOURS AND COMPANY [US/US], 1007 Market Street, Wilmington, DE 19898 (US). CORNELL RESEARCH FOUNDATION, INC. [US/US] Cornell Business & Technology Park, 20 Thornwood Drive, Suite 105, Ithaca, NY 14850 (US). DUKE UNIVERSITY [US/US] Durham, NC 27706 (US).

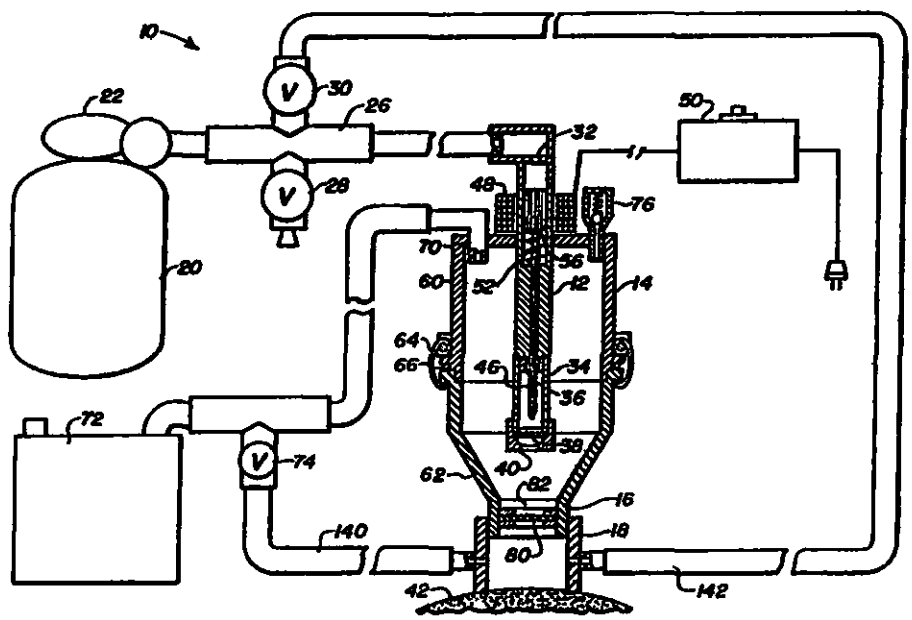
(72) Inventors: BRUNER, Ronald, F 93 Freedom Road, Sewell, NJ 08080 (US). DE VIT, Michael, J , 36 Genesee Street, Geneva, NY 14456 (US). JOHNSTON Stephen, A. , 309 North Gregson Street, Durham, NC 27701 (US). SANFORD, John, C. 43 Sunset Drive, Geneva, NY 14456 (US).

(74) Agents: WEIGEL, Charles, A., Jr et al. E.I. du Pont de Nemours and Company Legal/Patent Records Center 1007 Market Street, Wilmington, DE 19898 (US)

(81) Designated States: AT (European patent), AU BB, BE (European patent), BF (OAPI patent), BG BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH (European patent), CI (OAPI patent), CM (OAPI patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GA (OAPI patent), GB (European patent), GN (OAPI patent), GR (European patent), HU IT (European patent), JP KR, LK, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW NL (European patent) NO PL, RO SD SE (European patent), SN (OAPI patent), SU TD (OAPI patent), TG (OAPI patent).

Published
With international search report.

(54) Title: IMPROVED METHOD AND APPARATUS FOR INTRODUCING BIOLOGICAL SUBSTANCES INTO LIVING CELLS



(57) Abstract

A process is described which uses a cold gas shock to accelerate microprojectiles, wherein particles are presented to the gas shock on a planar surface perpendicular to the plane of expansion of the gas shock wave. Several different apparatus capable of accomplishing this method are described.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5
C12N 15/89 A01H 5/00

A1

(11) International Publication Number WO 92/20809

(43) International Publication Date 26 November 1992 (26 11.92)

(21) International Application Number PCT/US92/03955

(22) International Filing Date 11 May 1992 (11 05.92)

(30) Priority data
701 416 15 May 1991 (15 05.91) US

(71) Applicant AGRACETUS, INC. [US/US] 8530 University Green, Middleton, WI 53562 (US)

(72) Inventors CHRISTOU Paul 26 Sandy Court, Madison, WI 53715 (US). FORD Tameria, L. 604 West Street, Waunakee, WI 53597 (US). KOFRON Matt 2722 C.T.H. MM, Madison, WI 53711 (US).

(74) Agent SEAY Nicholas, J Quarles & Brady P O Box 2113, Madison, WI 53701 2113 (US).

(81) Designated States AT (European patent), AU BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP LU (European patent), MC (European patent), NL (European patent), SE (European patent).

Published
With international search report.

(54) Title METHOD OF CREATING A TRANSFORMED RICE PLANT

(57) Abstract

A method of transforming rice is disclosed. The method begins with the preparation of copies of a nucleic acid construct that are coated onto biologically inert carrier particles. In one embodiment, the nucleic acid-coated carrier particles are physically accelerated toward immature rice embryos. In another embodiment, the nucleic acid-coated carrier particles are accelerated toward discs excised from the meristem region of a rice seedling. Both the bombarded embryos and discs are cultivated to produce shoots. These shoots are cultivated into whole sexually mature plants, some of which are transformed. The presence of the nucleic acid construct is verified in either the shoots or the sexually mature plants. A particularly advantageous embodiment of the invention is a transformed Indica rice plant.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : A01H 4/00 — A1

(11) International Publication Number: WO 94/19930

(43) International Publication Date: 15 September 1994 (15.09.94)

(21) International Application Number: PCT/CA94/00127

(22) International Filing Date: 10 March 1994 (10.03.94)

(30) Priority Data:
08/029,652 11 March 1993 (11.03.93) US

(71) Applicant (*for all designated States except US*): NATIONAL RESEARCH COUNCIL OF CANADA [CA/CA]; Montreal Road, Ottawa, Ontario K1A 0R6 (CA).

(72) Inventors; and
(75) Inventors/Applicants (*for US only*): NEHRA, Narender, S. [IN/CA]; 806 105 Cumberland Avenue South, Saskatoon, Saskatchewan S7N 1L7 (CA). KARTHA, Kutty K. [CA/CA]; 214 Auld Crescent, Saskatoon, Saskatchewan S7H 4W9 (CA) CHIBBAR, Ravindra, N. [CA/CA]; 110 Gymnasium Place, Saskatoon, Saskatchewan S7N 0W9 (CA).

(74) Agent: ANDERSON, J Wayne; National Research Council of Canada, Intellectual Property Protection Office, EG-10, M-58, Montreal Road, Ottawa, Ontario K1A 0R6 (CA)

(81) Designated States: AT AU BB, BG, BR, BY CA, CH, CN CZ, DE, DK, ES, FI, GB, HU JP KP KR, KZ, LK, LU LV MG, MN MW NL, NO, NZ, PL, PT RO, RU SD SE, SK, UA, US, UZ, VN European patent (AT BE, CH, DE, DK, ES, FR, GB, GR, IE, IT LU MC, NL, PT SE), OAPI patent (BF BJ CF CG, CI, CM, GA, GN, ML, MR, NE, SN TD TG).

Published
With international search report.

(54) Title: ENHANCED REGENERATION SYSTEM FOR CEREALS

(57) Abstract

Whole scutella are isolated from immature zygotic embryos of cereal plants and cultured, in the absence of the zygotic embryo axis, to produce somatic embryos, which in turn are converted into plantlets. The scutellar cells optionally are transformed with foreign DNA so that at least some of the resulting plantlets are transgenic. The regeneration is much more efficient and rapid than with conventional methods.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6
C12N 15/82, 15/40, 15/62, 7/01, 5/10

A1

(11) International Publication Number: WO 96/12028

(43) International Publication Date: 25 April 1996 (25.04.96)

(21) International Application Number: PCT/US95/12915

(22) International Filing Date: 6 October 1995 (06.10.95)

(30) Priority Data
324,003 14 October 1994 (14.10.94) US

(71) Applicant: BIOSOURCE TECHNOLOGIES INC. [US/US]; 3333 Vaca Valley Parkway Vacaville, CA 95688 (US).

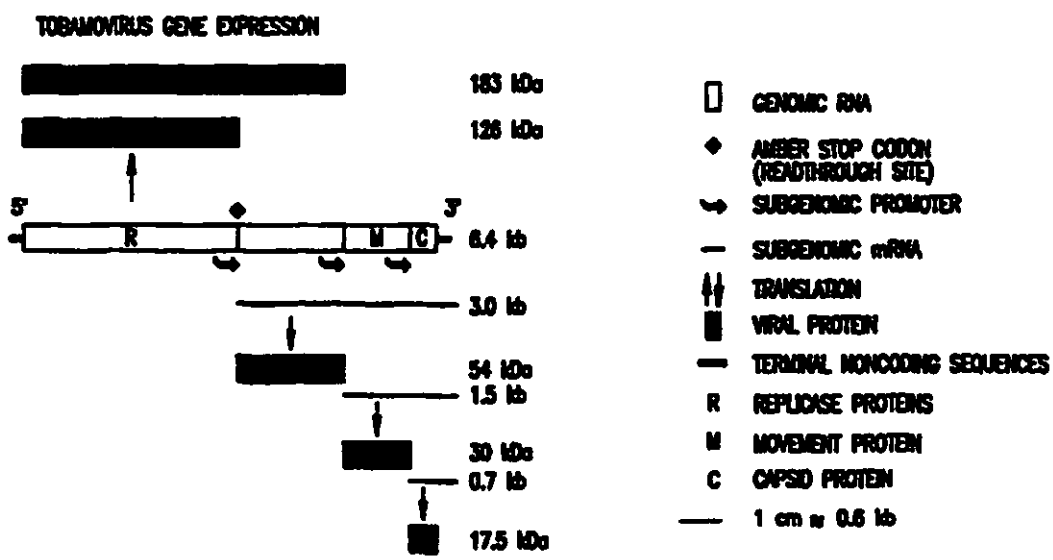
(72) Inventors: TURPEN Thomas, H., 319 Woodcrest Drive, Vacaville, CA 95688 (US). REINL, Stephen, J 920 9th Avenue, Sacramento, CA 95818 (US). GRILL, Laurence, K., 3570 Cantelow Road, Vacaville, CA 95688 (US).

(74) Agents: HALLUIN Albert, P et al., Pennie & Edmonds, 1155 Avenue of the Americas, New York, NY 10036 (US).

(81) Designated States: AL, AM, AU BB, BG BR, BY CA, CN CZ, EE, FI, GE, HU IS, JP KG, KP KR, KZ, LK, LR, LT LV MD MG MK, MN MX, NO NZ, PL, RO RU SG SI, SK, TJ TM, TT UA, UZ, VN European patent (AT BE, CH, DE, DK, ES, FR, GB GR, IE, IT LU MC, NL, PT SE), OAPI patent (BF BJ CF CG, CI, CM, GA, GN ML, MR, NE, SN, TD TG), ARIPO patent (KE, MW SD SZ, UG).

Published
With international search report
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: PRODUCTION OF PEPTIDES IN PLANTS AS VIRAL COAT PROTEIN FUSIONS

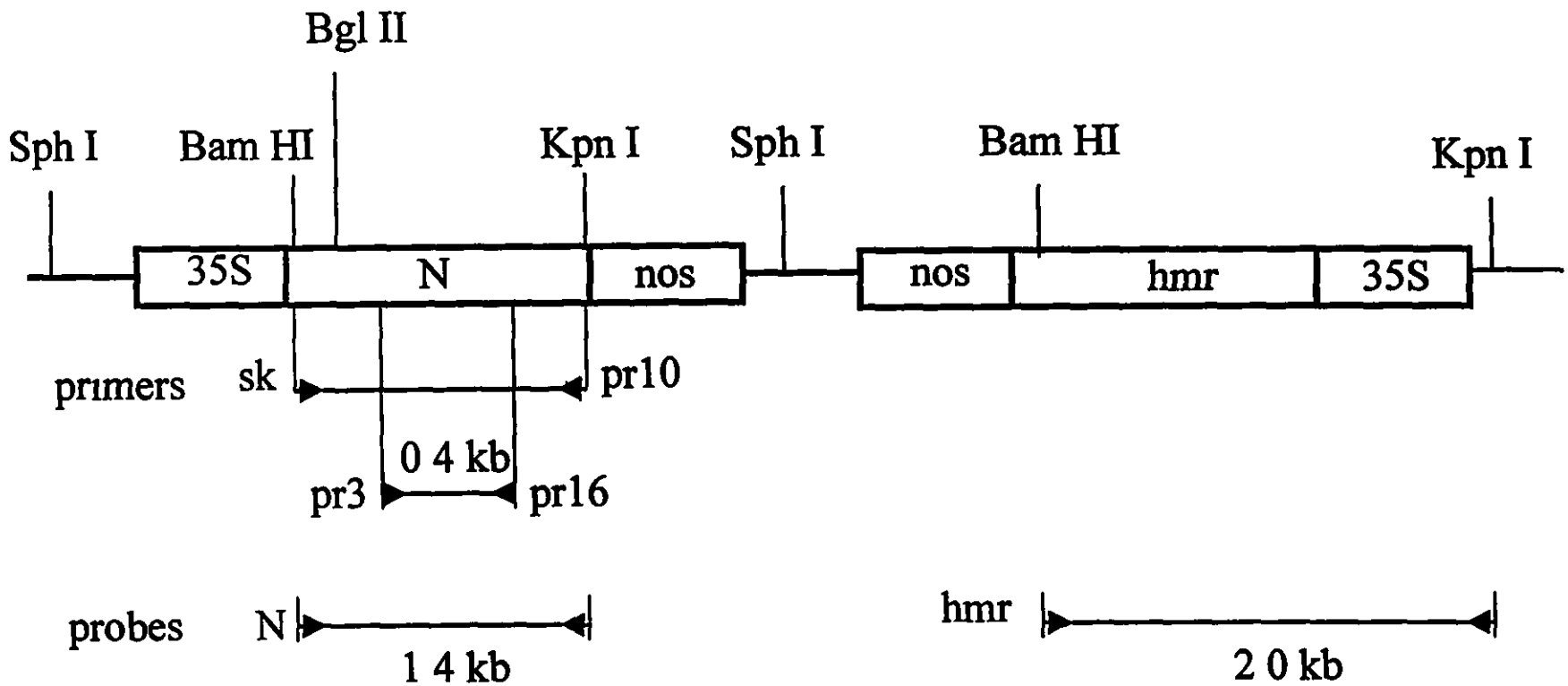


(57) Abstract

The present invention relates to foreign peptide sequences fused to recombinant plant viral structural proteins and a method of their production. Fusion proteins are economically synthesized in plants at high levels by biologically contained tobamoviruses. The fusion proteins of the invention have many uses. Such uses include use as antigens for inducing the production of antibodies having desired binding properties, e.g., protective antibodies, or for use as vaccine antigens for the induction of protective immunity including immunity against parasitic infections.

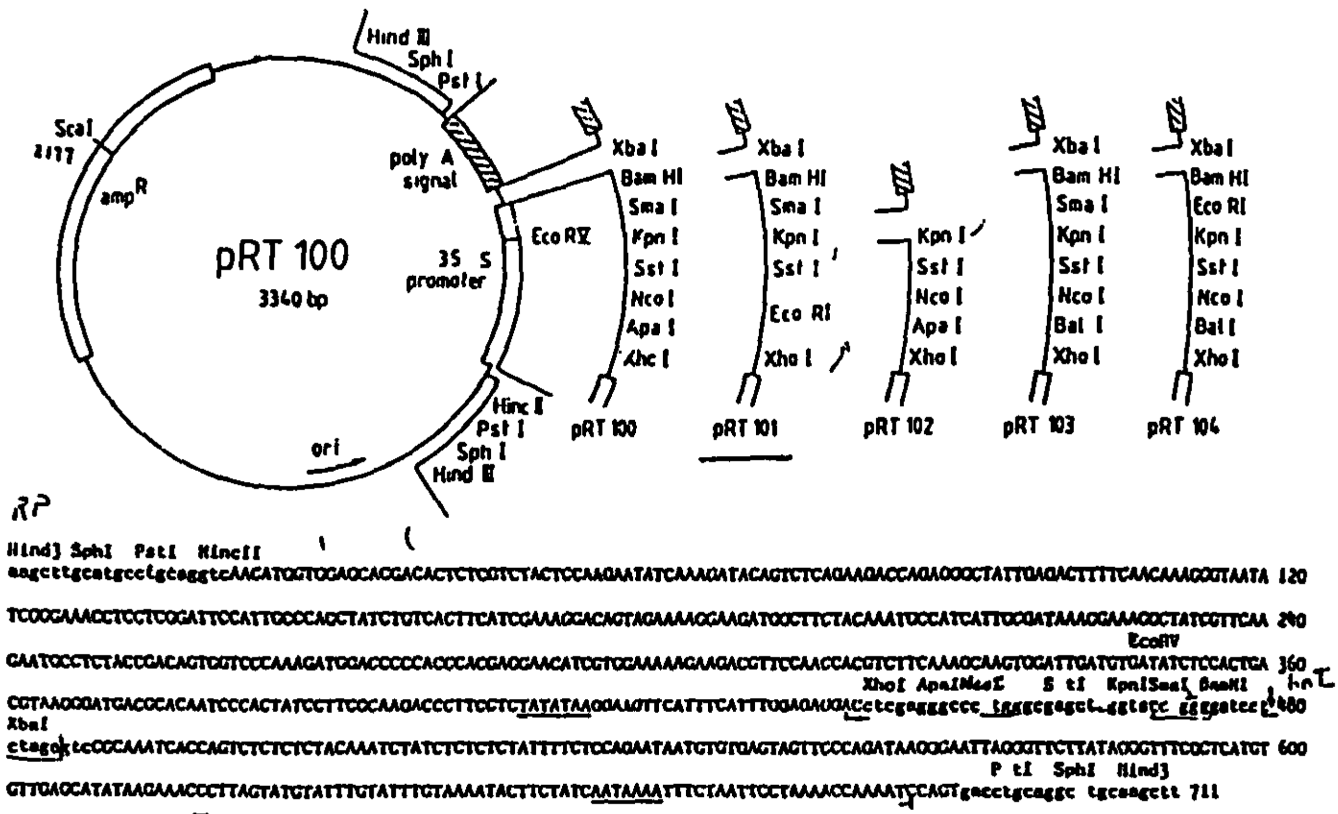
Appendix 2

Plasmid Construct pVR3, Used by CIAT in Rice Transformation


Bgl II
Sph I
Bam HI
Kpn I
Sph I
Bam HI
Kpn I
35S
N
nos
nos
hmr
35S
primers
sk
pr10
0 4 kb
pr3
pr16
probes
N
1 4 kb
hmr
2 0 kb

Appendix 3

Plasmid Map, pRT100 (pRT101)

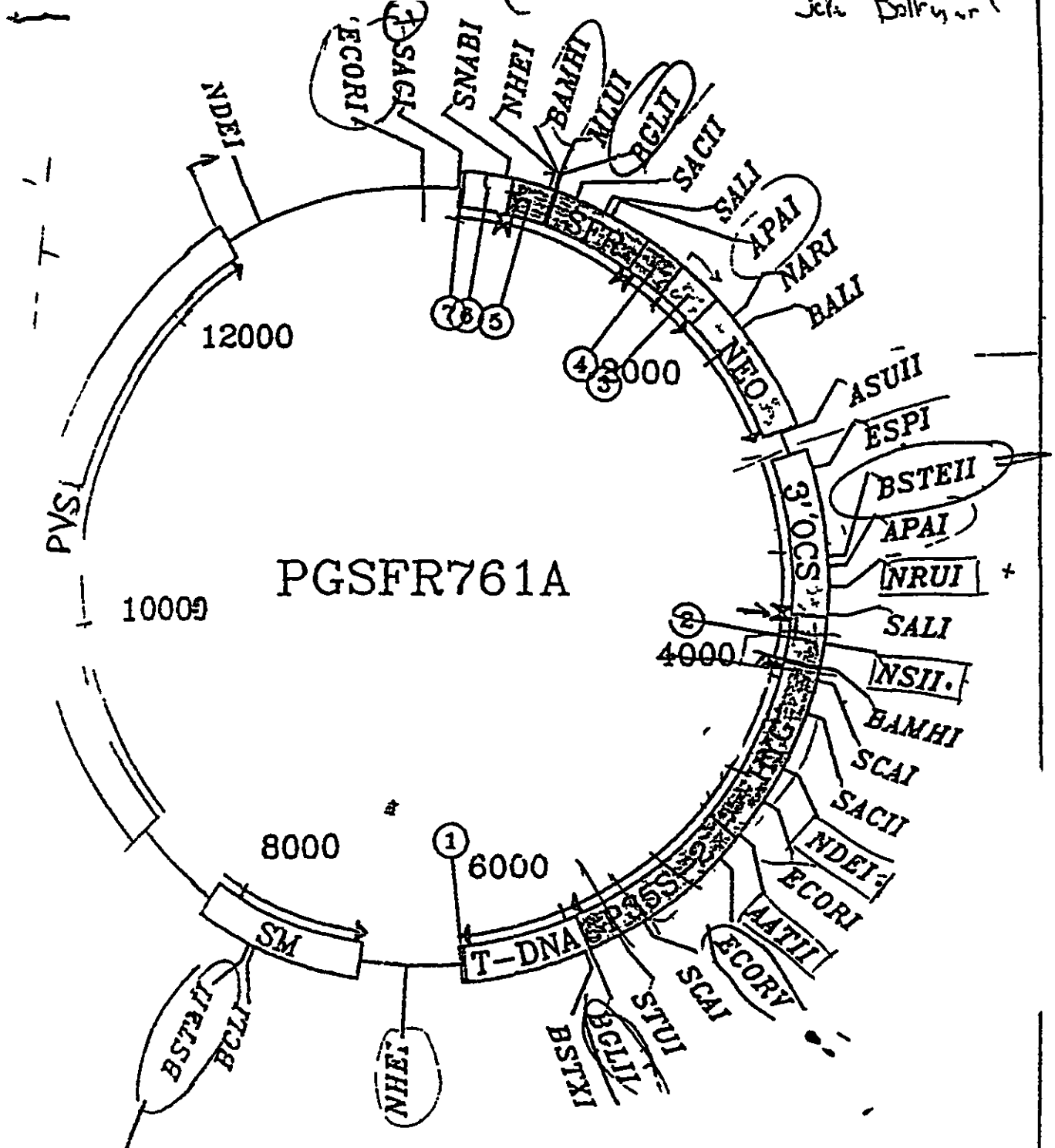


The plasmids pRT100–pRT104 carrying the 35S promoter and the polyadenylation signal of CaMV strain Cabb B-D (corresponding to bp 7016–7434 and 7436–7639 of CM 1841[1]) were constructed in modified polylinkers of pUC18/19[2]. The DNA sequence of pRT100 between its two HindIII sites is shown: capital letters indicate CaMV sequences. TATA-box, ATG and polyadenylation signal (underlined) as well as the putative transcriptional start (↳) and stop (⊣) are marked (ref[3]). Transcriptional fusions are possible with pRT101 containing ACctcgagaattcgagctc, whereas pRT100, 102, 103, 104 lead to high expression of proteins initiated at the respective ATG codon (NcoI site). In pRT103 and pRT104 (ccgaattcgg inserted into SmaI of pRT103) the ATG codon is embedded in the consensus sequence for optimal ribosome initiation in eukaryotes[4] (ACctcgagg[illegible]ccaccatgg).

Appendix 4

Plasmid Map, pGSFR761A

16-APR-87 14 06.2



LEGEND

sequence from clone databank
sequence from 1 to 13704
Sites from 1 to 13704
Maximal occurence frequency 2
All enzymes from ENZJB

1. LB
2. 3' NOS
3. PTR1
4. PTR2
5. 3' G7
6. T-DNA
7. RB

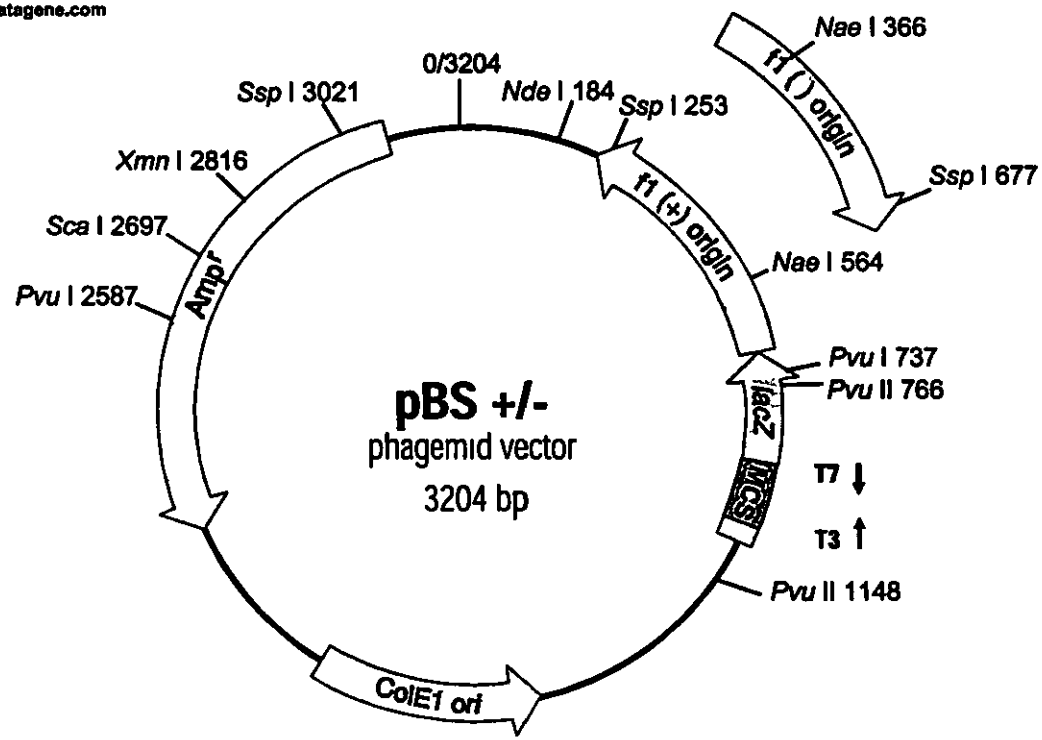
Plant Genetic Systems

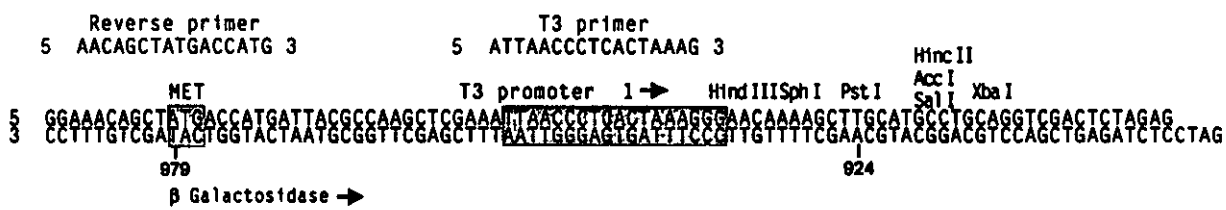
Appendix 5

Plasmid Map, pBS +/- Phagemid Vector

Diagram Courtesy of STRATAGENE
11011 North Torrey Pines Road
La Jolla, CA 92037
www.stratagene.com

Corporate Headquarters (619) 535-5400
Fax (619) 535-0071
Toll-Free Order & Technical Services (800) 424-5444
Toll Free Fax (Canada) (888) 267-4010





Uni ZAP® XR Vector

The Uni ZAP® XR vector is the Lambda ZAP® II vector predigested with both *EcoR* I and *Xho* I for directional cloning. Directional libraries are twice as likely to express fusion proteins as libraries in which the cDNA is cloned in a nondirectional orientation, reducing the number of clones required for functional or antibody screening twofold.

Quality Control

>1 x 10^7 pfu/µg λ DNA must be produced with test insert. Background must be <1%

NOTICE TO PURCHASERS

The Lambda ZAP® and Uni ZAP® vectors are covered by Stratagene United States Patent Nos. 5 128,256, 5,286,636 and European Patent No. 286200. The purchase of these vectors includes limited non-exclusive license under such patent rights to use the vectors for the cloning, expression and characterization of genes. This license does *not* grant any rights to

1. Use the Lambda ZAP or Uni ZAP vector for the reproduction, amplification or modification of the vector
2. Offer the Lambda ZAP or Uni ZAP vector or any derivative thereof for resale, or
3. Distribute or transfer the Lambda ZAP or Uni-ZAP vector or any derivative thereof to third parties.

No other license, express, implied or by estoppel, is granted. For information concerning the availability of licenses to reproduce and/or modify the Lambda ZAP or Uni ZAP vector please contact Stratagene Technical Services at 1-800-424-5444 or your local distributor.

REFERENCES

1. Short, J.M. et al. (1988) *Nucleic Acids Res.* 16: 7583-7600.
2. Huse, W.D. and Hansen, C. (1988) *Strategies* 1: 1-3.

Lambda ZAP® II Vector Kits

	CONTENTS		
Uni-ZAP® XR Vector Kits			
Uni-ZAP XR Vector Kit	12 µg Lambda ZAP II vector *Xho* and *EcoR* I d gested Host strain XL1-Blue MRF' Excision plating strain SOLR Helper phage VCSM13 R408 ExAssist helper phage Test insert	Lambda ZAP II vector pred gested with both *EcoR* I and *Xho* I Vector arms dephosphorylated with alkaline phosphatase	#237211
Uni-ZAP XR/Gigapack Cloning Kit	Uni ZAP XR Vector Kit 11 sets Gigapack® III Gold packaging extract Gigapack control DNA and host strai	Includes G gapack III Gold packaging extract	#237612
ZAP-cDNA Synthesis Kit	Uni ZAP XR Vector Kit cDNA Synthesis Kit	For construction of up to 5 d rectional cDNA l braries in Lambda ZAP vector	#200400
Lambda ZAP® II XR Library Construction K t	Uni-ZAP XR Vector Kit cDNA Synthesis Kit 11 sets Gigapack III Gold packag ng extract Gigapack control DNA and host strain	Reagents for 5 directional cDNA l braries t Lambda ZAP vector** Includes Gigapack III Gold packagi g extract	#200450
Lambda ZAP® II Predigested Vector Kits			
Lambda ZAP II RI Vector Kit	10 µg predigested Lambda ZAP II vector *EcoR* I d gested Host strain XL1-Blue MRF' Helper phages VCSM13 ExAssist helper phage Excision plating strain SOLR Test insert	Vector arms dephosphorylated with alkaline phosphatase to prevent self-l gation	#236211
Lambda ZAP II RI Vector/ Gigapack Cloning Kit	Lambda ZAP II RI Vector Kit 11 sets Gigapack III Gold packaging extract Gigapack control DNA and host strain	Includes Gigapack III Gold packagi g extract	#236612
Lambda ZAP II RI Library Construction Kit	Lambda ZAP II RI Vector/ Gigapack Clon ng Kit Nond rectional cDNA Synthesis K t	Random or ol go(dT) primers Reagents for 5 nond rectional cDNA l braries	#200454
Lambda ZAP® II Undigested Vector Kit			
	20 µg undigested Lambda ZAP II vector Excision plating stra n SOLR Helper phage VCSM13 ExAssist helper phage Host strain XL1-Blue MRF'	Und gested vecto	#236201
Helper Phage			
Rapid Excision Kit	1ml RE704 helper phage (~1 10⁸ pfu/ml) XPORT™ and XLOLR *E. coli* stra ns	Lambda ZAP nd ZAP Express vector excision <10 m utes hands-on t me	#211204
ExAssist™ Interference-Resista t Helper Phage with SOLR Stra	1ml ExAssist helper phage (1 10 pfu/ml) SOLR *E. coli* strai	For mass exc s o of l bra ies Lambda ZAP vectors Only pBluescript phagem ds w ll grow	#200253
ExAssist™ Interference-Resista t Helper Phage with XLOLR Stra	1ml ExAss t helper phage (1 10 pfu/ml) XLOLR *E. coli* stra	For mass excision of l branes in ZAP Express or Lambda ZAP vectors pBluesc pt or pBK phagem ds will grow	#211203

** *Additional Gigapack extract may be necessary to complete 5 libraries*

LIMITED PRODUCT WARRANTY

This warranty limits our liability to replacement of this product. No other warranties of any kind express or implied, including without limitation, implied warranties of merchantability or fitness for a particular purpose are provided by Stratagene Stratagene shall have no liability for any direct, indirect, consequential, or incidental damages arising out of the use the results of use or the inability to use this product

NOTICE TO PURCHASER

The Uni ZAP® XR vector is covered by Stratagene s United States Patent No 5 128 256 The purchase of this vector includes a limited, nonexclusive license under such patent rights to use the vector for the cloning, expression, and characterization of genes This license does not grant rights to (1) use the Uni ZAP XR vector for the reproduction, amplification, or modification of the vector (2) offer the Uni ZAP XR vector or any derivative thereof for resale (3) distribute or transfer the Uni ZAP XR vector or any derivative thereof to any third party or (4) incorporate the Uni ZAP XR vector or any derivative thereof in any genomic or cDNA library for resale distribution, or transfer to any third party No other license express implied or by estoppel, is granted For information concerning the availability of licenses to reproduce and/or modify the Uni ZAP XR vector please contact Stratagene s Technical Services Department at 1-800-424-5444

This product is for research purposes only and must be used in accordance with NIH guidelines for recombinant DNA.

ORDERING INFORMATION AND TECHNICAL SERVICES

United States and Canada

Stratagene Cloning Systems
11011 North Torrey Pines Road
La Jolla CA 92037

Telephone	(619) 535 5400
Order Toll Free	(800) 424-5444
Technical Services	(800) 894-1304
Internet	techservices@stratagene com
World Wide Web	www.stratagene com

Stratagene European Contacts

Location	Telephone	Fax	Technical Services
Austria	660 312 526	660 312 527	017 956 7036
Belgium	0800 96078	0800 96024	027 13 12 11
Germany	0130 840 911	0130 762 088	0699 509 6197
Netherlands	0800 023 0446	0800 023 0447	0800 023 0448
Switzerland	0800 830 250	0800 825 225	01 800 9045
United Kingdom	0800 585 370	0800 783 0889	0171 365 1056

Distributors

All other countries please contact your local distributor (see *Stratagene Distributors* in this instruction manual for a complete listing)

Appendix 6

Biolistic® PDS-1000/He Purchase Agreement

Biolistic® PDS 1000/He Purchase Agreement

Dear Customer

The sale of the Bio Rad Biolistic PDS 1000/He apparatus (or any similar apparatus sold by Bio Rad Laboratories) is for research purposes only Research purposes shall not include transfers of materials produced by the apparatus to third parties for consideration or research programs that are funded by or for third party commercial (for profit) entities In the event that Customer wishes to engage in a use for commercial purposes of the Biolistic PDS 1000/He apparatus (or any similar apparatus sold by Bio Rad Laboratories) or the process used by the apparatus Customer may contact W R Grace & Co Conn for the rights in the mammalian field and E I du Pont de Nemours & Co for rights in all other fields No license can be granted for trees shrubs ground cover used for indoor and outdoor landscaping ornamental flowers house plants vines and turf grasses For the purpose of this agreement use for commercial purposes shall include the production use or transfer for consideration of apparatus process or product for performing the Biolistic process

_____

Bio Rad Laboratories Inc

Accepted and Agreed to

_____

Customer Signature

_____

Typed or Printed Name

_____

Institution

_____

Department

_____

City State Postal Code Country

_____

Telephone Number

_____

Facsimile Number

_____

Purchase Order Number

_____

Date

Please return signed form to Bio Rad Laboratories 2000 Alfred Nobel Drive Hercules California 94547 Attn Mike Whitworth

Appendix 7

March 11, 1993 Letter from William Roca to Bio-Rad, indicating how PDS-1000/He system will be used at CIAT

11 March 1993

BIO-RAD
Life Science Group
Att William E Cherry
85A Marcus Drive
Post Office Box 1229
Melville New York 11747
USA

Dear Sirs

BY THIS MEANS I WISH TO CERTIFY THAT THE BIOLISTIC PDS-1000/He SYSTEM (CATALOG No 165-2257) ORDERED BY CIAT BIOTECHNOLOGY RESEARCH UNIT WILL BE USED ONLY FOR RESEARCH PURPOSES i e GENETIC TRANSFORMATION OF CASSAVA, RICE AND PHASEOLUS BEANS

CIAT IS AN INTERNATIONAL FOR NON PROFIT PUBLIC AGRICULTURAL RESEARCH ORGANIZATION

THANK YOU FOR YOUR ATTENTION

SINCERELY

WILLIAM M ROCA
Head Biotechnology Research Unit

cc Dr Z Lentini
F Posada-CIAT Miami

Mailing address Apdo aéreo 6713 CALI COLOMBIA Telex 05769 CIAT CO ITT Dialcom ID 57 CGI301 FAX 57 23 647243 Tel 57 23 675050

Appendix 8

CIAT Intellectual Property Rights Policy

Amariles, Fabiola

From Schoonhoven Aart Van
Sent Monday February 15 1999 4 24 PM
To CIAT Prof_Staff + Outposted
Subject IPR policy

A

During the last December meeting the CIAT Board of Trustees approved modifications to the IPR policy of CIAT The policy was brought into line with new developments which had taken place in the CGIAR. Changes made in the previous policy were small The main one being to use the CGIAR adopted Material Transfer Agreement. I attach for your information a copy of this latest version This version is being translated into Spanish which will be shared with you as well

I will be pleased to attend to any questions you may have

ntelll Prop Update do

The CIAT IPR policy is summarized as follows

1 CIAT will protect the products of its research if this is in the interest of the availability to and use of new technology by farmers
2 The plant genetic resources CIAT holds in trust under the auspices of FAO (all collected or received material registered at the signature with FAO on October 26, 1994), are made available under a CGIAR adopted material transfer agreement (Note However, there is no commitment for the financing of the maintenance of the collection)
3 CIAT will strive to make the plant genetic resources it holds and which are not covered by the FAO agreement, available under the same conditions as the genetic resources it holds in trusts for the FAO
4 Other living organisms are made available according to reasonable conditions set by the country of collection.
5 Recipients of CIAT developed breeding materials can protect those materials under conditions set by CIAT The main condition is that CIAT can continue to distribute the material to other countries
6 CIAT is the sole owner of all research products developed by its permanent or temporary staff.
7 CIAT policies, including this IPR policy, are BOT approved and may be changed from time to time

Policy on Intellectual Property Rights

Preamble

The genetic resources conserved in the genebank at CIAT concern the so-called CIAT mandated crops[1], namely beans, cassava, and tropical forages, both legumes and grasses These have been assembled over more than two decades through collaborative collecting missions between national programs in Latin America, Asia and Africa, and CIAT, or through donation of these materials by national programs and individual farmers and scientists for storage The materials are maintained as working collections and under long-term storage conditions

CIAT holds this germplasm in trust under the auspices of FAO since October 26, 1994, as part of the International Network of Ex-situ Collections The Center is responsible for conserving, maintaining and distributing it for the benefit of farmers and agricultural researchers around the world.

The United Nations Convention on Biological Diversity, together with the FAO International Undertaking on Genetic Resources, has changed the international regime for genetic resources towards a greater concern for conserving genetic resources and for obtaining a fair distribution of the benefits derived from the potential use of those resources In this context, CIAT supports the fair and equitable sharing of benefits from plant genetic resources

CIAT strongly believes in the conservation of plant genetic resources as the foundation for food security and will facilitate, where possible, the international flow of these resources

CIAT contributes to various forms of technology development, including segregating populations, improved varieties, information and knowledge The Center also claims to bring the benefits of the most advanced biological technologies to the developing nations and their resource-poor farmers

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[1] The global mandate for rice is held by IRRI CIAT has a regional mandate for Latin America

The private sector is increasingly important in the development, use and dissemination of advanced biological technologies and their products
Many of these technologies are subject to various forms of intellectual property protection

CIAT will endeavor to access these technologies for use in its research and development projects , and thus benefit farmers in developing countries

CIAT adopts the following principles in governing the plant and other genetic resources kept at the Center, its inventions, and its cooperative activities with other research institutions

Principles

1 CIAT will continue to meet all reasonable requests for those genetic resources that it holds in trust in accordance with the detailed policy specified in PROTOCOL I

2 As agreed with FAO, CIAT may require that costs for multiplying, handling, and inspecting germplasm be met by the requesting party

3 In compliance with the Agreement between CGIAR FAO that places Plant Germplasm Collections under the Auspices of FAO[2], CIAT will supply these genetic resources under a Material Transfer Agreement (MTA) designed to ensure the ready availability of materials It may be amended from time to time to incorporate changes agreed upon by the CGIAR.

3 The genebank at CIAT will endeavor to acquire genetic materials under conditions that will allow their designation under the Agreement with FAO in keeping with CGIAR policy and practice Exceptionally, it may accept germplasm for long-term conservation with certain conditions agreed upon between CIAT and the donor of the germplasm. The genebank may also accept duplicate materials for safe storage (or "black box storage")

4 Such germplasm will be kept under long-term (-18°C) storage according to agreed terms A similar conservation service can also be offered for crops maintained in vitro

5 All breeding materials, elite germplasm, and parental lines that are derived from conventional breeding by CIAT will be made available in accordance with the policy detailed in PROTOCOL II An MTA will be used to distribute these materials

6 CIAT may apply for intellectual property protection of technologies and

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2 The Agreement was approved by the CIAT Board of Trustees, and was signed on behalf of CIAT by Dr Ismail Serageldin, Chairman of the Consultative Group on International Agricultural Research on October 26, 1994

materials derived from genetic engineering or may supply them to a collaborator on a restricted basis, if otherwise the availability of such advanced biological technologies and/or products to developing countries is likely to be threatened. PROTOCOL III establishes the relevant conditions

7 CIAT will make available micro-organisms and biological control materials from its collections according to the conditions specified in PROTOCOL IV

8 CIAT will continue to seek copyright protection for its publications, databases, and software as appropriate, and as specified in PROTOCOL V

9 Registration of the CIAT's name and logo as trademarks shall be undertaken to obtain exclusive rights over their use

10 Any research product developed by a staff member when employed by CIAT will remain the property of CIAT (PROTOCOL VI)

11 When various institutions are involved in the development of a new technology, CIAT will negotiate any resulting IPR issue on the basis of the Protocols discussed in the next section.

12 Principles I to 11 will be governed by the laws and regulations of the relevant jurisdictions, including those regarding bio-safety Where no bio-safety guidelines exist, internationally recognized guidelines will be followed.

Protocols on Intellectual Property Rights of CIAT

Protocol I For Plant Genetic Resources

A Plant Genetic Resources placed under the auspices of the FAO, otherwise known as the designated collection

1 The plant genetic resources maintained in the genebank at CIAT are held in trust for the world community

2 CIAT will ensure the availability of plant genetic resources it holds in trust (except of germplasm held under "black box storage", the distribution of which is restricted by the donor), together with appropriate information from evaluations and characterization.

3 CIAT will not protect the plant genetic resources it holds in trust by any form of intellectual property protection.

4 The plant genetic resources held in trust by CIAT will be made available through an MTA adopted for system-wide use in the CGIAR. This Agreement states that the recipient will take no steps to restrict the materials' further availability to other interested parties The Agreement also states that the recipient will not claim ownership over the material and related information

B Material obtained after the United Nations Convention on Biological Diversity came into force in December 1993

1 Any material acquired by CIAT after the UN Convention on Biological Diversity came into force will be received on the basis of terms previously agreed upon by the relevant donor country

2 However, CIAT will request the country involved to agree to designate the materials under the Agreement with FAO

Protocol II For Breeding Lines, Elite Germplasm and Hybrid Materials

1 CIAT will promote awareness of the availability of breeding lines, elite germplasm and parental lines of hybrids produced in its conventional breeding programs for any of is mandated crops

2 CIAT may grant property rights if such granting is in the interest of farmers and no alternative and efficient seed production and distribution system exists

3 CIAT will provide breeding lines, elite germplasm and parental lines of hybrid plants to both public and private organizations on the understanding that.

a. The receiving party must receive approval from CIAT to obtain property rights over, or commercialize the materials concerned.

b CIAT will grant such rights under the condition that

- i The material is not intended for exclusive use by any single organization.
- ii CIAT retains the right to distribute the same material to organizations in countries other than the receiving country
- iii The use of CIAT materials will be publicly recognized when a derived variety or hybrid is released.
- iv CIAT will not unreasonably withhold approvals
- v Royalties obtained by CIAT from such material will be used to promote conservation of plant genetic resources

4 This Protocol does not .cover materials derived from genetic engineering, which are governed by Protocol III

Protocol III For Materials Derived from Genetic Engineering

1 In negotiating collaboration arrangements for the development of products and techniques derived from genetic engineering, CIAT will seek to ensure access to the products of research

2 To ensure availability to developing nations of advanced biological technologies and/or intermediate[3] or final products, and of derived and associated materials, CIAT may apply for intellectual property protection of the technologies or materials or may provide them to a collaborator on a restricted basis Such arrangements will be made only when they best serve CIAT's partners

3 When obtaining and exercising any form of intellectual property rights over biological material, CIAT will adhere to agreements made at the moment of acquisition of the material

[3] Intermediate biotechnology products include DNA probes vector strains gene constructs, primers, etc Final biotechnology products include such products as transgenic organisms genetic maps, etc

Protocol IV For Micro-organisms and Biological Control Agents

1 CIAT maintains, and conducts research on, a collection of micro-organisms developed before the UN Convention on Biological Diversity came into force This collection consists mainly of Rhizobium, Mycorrhizae endophytes and biological control agents of pests and diseases such as parasitoids and disease organisms

2 CIAT will make available the microorganisms or biological control agents in its holdings to researchers, and will adhere to the conditions agreed upon at the time of acquisition with the country where the material was collected.

3 Property rights on improved biological materials will be handled in the same manner as those established for genetically improved plant germplasm in Protocol II

Protocol V For Publications, Databases, Software and Equipment

1 CIAT will continue to seek intellectual property protection for its publications, databases, software and equipment designs

2 Intellectual Property Rights may be applied to designs of equipment developed by CIAT The Center will exercise its rights to ensure that the equipment designs are available to farmers in developing nations

3 CIAT publications, databases, and software will be protected by copyright in accordance with established publishing practices

Protocol VI For Research Products Developed by CIAT Staff

1 To comply with the Intellectual Property Rights Policy and fulfill commitments made in pursuing the Policy, CIAT will devise, maintain, and monitor employee policies on intellectual property rights and policies or agreements These policies and agreements will also govern CIAT's relationships with visitors and research collaborators (including visiting scientists and trainees) from other institutions

2 Any idea, invention, process or other form of actual or potential intellectual property (whether able to be protected by property rights or not) that a staff member invents during his or her employment at CIAT must be disclosed, and shall belong, to CIAT

3 Scientific data, databases, and other information generated during employment at CIAT are the property of CIAT Such data and information are available to other CIAT staff, as appropriate, and may not be taken by a staff member leaving CIAT without written permission.

4 When a staff member leaves, CIAT will allow that member appropriate access to data to facilitate the writing up of work for publication. CIAT's procedures for the development and review of all manuscripts, and the granting of approval, prior to submission for publication, will apply in all cases

5 CIAT staff doing research at other organizations and visiting scientists from other organizations but working at CIAT are required to sign, and adhere to, this policy on intellectual property rights In those cases where such compliance conflicts with the policies of the other organization, then CIAT will negotiate, on the basis of this policy on intellectual property rights as stated herein, with the other organization to draw up agreements that meet the common approval of all parties concerned and that determine the respective property rights to and ownership of the research concerned.

Appendix 9

CIAT Material Transfer Agreement

CGIAR

MATERIAL TRANSFER AGREEMENT (MTA)

The material contained herein is being furnished by the Centro Internacional de Agricultura Tropical (CIAT International Centre of Tropical Agriculture) based in Palmira Colombia under the following conditions

Designated Germplasm

CIAT is making the material described in the attached list available as part of its policy of maximizing the utilization of genetic material for research The material was either developed by CIAT or was acquired prior to the entry into force of the Convention on Biological Diversity or if it was acquired after the entering into force of the Convention on Biological Diversity it was obtained with the understanding that it could be made freely available for any agricultural research or breeding purposes

The material is held in trust under the terms of an agreement between CIAT and FAO and the recipient has no rights to obtain Intellectual Property Rights (IPR) on the germplasm or related information The Recipient may reproduce the seed and use the material for agricultural research and breeding purposes and may distribute it to other parties provided the recipient is also willing to accept the conditions of this agreement (1)

The Recipient, therefore hereby agrees not to claim ownership over the germplasm to be received nor to seek IPR over that germplasm or related information He/She further agrees to ensure that any subsequent person or institution to whom he/she may make samples of the germplasm available is bound by the same provision and undertakes to pass on the same obligations to future recipients of the germplasm

CIAT makes no warranties as to the safety or title of the material nor as to the accuracy or correctness of any passport or other data provided with the material Neither does it make any warranties as to the quality availability or purity (genetic or mechanical) of the material being furnished The phytosanitary condition of the material is warranted only as described in the attached phytosanitary certificate The Recipient assumes full responsibility for complying with the recipient nation s quarantine/biosafety regulations and rules as to import or release of genetic material

Upon request CIAT will furnish information that may be available in addition to whatever is furnished with the seed Recipients are requested to furnish CIAT performance data collected during evaluations

The material is supplied expressly conditional on acceptance of the terms of this agreement The Recipient s acceptance of the material constitutes acceptance of the terms of this Agreement

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This does not prevent the Recipient from releasing or reproducing the seed for purposes of making it directly available to farmers or consumers for cultivation, provided that the other conditions set out in the MTA are complied with

MATERIAL TRANSFER AGREEMENT
(MTA)

The material contained herein is being furnished by the Centro Internacional de Agricultura Tropical (CIAT International Centre of Tropical Agriculture) based in Palmira Colombia under the following conditions

Designated Germplasm

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---

(1) This does not prevent the Recipient from releasing or reproducing the seed for purposes of making it directly available to farmers or consumers for cultivation provided that the other conditions set out in the MTA are complied with

ACUERDO DE TRANSFERENCIA DE MATERIAL (ATM)

El Centro Internacional de Agricultura Tropical (CIAT) con sede en Palmira Colombia suministra el material que se adjunta con las siguientes condiciones

Germoplasma designado

El CIAT pone a disposición el material descrito en la lista adjunta como parte de su política de aprovechamiento máximo del material genetico con fines de investigación El material se obtuvo en el CIAT o se adquirió antes de la entrada en vigor del Convenio sobre la Diversidad Biológica o bien si se adquirió después de la entrada en vigor del Convenio sobre la Diversidad Biológica se obtuvo quedando entendido que podría ponerse libremente a disposición con fines de investigación agrícola o mejoramiento

El material se mantiene en depósito con arreglo a las condiciones de un acuerdo entre el CIAT y la FAO y el Receptor no tiene derecho a obtener derechos de propiedad intelectual (DPI) sobre el germoplasma o la información conexa

El Receptor puede reproducir las semillas y utilizar el material con fines de investigación agrícola y mejoramiento y lo puede distribuir a otras partes siempre que el receptor esté también dispuesto a aceptar las condiciones del presente acuerdo ( )

Por consiguiente el Receptor acuerda por la presente no reclamar la propiedad sobre el germoplasma que reciba ni solicitar DPI sobre ese germoplasma o la información conexa. Acuerda asimismo garantizar que cualquier persona o institución a disposición de la cual pueda poner posteriormente muestras de germoplasma este vinculada por la misma disposición y se comprometa a trasmitir las mismas obligaciones a los receptores futuros de germoplasma

El CIAT no ofrece garantías en cuanto a la seguridad o el título del material ni en cuanto a la exactitud o corrección de cualquier dato de pasaporte o de otro tipo suministrado con el material Tampoco ofrece ninguna garantía en cuanto a la calidad la disponibilidad o la pureza (genética o mecánica) del material que suministra La situación fitosanitaria del material se garantiza sólo con arreglo a lo descrito en el certificado fitosanitario adjunto El Receptor asume la plena responsabilidad del cumplimiento de la reglamentación de cuarentena/bioseguridad del país receptor en cuanto a la importacion o distribución de material genético
Previa solicitud el CIAT facilitara la información que pueda estar disponible además de la que se proporciona con las semillas Los Receptores deberan suministrar al CIAT los datos de rendimiento obtenidos durante las evaluaciones

El material se suministra con la condición expresa de que se acepten las condiciones del presente acuerdo La aceptacion del material por parte del Receptor constituye la aceptación de las condiciones del presente acuerdo

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Esto no impide que el receptor pueda distribuir o reproducir las semillas con el fin de ponerlas directamente a disposición de los agricultores o consumidores para su cultivo siempre que se cumplan las demás condiciones establecidas en el ATM

Prepared with Blumbartous input

1002

Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture

Material Transfer Agreement

Preamble

This Material Transfer Agreement (referred to hereafter as the MTA') governs the terms and conditions under which the Centro Internaciónal de Agricultura Tropical (international organization founded by the International Bank for Reconstruction and Development and the United Nations Programme for Development, referred to hereafter as 'CIAT') is making available to .... (referred to hereafter as the Recipient') the germplasm described in the attached list. The Parties refer to both CIAT and the Recipient.

This MTA is written to conform fully with the provisions of the United Nations Convention on Biological Diversity and the terms and conditions of the Agreement signed on 26 October 1994 between CIAT and the Food and Agriculture Organization of the United Nations (hereafter to referred as 'FAO), for the conservation of the germplasm collections kept in trust by CIAT (and named designated) under the auspices of FAO.

Terms and Conditions

Article 1 This Material Transfer Agreement is an agreement between the two institutions mentioned below through their legal representatives. The attached description of the plant material and the phytosanitary certificate that shall be attached to the plant material are full part of this MTA.

Art.2. The plant material described herein (sheet with description data enclosed), and referred to hereafter as "the material" is part of the collection designated by CIAT to be under the auspices of FAO, and acknowledged as such by FAO It has been received by CIAT before the United Nations Convention on Biological Diversity entered into effect; the country of origin of this material is indicated in the attached description.

Art 3. CIAT is distributing the germplasm described herein for purposes such as conservation, research, plant breeding or training, without any restriction. The Recipient shall provide CIAT with the results of evaluations performed on this material. CIAT may at its own discretion, include this information in the respective databases that are in the public domain. Should the Recipient publish results of studies on this material or use it for training purposes, acknowledgement shall be given to CIAT and the country of origin for providing it.

Art 4. The Recipient shall not claim legal ownership over the material received nor seek intellectual property protection over that material and related information. The Recipient shall not transfer the original material referred to in this MTA or any copy of it to a third party witout ensuring that that party is bound by the obligations of a recipient under this MTA. The obligations of the Recipient mentioned in this MTA extend to the substantially equivalent reproductive or vegetative progeny of the material.

Art 5. The Recipient may claim intellectual property protection on the products of breeding activities through plant variety protection that is consistent with the provisions of the UPOV (Union Internationale pour la Protection des Obtentions Végétales) Convention of 1991 and that does not preclude others from using the original materials in their own breeding activities.

Art 6. The Recipient is free to release for distribution and commercialization the material herein described, within the conditions set by Articles 4 and 5 of this MTA. In the case the Recipient intends to commercialize this material, the Recipient shall inform CIAT of any such commercialization. All germplasm samples released for commercialization must acknowledge the contribution of CIAT and the country or institution of origin, as indicated in the attached description.

Art 7 CIAT is distributing this germplasm material with all pertinent description data to the extent possible, and under the phytosanitary liability as described in the phytosanitary certificate, CIAT however makes no full warranty as to the title or the safety of this material. Although CIAT has checked the information provided to the extent possible, CIAT does not guarantee either the accuracy or correctness of the description data provided with this material. The Recipient assumes full responsibility for complying with the Recipient nation's biosafety regulations and rules as to import or release genetic material.

Art 8. This material is supplied by CIAT upon written acceptance by the Recipient of the terms of this MTA and its obligations. The Recipient shall return this MTA duly signed to CIAT so indicating such acceptance, and CIAT shall then send the material The Parties shall attempt in good faith to resolve any dispute arising out of or relating to this MTA by negotiation, followed, if necessary by mediation by such third party as the Parties may choose. Disputes that have not been settled within 120 days from receipt of complaint in this fashion shall be finally settled under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by three arbitrators appointed in accordance with said Rules. The arbitration shall take place in Colombia in Spanish, unless otherwise agreed by the Parties.

9 Signature of Director General CIAT
Cali, Date

Signature of Recipient (signing on behalf of the institution)
Place, Date.

CIAT
Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture

Acuerdo de Transferencia de Germoplasma

Preámbulo

Este Acuerdo de Transferencia de Germoplasma (mencionado enseguida como ATG") indica los términos y condiciones bajo los cuales el Centro Internacional de Agricultura Tropical (organismo internacional fundado por el Banco Internacional para la Reconstrucción y Fomento y el Programa de las Naciones Unidas para el Desarrollo, mencionado enseguida como "CIAT") hace disponible a ..... (mencionado enseguida como el Receptor) el germoplasma vegetal descrito en la lista adjunta. Las Partes se refieren a la vez al CIAT y al Receptor.

Este ATG viene escrito para conformarse enteramente con las provisiones del Convenio Internacional sobre Diversidad Biológica, y los términos y condiciones del Acuerdo firmado el 26 de Octubre del 1994 entre el CIAT y la Organización de las Naciones Unidas para la Alimentación y la Agricultura (mencionada enseguida como "FAO"), para la conservación de las colecciones de germoplasma guardadas en custodia por el CIAT (y llamadas nombradas) bajo los auspicios de la FAO

Términos y Condiciones

Artículo 1 Este Acuerdo de Transferencia de Germoplasma es un acuerdo concertado entre las dos instituciones mencionadas abajo a través de sus representantes legales. La descripción del germoplasma vegetal así como el certificado fitosanitario que serán anexados a este documento son parte integrante de este ATG.

Art. 2. El germoplasma vegetal descrito aquí (hoja adjunta con los datos de descripción), y mencionado enseguida como el "material" es parte de la colección nombrada por el CIAT para ser colocada bajo los auspicios de la FAO, y reconocida como tal por la FAO. Este material fue recibido por el CIAT antes que el Convenio Internacional sobre Diversidad Biológica de las Naciones Unidas entrara en vigencia. El país de origen de este material está indicado en la descripción adjunta.

Art. 3. El CIAT distribuye el germoplasma descrito aquí para propósitos tales como conservación, investigación, mejoramiento vegetal o adiestramiento (capacitación), sin ninguna restricción. El Receptor facilitará al CIAT los resultados de evaluaciones realizadas sobre este material. El CIAT puede a su propio criterio incluir esta información en las respectivas bases de datos que están en el dominio público. En el caso que el Receptor publique resultados de estudios sobre este material o lo utiliza para fines de adiestramiento, reconocimiento será dado al CIAT y al país de origen por proporcionar este material.

Art. 4 El Receptor no reclamará propiedad legal sobre el material recibido ni buscará protección intelectual sobre este material e información relacionada. El Receptor no transferirá el material original mencionado en este ATG ni copia del mismo a una tercera parte sin asegurarse que esta parte esté ligada con las obligaciones de un receptor mencionadas en este ATG. Las obligaciones del Receptor mencionadas en este MTA se extienden a las descendencias reproductivas o vegetativas, esencialmente equivalentes, del material.

Art. 5. El Receptor puede reclamar derechos de propiedad intelectual sobre los productos de actividades de mejoramiento a través de la protección a las obtenciones vegetales que sea consistente con las provisiones de la convención de 1991 de la UPOV (Union Internationale pour la Protection des Obtentions Végétales), y bajo la condición que no impida a otros de usar los materiales originales en sus propias actividades de mejoramiento vegetal.

Art. 6. El Receptor puede utilizar el material con fines de distribución y comercialización, bajo las condiciones explícitas en los Artículos 4 y 5 de este ATG. En el caso que el Receptor tiene intención de comercializar este material, él informará al CIAT de esta comercialización. Cualquier muestra de germoplasma liberada para comercialización debe reconocer la contribución del CIAT y del país o institución de origen, tal como viene indicado en la descripción adjunta.

Art. 7 El CIAT distribuye este material con todos los datos de descripción pertinentes hasta donde sea posible, y bajo la responsabilidad sanitaria descrita en el certificado fitosanitario. El CIAT sin embargo no da garantía absoluta en cuanto al título de derecho ni tampoco a la seguridad sanitaria de este material. Aunque el CIAT ha verificado la información proporcionada hasta donde sea posible, el CIAT no garantiza la precisión o la verdad de los datos de descripción proporcionados con este material El Receptor asume la entera responsabilidad de cumplir con las normas vigentes en bioseguridad en el país de recepción y con las normas de importación y liberación de material genético.

Art. 8 El material es proporcionado por el CIAT bajo la aceptación por escrito por parte del Receptor de los términos de este ATG y de sus obligaciones. El Receptor enviará al CIAT este ATG debidamente firmado significando así su aceptación, y luego el CIAT enviará el material Las Partes tratarán de resolver en forma amigable por negociación cualquier discusión originada por o relacionada con este ATG seguida si fuese necesario por una mediación por una tercera parte escogida por las partes. Controversias que no han sido resueltas dentro de 120 días desde la recepción de la queja serán clarificadas según las Normas de Conciliación y Arbitraje de la Cámara Internacional de Comercio por tres árbitros contratados según estas Normas. El proceso de arbitraje tendrá lugar en Colombia en español, al menos que las Partes hayan acordado de hacerlo de otra manera.

9 Firma del Director General del CIAT
Cali, Fecha.

Firma del Receptor (firmando en nombre de la institución)
Lugar Fecha.

Appendix 10

Agreement Between Semillas Papalotla, S A de C V and The Centro Internacional de Agricultura Tropical on Exclusive rights for the commercial distribution and registration of Brachiaria hybrid CIAT 36061

Draft
Aml 14/00

AGREEMENT[1] BETWEEN

Semillas Papalotla, S A de C V

AND

THE CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

on

Exclusive rights for the commercial distribution and registration of Brachiaria hybrid CIAT 36061

Article I Summary

The objective of this agreement is to transfer the commercialization rights of Brachiaria hybrid CIAT 36061 from the Centro Internacional de Agricultura Tropical (further referred to as CIAT) to Semillas Papalotla S A. de C V (further referred to as Papalotla) Papalotla will pay CIAT a royalty fee of 2 (two) % on all seed sales of this hybrid to be paid annually starting in December 2000 to share in the costs of the development of the above material

Additional collaborative projects of mutual interest including the development of Brachiaria hybrids with increased drought tolerance may be developed in the future These projects if realized will be financed separately

Article II Introduction

Papalotla is a Mexico based Seed company with international marketing and which specializes in the introduction of new forges species and lines It pays particular attention to the development of sustainable agricultural systems It conducts research to identify and market superior grass and legume germplasm under cattle grazing systems to increase the productivity and sustainability of livestock systems It pays particular attention to the small producers the ecological impact of livestock production and the recuperation of eroded soils

For the last 25 years CIAT has been operating a Forage improvement program and important progress has been made in developing superior Brachiaria and other forage germplasm CIAT being a research organization does not have the ability to rapidly multiply and market this superior germplasm The scientific

[1] Agreement Papalotla

activities of CIAT and the seed production and marketing competence of Papalotla are complementary and the two parties have agreed to establish a formal agreement to market the Brachiaria hybrid CIAT 36061

In the past, CIAT has made the Brachiaria hybrid CIAT 36061 available to a number of research organizations and to Papalotla, who has shown an interest in obtaining commercial rights to the hybrid CIAT 36061 from CIAT

Article III Definitions

1 **CIAT means Centro Internacional de Agricultura Tropical, with address of Recta Palmira Km # Palmira, Colombia**

2 **Papalotla means With an address in Mexico? Brazil ?, USA all?**

Article IV Objective of the Agreement

The objective of this agreement is to transfer the commercial property rights in certain countries of Brachiaria hybrid CIAT 36061 from CIAT to Papalotla and retaining for CIAT the right to use and provide the Brachiaria hybrid CIAT 36061 to others for research purposes

Article V Commitments by CIAT

1 **CIAT grants to Papalotla the sole right for commercialization of Brachiaria hybrid 36061 in the USA, Mexico, Central America and Panama, the Caribbean and South America and China and Australia These rights are granted for years (14?)**

2 CIAT will supply the necessary documentation permission and all other pertinent information to permit Papalotla to register and protect this hybrid

3 **CIAT scientists, at its option, will participate in the evaluation of the Brachiaria hybrid CIAT 36061**

4 CIAT will have the right to distribute the Brachiaria hybrid CIAT 36061 or their derived lines to other research collaborators worldwide for evaluation and research purposes only

5 CIAT grants sole discretion to Papalotla for the transfer temporary or permanent partial or total of the rights as defined by this agreement to third parties in the countries listed under 1 above

Article VI Commitments by Papalotla

1 Papalotla will evaluate Brachiaria hybrid CIAT 36061 under grazing before its commercialization

2 Papalotla will adhere to each country legislation for forage germplasm introduction

1 Papalotla will multiply the seed of Brachiaria hybrid CIAT 36061

4 **Papalotla will adhere to the CIAT Protocol II on Intellectual Property Rights, which is attached**

5 Papalotla will be responsible for registration of Brachiaria hybrid CIAT 36061 in each country according to local legislation for cultivar protection

6 Papalotla will be responsible for obtaining plant variety rights under their name in each country and their protection according to each country's law

7 **Papalotla will pay CIAT a royalty of 2 (two) % of all gross seed sales of Brachiaria hybrid CIAT 36061 This will be paid annually at the end of the year starting in 2000 Gross sales should include sales made to all Companies or organizations related to Papalotla**

8 **Papalotla will provide to CIAT along with the royalty payment a financial report detailing the gross sales of seeds of Brachiaria hybrid CIAT 36061 country by country in US Dollars**

9 **Papalotla authorizes CIAT to send a Certified Public Accountant (CPA) one time a year to check the figures on gross sales of seed of Brachiaria hybrid CIAT 36061 reported Papalotla agrees to allow such CPA to review its records for sales of the Brachiaria hybrid CIAT 36061 If Papalotla has underpaid CIAT by > 5%, Papalotla will pay for the costs of the financial audit**

Article VII Cancellation of Exclusive Sales Rights

Should the royalties drop below US$ per year, the sales rights granted by CIAT to Papalotla on Brachiaria hybrid CIAT 36061 become non-effective

Article VIII Modifications

Any modification to this contract shall require an amendment in writing between both parties duly signed by the authorized representatives of each party

Article IX Liabilities

CIAT shall not be held liable for any legal claims made on the materials provided **Include a Standard Warranty Statement (P Jones has a version)**

Article X Future Projects

Since Forage germplasm development is a long-term investment and CIAT and Papalotla foresee a long term collaboration both parties will look for ways to expand this collaboration to other projects to develop Brachiaria hybrids with specific traits including tolerance to drought.

The conditions and costs of such additional projects between Papalotla and CIAT will be determined separately

Article XI Settlement of Disputes

Any controversy or claim arising out of or in connection with provisions of this agreement or any breach thereof shall unless resolved through direct negotiation be settled in accordance with the law **of (what country-- Mexico, Colombia, USA?-- Need to specify)**

Signed, date

For Papalotla	For CIAT
Function	Function
Signature	Signature
Date	Date

Appendix 11

Agreement Between the Centro Internacional de Agricultura Tropical' (CIAT) and the Food and Agriculture Organization of the United Nations (FAO) Placing Collections of Plant Germplasm Under the Auspices of FAO

AGREEMENT BETWEEN THE "CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL" (CIAT) AND THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) PLACING COLLECTIONS OF PLANT GERMPLASM UNDER THE AUSPICES OF FAO

PREAMBLE

The Centro Internacional de Agricultura Tropical (CIAT) (hereinafter referred to as the Centre) supported by the Consultative Group on International Agricultural Research (hereinafter referred to as CGIAR) and the Food and Agriculture Organization of the United Nations (hereinafter referred to as FAO)

Considering the importance to humanity of protecting and conserving plant germplasm for future generations

Considering the International Undertaking on Plant Genetic Resources adopted by the FAO Conference at its Twenty second Session in 1983 (Resolution 8/83) and in particular Article 7 thereof and the Annexes of the Undertaking adopted by the FAO Conference in 1989 and 1991

Considering that the FAO Commission on Plant Genetic Resources (hereinafter referred to as the Commission) as the relevant intergovernmental body in this field, has the responsibility for monitoring of the implementation of Article 7 of the International Undertaking on Plant Genetic Resources

Considering the Memorandum of Understanding Between the Food and Agriculture Organization of the United Nations and the International Board for Plant Genetic Resources (IBPGR) dated September 21 1990 on the respective roles of the two organizations in establishing maintaining and managing germplasm collections and setting standards for these collections

Considering the strong support FAO as one of the co sponsors has provided and continues to provide to the CGIAR,

Considering the importance of the plant germplasm collections held by the International Agricultural Research Centres (IARCs) supported by the CGIAR, as part of a global strategy for germplasm conservation

Considering that the CGIAR adheres to a policy on plant genetic resources which is based on the unrestricted availability of germplasm held in their genebanks

Considering that the germplasm accessions have been donated or collected on the understanding that these accessions will remain freely available and that they will be conserved and used in research on behalf of the international community in particular the developing countries

Considering that the Centre has expressed the wish that its designated germplasm be recognized as part of the international network of *ex situ* collections (as per the International Undertaking on Plant Genetic Resources) under the auspices of FAO

Have agreed as follows

ARTICLE 1

APPLICATION OF THIS AGREEMENT

This Agreement shall be construed and applied in a manner consistent with the provisions of the Convention on Biological Diversity and the International Undertaking on Plant Genetic Resources

ARTICLE 2

BASIC UNDERTAKING

The Centre hereby places under the auspices of FAO as part of the international network of *ex situ* collections provided for in Article 7 of the International Undertaking on Plant Genetic Resources the collections of plant genetic resources listed in the Appendix hereto (hereinafter referred to as the designated germplasm") as catalogued and published by the Centre in print or machine-readable form, in accordance with the terms and conditions set forth in this Agreement. The list of designated germplasm will be updated every two years as new accessions are added to the collection.

ARTICLE 3

STATUS OF DESIGNATED GERMPLASM

(a) The Centre shall hold the designated germplasm in trust for the benefit of the international community in particular the developing countries in accordance with the International Undertaking on Plant Genetic Resources and the terms and conditions set out in this Agreement.

(b) The Centre shall not claim legal ownership over the designated germplasm nor shall it seek any intellectual property rights over that germplasm or related information

ARTICLE 4

PREMISES

(a) The premises in which the designated germplasm is conserved shall remain in the charge of the Centre

(b) FAO shall have a right of access to the premises at any time and the right to inspect all activities performed therein directly related to the conservation and exchange of the designated germplasm.

ARTICLE 5

MANAGEMENT AND ADMINISTRATION

(a) The Centre undertakes to manage and administer the designated germplasm in accordance with internationally accepted standards including with respect to the storage exchange and distribution of seeds the international Genebank Standards endorsed by the Commission as soon as possible applying the preferred standards where these are specified, and ensuring that all the designated germplasm is duplicated in order to ensure its safety

(b) FAO may recommend action, if it considers such action to be desirable in order to ensure the proper conservation of the designated germplasm

(c) If the orderly maintenance of the germplasm collection of the Centre is impeded or threatened by whatever event, including *force majeure* FAO shall assist in the evacuation and/or transfer of the collections to the extent possible The cost of such an operation will be covered by the Centre concerned

ARTICLE 6

POLICIES

The Centre recognizes the intergovernmental authority of the Commission in setting policies for the International Network referred to in Article 7 of the International Undertaking and undertakes to consult with FAO and its Commission on proposed policy changes related to the conservation of or accessibility to the designated germplasm, subject, always to the provisions of Article 9 hereinafter The Centre shall give full consideration to any policy changes proposed by the Commission

ARTICLE 7

STAFF

(a) Staff responsible to manage and administer the designated germplasm shall be employed and remunerated by the Centre

(b) As and when deemed appropriate FAO shall furnish technical backstopping on request by the Centre

ARTICLE 8

FINANCES

The Centre shall remain entirely responsible for financing the maintenance of the designated germplasm

ARTICLE 9

AVAILABILITY OF DESIGNATED GERMPLASM AND RELATED INFORMATION

Subject to the provisions of Article 10 below the Centre undertakes to make samples of the designated germplasm and related information available directly to users or through FAO for the purpose of scientific research, plant breeding or genetic resource conservation, without restriction.

ARTICLE 10

TRANSFER OF DESIGNATED GERMPLASM AND RELATED INFORMATION

Where samples of the designated germplasm and/or related information are transferred to any other person or institution, the Centre shall ensure that such other person or institution, and any further entity receiving samples of the designated germplasm from such person or institution, are bound by the conditions set out in Article 3 (b) and, in the case of samples duplicated for safety purposes to the provisions of Article 5 (a)

This provision shall not apply to the repatriation of germplasm to the country that provided such germplasm

ARTICLE 11

DURATION

This Agreement is concluded for a period of four years and shall be automatically renewed for further periods of four years unless notice of non renewal is given in writing by either party not less than one hundred and eighty (180) days before the end of any four year period

ARTICLE 12

TERMINATION

(a) Either FAO or the Centre may terminate this Agreement at any time by giving notice to the other one year in advance of the termination date

(b) FAO and the Centre shall in such case take all necessary measures to wind up joint activities in an appropriate manner and, within the limits of their respective competence to ensure the continued conservation of and access to the designated germplasm

ARTICLE 13

SETTLEMENT OF DISPUTES

(a) Any dispute concerning the implementation of this Agreement shall be settled by mutual consent.

(b) Failing mutual consent, such dispute may be submitted, at the request of either FAO or the Centre to an arbitral tribunal composed of three members Each party shall appoint one arbitrator The two arbitrators thus appointed shall designate by mutual consent the third arbitrator who will act as the presiding arbitrator of the tribunal

(c) If within two months after the receipt of a party s notification of the appointment of an arbitrator the other party has not notified the first party of the arbitrator he has appointed, the first party may request the Secretary General of the United Nations to appoint the second arbitrator

(d) If within two months after the appointment of the second arbitrator the two arbitrators have not agreed on the choice of the presiding arbitrator such presiding arbitrator shall be designated by the Secretary General of the United Nations at the request of either party

(e) Unless the parties to the dispute decide otherwise the tribunal shall determine its own procedure

(f) A majority vote of the arbitrators shall be sufficient to reach a decision which shall be final and binding for the parties to the dispute

ARTICLE 14

AMENDMENT

(a) FAO or the Centre may propose that the Agreement be amended by giving notice thereof

(b) If there is mutual agreement in respect of the amendment, the amendment shall enter into force on whatever date is set, and be reported to the next session of the Commission.

ARTICLE 15

DEPOSITARY

The Director General of FAO shall be the Depositary of this Agreement The Depositary shall

(a) send certified copies of this Agreement to the Member Nations of FAO and to any other Government which so requests

(b) arrange for the registration of this Agreement, upon its entry into force with the Secretariat of the United Nations in accordance with Article 102 of the Charter of the United Nations

(c) inform FAO Members Nations of
  (i) the signature of this Agreement in accordance with Article 16 and
  (ii) the adoption of amendments to this Agreement in accordance with Article 14

ARTICLE 16

COMING INTO FORCE

This Agreement shall come into force upon signature by the authorized representative of FAO and the Centre

Food and Agriculture Organization of the United Nations

by M S Zehm
(signature)

Date 26 10 94

Centro Internacional de Agricultura Tropical

by
(signature)

Date 26 Oct 1994

APPENDIX

DESIGNATED GERMPLASM

a) List of germplasm accessions covered by this agreement

b) List of locations where material is held

Appendix 12

Data input for SAMMDATA

Annex 1 Data input for SAMMDATA.

No	Data source	Countries of data origin	Copyright Notice/restrictions
01	Instituto Meteorologico Nacional Bernardo Moro Brenas	COSTA RICA	None
02	College of Engineering The University of Wisconsin Engineering Experiment Station Report #21 WORLD Distribution of Solar Radiation. Solar Energy Laboratory July 1966	USA	None
03	WORLD Climatic Data Frederick L Wernstedt		None
04	Proyecto Interinstitucional FAO/UNESCO/OMM en Agroclimatologia.Estudio Agroclimatologico de la Zona Andina (informe tecnico) Organiz.de las Nac Unidas para la Alimentacion y la Agricultura. Roma 1975	COLOMBIA, PERU ECUADOR, BOLIVIA & VENEZUE-LA	None
05	Analysis of COLOMBIAN Precipitation to estimate irrigation requirements Department of Agricultural & Irrigation Engineering/College of Engineering UTAH Water Research Laboratory Publication PRWG69-4 May 1971	COLOMBIA	None
06	Servicio Nal de Meteorol e Hidrologia Resumen Climatologico - Departamento de Meteorologia	ECUADOR.	None
07	Anuario Meteorologico 1970 Suplemento Centro Nacional de tigaciones del Cafe CENICAFE' – Federacion Nacional de Cafeteros Chinchina, Caldas	COLOMBIA.	None
08	Inst.Geograf.Agustin Codazzi (Dpto.Agrologico) Levantamiento Agrologico del Dpto del Atlantico-COL (Bogota 1960) Biblioteca Ciat S/599/ 3/ c6/14/ls-2	COLOMBIA	None
09	Meteorologic Data Diagnostico Regional Integral/Region Centro Oriental DANLI Secretaria de Recursos Naturales Programa de Fortalecimiento Institucional y Desarrollo PROFINDEH Diagnostico de Recursos Fisicos Volumen I Inst.Interam.de Ciencias Agricolas (IICA) Zona Norte Representacion en Honduras Tegucigalpa DC Julio 1975	HONDURAS	None
10	Almanaque SALVADORENO 1977 Servicio Meteorologico Direccion General de Recursos Naturales Renovables	EL SALVADOR	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright Notice/restrictions
11	Ministerio de Agricultura Dpto de Conservacion de Suelos y Aguas Seccion Estudios Basicos Resumen mensual de observaciones agrometeorologicas Estacion Experimental LA PLATINA Provincia Santiago	CHILE	None
12	CIAT Annual Report 1977 Climatological Data for Ciat Research Sites (First Draft) December 1977	COLOMBIA.	None
13	Secretaria de Estado de Agricultura Dpto de Meteorologia Division de Climatologia y Agroclimatologia	DOMINICA	None
14	Anuarios Climatologicos 1959-1960-1961 1962 Centro de Investigaciones Agronomicas Direccion de Investigacion Ministerio de Agricultura y Cria 'MAC' (Numeros.2 3 4 y 5) Maracay	VENEZUE-LA.	None
15	Programa de Desarrollo Integral Uribante-Arauca capit. III Diagnostico (Parte 2) Climatologia. Enero 1977 San Cristobal	VENEZUE-LA	None
16	Universidad de California Dr Terglung Dpto de Geografia. (General Data)	USA	None
17	Secretaria de Recursos Hidraulicos Direccion General de Distritos de Riego - Direccion de Operacion Estudio Climatologico Culiacan. SIN agosto de 1964.Estacion. Bocatoma canal rosales	MEXICO	Not found
18	Estadisticas Climatologicas 1951 1960 Serie B #6 B AIRES 5a.edicion. Fuerza Aerea Argentina Comando Regiones Aereas Servicio Meteorologico Nacional Biblioteca Ciat ha/941/ e8/1975 Ing.Agron. Eduardo Sierra. Universidad de BUENOS AIRES Facultad de Agronomia	ARGENTI NA.	None
19	Instituto Agustin Codazzi Boletin Climatologico de Colombia Precipitacion de la decada 1951 1960 Volumenes 1 D E 1968 Biblioteca AEU QC/925/ 3/ c6/b6/v 1 4	COLOMBIA	None
20	Ministerio de Agricultura Servicio Colombiano de Meteorologia e Hidrologia Boletin Climatologico Mensual (1962 vol 1 2 1963 1970)	COLOMBIA	Not found
21	Monthly Precipitation Probabilities for North Eastern BRAZIL George H Hargreaves Utah State University 1973 Depto.Agriculture and Irrigation Engineering USA	BRAZIL	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright Notice/restrictions
22	Hargreaves G H Various Climatic Tables filed under acquisition #001	COSTA RICA PANAMA EL SALVADOR, NICARAGUA HONDURAS	None
23	Ministerio de Agricultura y Cria MAC Direccion de Investigacion C.I.A R.N O 1971 a 1975 El Tigre	VENEZUELA	None
24	Potential Evapotranspiration and Precipitation Deficits for the Ultisol and Oxisol areas of LATINOAMERICA. By Hancock and Hargreaves Study for Ciat Beef Program.Agosto de 1978	COLOMBIA	None
25	Data Borrowed from Nearest Station. Estimating Sunshine Hours etc JONES P G CIAT 5/10/81	COLOMBIA	None
26	Datos Meteorologicos Mensuales Dpto de Agua Superficial Div de Investig de Recursos de agua. Inst.Geog.Nac	GUATEMALA.	None
27	JONES P G CIAT 6/10/81 Estimating Mean Temperatures for BRAZIL See data origen for estimating formula. (Data of this type carries a 2 years tag)	BRAZIL	None
28	Potential Evapotranspiration and Precipitation deficit for BOLIVIA. Hargreaves G H data sheets in Bolivia box.	BOLIVIA	None
29	Climatic data. Kretchmer Paul CIAT Memorando de feb 11/80 ICA .La Selava	COLOMBIA	None
30	Normais Climatologicas Ministerio da Agricultura Escritorio de Meteorologia. Volumenes I II III IV RIO DE JANEIRO 1969 1970	BRAZIL	None
31	Climatologia de MEXICO Biblioteca Ciat QC/986/ v5	MEXICO	Not found
32	WORLD WATER for Agriculture January 1977 Agency for International Development. (Dr Cochrane)		None

Annex 1 Data input for SAMMDATA cont....

No	Data source	Countries of data origin	Copyright notice/restrictions
33	World Survey of Climatology Vol 12 Climates of CENTRAL and SOUTH AMERICA. Biblioteca Ciat QC/988/ s3/1976 Others Climates of AFRICA Vol 10 Biblioteca Ciat QC/991/ c5 Climates of SOUTHERN and WESTERN ASIA Vol 9 Biblioteca Ciat qc/980/ i5/c5/c 2	COLOMBIA	None
34	Moisture Precipitation Probabilities Potential Evapotranspiration Requirements and Climatic Classification for PERU (By G H Hargreaves E C Olsen and J Vanegas August. 1978)	PERU	None
35	Inventario Evaluacion e Integracion de los Recursos Naturales de la Zona Iquitos Nauta. Requena y Colonia Angamos (Dic 75) REP DE PERU Presidencia de la Republica-ONERN Biblioteca AEU/S/934/ p4/i5/v4/	PERU	None
36	Manual Agropecuario PARA o PARANA 1976 Governo do Estado Secretaria da Agricultura. (Fundacao Instituto Agronomico do Parana) IAPAR. Londrina. Abril 1976 Biblioteca AEU/SB/501/ 2/m3/ y Cartas Climaticas Basicas do ESTADO DO PARANA. 1978 Biblioteca AEU/QC/988/ b7/c3/ y Folleto Circular no 5 Junho/77 Caracteristicas Climaticas de Londrina	PARANA	None
37	Inventario evaluacion e integracion de los Recursos Naturales de la Zona Iberia Inapari (Oct.1977) REPUB DEL PERU ONERN Biblioteca AEU/S/934/p4/i5/v5/	PERU	None
38	Inventario evaluacion e integracion de los Recursos Naturales de la Zona Villa Rica Puerto Pachitea(rios pichis y palcazu)Ago 1970 ONERN Biblioteca AEU/S/934/ p4/i5/v2/	PERU	None
39	Inventario Evaluacion e Integracion de los Recursos Naturales de la zona de los rios Inambari y Madre de Dios Dic 1972 ONERN Biblioteca AEU/S/934/ p4/i5/v3/	PERU	None
40	Estudio de Suelos de la zona Jaen San Ignacio (detallado) REPUB DEL PERU (Lima)Dic 1977 Ministerio de Agricultura. Zona Agraria II ONERN Biblioteca AEU/S/599/ 3/p4/e8/	PERU	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
41	Inventario y Evaluacion de los Recursos de Suelos y Forestales de la Zona Cenepa Alto Maranon (Mar 1976) Biblioteca AEU/S/599/ 3/ p4/i54/ ONERN	PERU	None
42	Summaries produced from servicio nacional data sheets See PERU in yellow file] Climatics Summaries for Stations LAMBAYEQUE HDA.CANYAR, KAYRA y SAN CAMILO JONES,P G P G CIAT 8/6/81	PERU	None
43	Balance Hidrico de Localidades Ecuatorianas 1974 Ministerio de Recursos Naturales y Energeticos Inst.Nal Meteorologia e Hidrologia. Publicacion #14 1 Dpto de Meteorologia Secc Agrometeorologia. QUITO	ECUADOR	None
44	Sammdata Estimations Nov 1981 JONES P G CIAT Nov/81 Estimates for stations assigned to BRAZILIAN cassava production regions	BRAZIL	None
45	"Suelos Agricolas Mapa 92 (Clima pag t8) Parte II (ver mesa mapas aeu atlas)	VENEZUELA	None
46	Department of Soil Science N C State University Raleigh memo from Dr Pedro Sanchez. N C 27607 Version corregida de la estacion YURIMAGUAS datos de 24 anos (1950-1974)	PERU	None
47	Tesis Sergio Tulio CLIMA DE LA AMAZONIA COLOMBIANA Location. The Amazonia of Colombia is located in the southeastern portion of the country between 4 deg north and 4 deg south latitude and 67 deg and 77 deg longitude	COLOMBIA	None
48	Atlas Pluviometrico do ESTADO DE SAP PAULO BRAZIL Sao Paulo-1972 (Governo do Estado de Sao Paulo) (ver mesa mapas aeu atlas)	BRAZIL	None
49	Referencia creada a partir de la Ref #48 (Atlas Pluvio- metrico do Estado de Sao Paulo) Datos Precipitacion promediados en base a 10 puestos plu viometricos cercanos a estacion SAO PAULO clave=887	BRAZIL	None
50	Datos Precipitacion de 8 Localidades ARGENTINAS -Centro Procesamiento Informacion *E E R.A SALTA* Proyecto NOA X I N T A F A O (Calculo Depend Precip 75% segun Data Origen=54)	ARGENTINA	None

Annex 1 Data input for SAMMDATA cont...

No	Data source	Countries of data origin	Copyright notice/restrictions
51	III THE CLIMATE OF PARAGUAY Teofilo Farina Sanchez. Datos de Precipit.y Depend Precipit.75%	PARAGUAY	None
52	The Natural Resources of TRINIDAD AND TOBAGO Edited by St.G C Cooper y P R.Bacon. (In the Library at Port Spain) Monthly Rainfall records	TRINIDAD and TOBAGO	From published books
53	Estimated from existing Temperature and Radiation Data. JONES P G CIAT 9/9/82	COLOMBIA	None
54	Creada por la Ref Samm.#19 (Bolet.Climatol de Col 51/60) y los Anuarios Meteorologicos CENICAFE' 1961/1979 (Biblioteca AEU/QC/857/ c6/a58/1 961 1 984) (Para ampliar record anos Red Estaciones 'CENICAFE') La Precipitacion Promedio de algunas estaciones esta calculada asi Precip = n * offset * mean (MARKOV)	COLOMBIA	None
55	Datos Climaticos de algunas localidades de Tucuman.	ARGENTINA	None
56	Datos Meteorologicos de las Estaciones del CIAT CIAT PAL CARIMAGUA QUILICHAO y POPAYAN suministrados por Opera ciones de Campo-CIAT (Archivos con registros diarios observados y calculados para los diferentes tipos de datos meteorologicos y varios anos guardados en cintas #693 y #753 de aeu.) En base a estos archivos se calculan promedios que van ampliando los anos record de estas estaciones en SAMMDATA.	COLOMBIA	None
57	Estado de Goias Governo Ary Valadao Projeto Rio Formoso- Irrigacao Estudo Tecnico-Financiero (VOL I) Secretaria do Planejamento e Coordenacao Goiania GO	BRAZIL	None
58	Diagnostico Regional-Caracterizacion Agroclimatica de la re- gion oriental de Guarico VENEZUELA Fondo Nal de Investi gaciones Agropecuarias Centro de Invest.de la Region de los llanos centrales Estacion Experimental del Nor oriente Guarico (Boletin #2)	VENEZUELA	None
59	WORLD CLIMATES With tables of climatic data and practical suggestions Willy Rudloff Biblioteca Ciat Ref/QC/981/ r8		From published books

Annex 1 Data input for SAMMDATA cont....

No	Data source	Countries of data origin	Copyright notice/restrictions
60	Radiation estimates from maps by George O G Lof(Segun Ref Sammdata #2) JONES P G CIAT 31/5/83	COLOMBIA	None
61	El Potencial Agricola del Uso de la Tierra en BOLIVIA Un mapa de Sistemas de Tierra (T T Cochrane) Mision Britanica en Agricultura Tropical Ministerio de Agricultura. BOLIVIA 1973 Biblioteca AEU/S/600/ 44/ b6/p6/c 1 y c 2	BOLIVIA	Prohibida reproducci on total o parcial
62	Archivos grabados en cinta CSIRO MEXICO csiro SOUTHAM csiro AFRICA csiro ASIA csiro JONES P G CIAT 24/8/83	MEXICO SOUTH AMERICA, AFRICA, ASIA	None
63	BANCO DE DADOS Governo de SAO PAULO Secretaria de Agricul tura. Inst.de Economia Agricola. Divisao de apoio a pesquisa hojas con Datos de Precipitacion ra Maxima Dias de Lluvia y Temperatuanos 1969 1982 Nota. Datos Precipitacion de algunas estaciones fueron integrados con los de Ref.Sammdata #48 (Para ampliar record anos)	BRAZIL	None
64	Corporacion Regional de Desarrollo de Santa Cruz "CORDECRUZ" Unidad de Programas Rurales y Agropecuarios Dpto de Recur sos Naturales Compendio de Datos Meteorologicos del Dpto de STA.CRUZ - BOLIVIA. Biblioteca CIAT QC/857/ b6/c6	BOLIVIA	None
65	Promedios Climatologicos de VENEZUELA. Periodo 1951 1970 Primera Edicion 1980 Publicacion Especial #4 Republica de VENEZUELA Ministerio de Defensa Fuerza Aerea Venezolana Comando Logistico Direccion de Sistemas de Apoyo Grupo Logistico de Meteoro- logia Para algunas estaciones incluye Anuarios Climatologicos de VENEZUELA anos 1958 59-60-61-62 y 1 965	VENEZUELA	None
66	Temperatura Media calculada de registros observados de las Temperaturas Maximas y Minimas Data Origen=8 JONES P G CIAT	COLOMBIA	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
67	Republica DE ECUADOR. Instituto Nal de Meteorologia e Hidrologia INAMHI Anuarios Meteorologicos de 1959 a 1983 (25 anos) Para algunas estaciones que existian por Ref #6 y/o Ref #43 se amplia el record de anos con la ref #67 QUITO	ECUADOR.	None
68	Climatological Tables for MALAWI Prepared by Meteorological Services July 1982	MALAWI	None
69	Climatological Summaries for ZAMBIA Periods ending December 1970 June 1971 Reprinted April 1975	ZAMBIA	None
70	Donnees Climatologiques du Reseau D'Ecoclimatologie de L'Institut des Sciences Agronomiques du BURUNDI (ISABU) Anne 1977 Bureau Climatologique de L'Isabu. KISOZI (1976)	BURUNDI	None
71	Climatological Statistics for EAST AFRICA. Part II UGANDA. Issued by E.A. Meteorological Department. E.A. Community NAIROBI 1975	UGANDA	None
72	Climatological Statistics for EAST AFRICA. Part II TANZANIA issued by e a. Meteorological Department. E.A.Community NAIROBI 1975	TANZANIA	None
73	Climatological Statistics for EAST AFRICA. Part I KENYA.	KENYA	None
74	REPUBLIQUE RWANDAISE Donnees Climatologiques du Reseau D'Ecolimatologie de L'Institut des Sciences Agronomique du RWANDA. (I S.A.R.) Annee 1981 Bureau Climatologique de L'ISAR. KARAMA (1982)	RWANDA	None
75	The Weather Almanac Ruffner and Bair Biblioteca CIAT REF/QC/983/ w4/1977		None
76	Potential Evapotranspiration Normals (mm)		None
77	Summary of Rainfall in UGANDA. For the year 1970 East African Meteorological Department. Issued by E A Meteorological Department. E A Community NAIROBI 1972 1975	UGANDA	None
78	Summary of Rainfall in KENYA For the year 1967 1970 East African Meteorological Department Issued by E A Meteorological Department E A Community NAIROBI 1968	KENYA	None

Annex 1 Data input for SAMMDATA cont...

No	Data source	Countries of data origin	Copyright notice/restrictions
79	Summary of Rainfall in TANZANIA. For the year 1972 1973 East African Meteorological Department. Issued by E A Meteorological Department. E A Community NAIROBI 1974	TANZANIA	None
80	Agroclimatology of WEST AFRICA MALI ICRISAT (International Crops Research Institute for the Semi Arid Tropics) Information Bulletin no 19 M V K.Sivakumar M Konate and S M Virmani December 1984	MALI	None
81	Agroclimatological Data Volume 1 COUNTRIES NORTH OF THE EQUATOR Volume 2 COUNTRIES SOUTH OF THE EQUATOR Food and Agriculture Organization of the United Nations FAO ROME 1984		None
82	Climatological Summaries RHODESIA Department of Meteorological Services Climate Handbook Supplement no 5 Salisbury February 1978	RHODESIA	None
83	Appendix II Climatic Data for Some Locations in CHOCO-COLOMBIA. Dr Roel Oldeman ISRIC PO BOX 353 6700 AJ Wageningen NETHERLANDS	COLOMBIA	None
84	Mean Rainfall in RHODESIA Department of Meteorological Services Rainfall Handbook Supplement #8 SALISBURY October 1977	RHODESIA	None
85	Estimated.- JONES P G CIAT 28/10/86	COLOMBIA	None
86	Climate Handbook of ZIMBABWE Department of Meteorological Services Salisbury April 1981	ZIMBABWE	None
87	Precipitacion para las Localidades de PESCADOR y MONDOMO Departamento del CAUCA COLOMBIA y Datos para la estacion del ICA CRI LA LIBERTAD en Villa vicencio Dpto del META COLOMBIA	COLOMBIA	None
88	Estimated JONES P G CIAT 16/02/87	COLOMBIA	None
89	Meteorological Department BANGKOK, Monthly and Annual Rainfall 30 years from 1951 1980	THAILAND	None
90	Fotocopias de los Promedios Mensuales de Precipitacion de las Costas Este y Oeste en la region sur de TAILANDIA Siriphong Pattanavibul T J Str 196 Phahonyotin rd, Bangkhon Bangkok 9 THAILAND	THAILAND	None

Annex 1 Data input for SAMMDATA cont

No	Data source	Countries of data origin	Copyright notice/restrictions
91	Cinta con Datos Universidad de Cornell P G JONES 1988 CIAT		None
92	MEXICO Estados Unidos Mexicanos SPP = Secretaria de Programacion y Presupuesto Coordinacion General de los Servicios Nacionales de Esta distica Geografia e Informatica Direccion General de Geografia del Territorio Nacional Cartas de Precipitacion Total Anual (1 1 000 000) Indice de Hojas Adyacentes MERIDA, VILLA HERMOSA MEXICO GUADALAJARA, MONTERREY CHIHUAHUA, LA PAZ y TIJUANA	MEXICO	None
93	Datos de Precipitacion 1984-1987 Estacion SANTA ROSA-CIAT V/vicencio META COLOMBIA	COLOMBIA	None
94	Geographie et Cartographie du GABON Atlas Illustre Ministere de L'Education Nationale de la Republique Gabonaise Institut Pedagogique National et Laboratorie National de Cartographie EDICEF 1983	GABON	None
95	Characteristics Classification & Adaptation of Soils in Selected Areas in SIERRA LEONE WEST AFRICA November 1974	SIERRA LEONE	None
96	Agroclimatology of WEST AFRICA BURKINA FASO ICRISAT (Int.Crops Research Institute for the Semi Arid Tropics) Information Bulletin no 23 M V K. Sivakumar and Faustin Gnoumou 1987	BURKINA FASO	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
97	Instit.Colombiano de Hidrol Meteor y Adecuac de Tierras HIMAT Secc de Meteorologia. Precip Media Mensual y Anual de Localidades Colombianas Feb/89	COLOMBIA	None
98	Meteorological Data for Rokupr Port Loko Lungi Katonga y Makot. From Rhombe Swamp Engineering Feasibility Study	SIERRA LEONE	None
99	Weather Summary for 1981 1987 Lambo State	TANZANIA	None
100	Meteorological Reports For Icarda Experiment Stations in SYRIA 1987 1988 Seasons Inter Center for Agric.Research in the Dry Areas (ICARDA) Aleppo	SYRIA	None
101	Climate of SOUTH AFRICA Climate Statistics Up To 1984 Weather Bureau Departm.of Environment Affairs Pretoria, Government Printer 1988	SOUTH AFRICA	
102	Estaciones Tomadas de la Base de Datos-Ciat (Programa de Pastos)-RIEPT Arturo Franco (CIAT) segun reporte de colaboradores de diferentes localidades de AMERICA LATINA. Mayo 12/90	LATIN AMERICA	None
103	Datos de Estaciones Meteorologicas CVC y CVC HIMAT Suministrados por CVC Subdireccion Tecnica-Secc Hidroclimatologia, Nov 1991		None
104	Data Estimated from Five Nearest Station. JONES P G CIAT 17/12/91	COLOMBIA	None
105	Climatic Data of THAILAND FAO/AEZ Study Kasetsart University - Dr Suntaree Akratanakul, Department of Soil Science	THAILAND	None
106	Estaciones del CIAT – PALMIRA, CARIMAGUA, QUILICHAO POPAYAN Y SANTA ROSA. Ampliacion Records Sept/92 (Promedios anteriores por Ref Sammdata no 56)	COLOMBIA	None
107	JONES P G CIAT ?? Datos SENEGAL ?? The FEWS project Famine Early Warning System FAO Date unknown	SENEGAL	None

Annex 1 Data input for SAMMDATA cont

No	Data source	Countries of data origin	Copyright notice/restrictions
108	CD ROM (WORLD WEATHER DISC) Climate Data for the Planet Earth. WeatherDisc Associates Inc 1988		All right of the producers and the owners of the works contained on this disc are reserved Unauthorized copying hiring or lending are prohibited
109	Localidad. TERRA ROXA (Sao Paulo)-BRASIL Precipitacion y Dias de Lluvia. (Segun Analisis Markov - P G.JONES -Feb/93)	BRAZIL	None
110	Localidad OLIVEROS (ARGENTINA) Precipitacion y Temperaturas Datos suministrados por Dr Phill Thornthon. Feb/93	ARGENTINA	None
111	Diskettes enviados por IRRI tomados de ANNA MANI 1981 Handbook of Solar Radiation data for INDIA. Allied Publishers, Private Limited NEW DELHI	INDIA	None
112	Diskettes enviados por IRRI tomados de ANNA MANI and S Rangarajan 1982 Solar Radiation over INDIA Allied Publishers Private Limited. NEW DELHI	INDIA	None
113	Diskettes enviados por IRRI tomados de Asean1982 Asean Compendium of Climatic Statistics Calorrum Grafik System Sdh Bdh. Kuala Lumpur MALAYSIA	ASEAN	None
114	Diskettes enviados por IRRI tomado de Berlage H P Jr 1960 Rainfall in INDONESIA Verhandelingen no 37	INDONESIA	None
115	Diskettes enviados por IRRI tomado de CRIFCI 1980 Tomados de la Referencia Agroclimatic Reserch on Rice and Secundary Crops Special Series Physiology Dept. Vol A Bogor INDONESIA 31p	INDONESIA	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
116	Diskettes enviados por IRRI tomado de FAO Computer Output.		None
117	Diskettes enviados por IRRI tomado de London Meteorological Office 1967 Tables of Temperature Relative Humidity and Precipitation of the World Her Majesty's Stationery Oficce London	UNITED KINGDOM	None
118	Diskettes enviados por IRRI tomado de Codeman L R.1980 The Agroclimatic Maps of Kalimantan, Maluku, Irian Jaya, Bali and Nusa Tenggara. Contr Centr Res Inst.Agric Bogor No 60	INDONESIA	None
119	Diskettes enviados por IRRI tomado de Codeman L R. Personal Files		None
120	Diskettes enviados por IRRI tomado de Thailand Ministry of Comunications 1977 Climatological Data of THAILAND 25 Year Period 1951 1975(Nota. Se observan Veloc del Viento muy grandes para THAILAND durante todo el ano)	THAILAND	None
121	Diskettes enviados por IRRI tomado de U S.Dept of Commerce 1967 "World Weather Records 1951 1960 VOL 4 US Government Printing Office Washington D C		None
122	Diskettes enviados por IRRI, tomado de U S Naval Weather Service1970 "Worldwide Airfield Summaries VOL 1 Printing Office Washington D C		None
123	Diskettes enviados por IRRI tomado de WMO 1971 "Climatological Normals for Climat and Climat Srip Stations for the Period 1931 1960 WMO/CMM No 117 TP 52		None
124	Diskettes enviados por IRRI tomado de US Air Force 20th Weather Squadron 1965 Climate of the Republic of Vietnam	VIETNAM	None
125	Diskettes enviados por IRRI tomado de Vietnam Directorate of Meteorology 1967 Temperature Humidity Rainfall Evaporation, Sunshine duration, Nebulosity fog Thunderstorm, and Surface Wind at 18 Main Weather Stations of Vietnam	VIETNAM	None
126	Diskettes enviados por IRRI tomado de Nutton Son, M Y 1963 The Physical Environment and Agriculture of BURMA, American Institute of Crop Ecology Washington D C	BURMA	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
127	Diskettes enviados por IRRI tomado de MANALO E 3 1976 Agroclimatic Survey of Bangladesh Rice Researce Institute/ IRRI	BHANGLADESH	None
128	Diskettes enviados por IRRI tomado de U S Air Force 20th Weather Squadron 1964 Climate of Malaysia	MALAYSIA	None
129	Diskettes enviados por IRRI tomado de L A D I Ekanayake B SC(Lond)-1972 Report on the Colombo Observatory for 1967(With Maps and Statistics) Dept.of Government Printing Sri Lanka	SRILANKA	None
130	BRASIL Data from Chuva, P G JONES CIAT 10/1/95	BRAZIL	None
131	Normas Climaticas BRASIL 1992 Periodo 1960 1990 (Horas Sol estan como n/N)	BRAZIL	None
132	Archivo RLL1 dat COSTA RICA JONES P G CIAT DATA SET Abril/98 Totales y promedios mensuales de las precipitaciones	COSTA RICA	None
133	Normales Climatologicas MEXICO 1982 Periodo 1941 1970 Direccion General del Servicio Meteorologico Nacional SARH	MEXICO	None
134	CLIMATES OF THE WORLD U S Department of Commerce Environmental Science Services Administration. Environmental Data Service		None
135	PARAGUAY Metdata. Disquette recibido en 21/1/91 por Dr P G Jones	PARAGUAY	None
136	VENEZUELA Metdata. Estaciones de La Orinoquia Venezolana. Disquettes traidos por Dr D Robinson en Nov./91	VENEZUELA	None
137	Datos Meteorologicos de las Cabeceras Departamentales GUATEMALA #44 Ministerio de Comunicaciones y O P INSIVUMEH GUATEMALA C A 1977	GUATEMALA	None
138	Integrated Agricultural Development Project Usaid Contract No 521-0078-C 00 1010 00 Research and Extension Component by Texas A&M University and Haitian Annual Report 1982	HAITI	None
139	Meteorological Data Belize Intnl Airport BELIZE C.A	BELIZE	None

Annex 1 Data input for SAMMDATA cont.

No	Data source	Countries of data origin	Copyright notice/restrictions
140	DATA SET Rainfall Complete 15-09 97 de Peter G Jones Ciat. Ventana parte de Centroamerica Se trabajo primero Honduras por solicitud de Gregorie Leclerc Hernan Trejos incorporo automaticamente a la base las temperaturas maxima, minima y media correspondientes a los Data Sets MAXTEMP MINTEMP Y MEANTEMP Complete 26-02 97 PGJones	CENTRAL AMERICA	None
141	Data prepared from 'datacom' files associated with ciat9221 list Un markov analyis P G Jones 14/9/98		None
142	Data From NCDE Monthly data files from Met. 14/9/98		None
143	Data from data set ds 483 0 from NCAR Boulder Colorado processed 5/10/98 P G Jones		None
144	Data derived from ERIC IMTA (1996) Extractor rapido de informacion climatologica. Instituto Mexicano de Tecnologia del Agua. CD ROM Progreso Jiutepec Morelos	MEXICO	None

[redacted]

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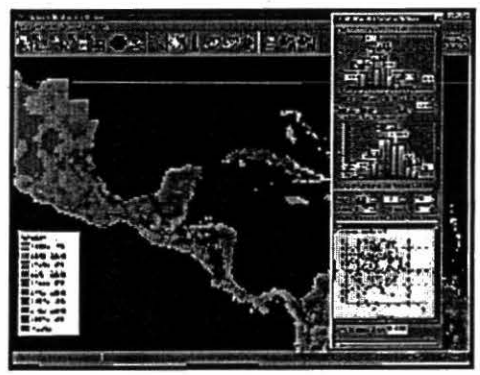
Appendix 14.

MapObjects LT Product Description

MapObjects LT

Product Description

MapObjects LT is a lightweight, royalty-free version of MapObjects, ESRI's powerful mapping and GIS components. MapObjects LT consists of an ActiveX control and a collection of programmable ActiveX automation objects that let application developers add dynamic mapping capabilities to Windows applications.



FloraMap calculates the predicted distribution of wild organisms. The map shows a probability surface estimated from gridded climate data. The principal components analysis window controls the climate probability model.

Developers can use MapObjects LT in their favorite development environment to create mapping applications, or they can use MapObjects LT to enhance existing applications by adding mapping functionality.

Key Features

MapObjects LT allows you to create customized applications that use map display and query components. The upcoming release of MapObjects LT 2 features

- Well-designed, easy-to-navigate object model
- Support for data in a wide range of formats, including standard GIS formats (ArcInfo coverages and ESRI shapefiles), CAD formats (DXF, DWG, and DGN), and a variety of image formats such as GeoTiff, JPEG, and MrSid image compression.
- Display of data as multiple layers in a map, with the ability to pan and zoom throughout all layers
- Display of features using thematic methods such as value maps and classification maps
- Spatial query
- Feature labeling
- Advanced thematic mapping capabilities, such as dot density rendering, labeling abilities, and multiple rendering schemes
- Feature attribute query using standard SQL expressions
- Many createable geometric objects

Appendix 15.

ESRI MapObjects™ License Terms

ESRI

MapObjects™ LT License Terms

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Limited Warranty: ESRI warrants that the media upon which MapObjects LT is delivered will be free from defects, if used properly, for a period of sixty (60) days from the date of delivery, and will be replaced free of charge if it becomes inoperable during that time. Beyond the foregoing, MapObjects LT, INCLUDING ALL DATA AND PORTIONS SUPPLIED BY THIRD PARTIES, IS PROVIDED FOR YOUR USE AND DISTRIBUTION STRICTLY "AS IS" WITHOUT WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR INTENDED PURPOSES, NONINFRINGEMENT, OR UNINTERRUPTED USE.

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No Waiver: Failure of ESRI to assert any rights in this License shall not be construed as a waiver thereof nor serve as a prohibition against asserting the right or any other right under this License.

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Environmental Systems Research Institute, Inc., 380 New York St., Redlands, CA 92373-8100 USA • TEL 909-793-2853 • FAX 909-793-5953

Appendix 16.

ESRI Copyright Permission and Release Form

Jones, Peter

From: Claudia Ruiz [cruiz@esri.com]
Sent: Monday, March 06, 2000 3:29 PM
To: 'Peter Jones'
Subject: FloraMap System

Permission form.doc

Dear Mr. Jones:

We really appreciate your cooperation with the use of the images of your wonderful Flora Map System.

Attached please find the permission form for your signature. Please fax it to my attention to 909 - 307 - 3072.

Cordially,

<<Permission form.doc>>

Claudia Ruiz
International Marketing
ESRI
380 New York St.
Redlands,Ca 92373

Tel : 909 793-2853 ext 1945
Fax : 909 307 3072
Email: cruiz@esri.com <mailto:cruiz@esri.com>

Geography Matters!!!

Copyright Permission and Release Form

Environmental Systems Research Institute, Inc. (ESRI) is interested in receiving you or your organization's permission to use some of you or your organization's materials described below in an upcoming ESRI brochure entitled " _____" (hereinafter referred to as the "Work") tentatively entitled that will be published and distributed for commercial and/or educational purposes.

Therefore, it is acknowledged by this document that you or your organization expressly grants ESRI and its successors and assigns a personal, nonexclusive, nontransferrable, irrevocable, worldwide, royalty-free, perpetual right, license, and privilege to use, copy, adapt, edit, modify, merge, reproduce, (re)print, (re)distribute, (re)broadcast, (re)transmit, and publicly display and/or perform the material(s) provided by you or your organization that are incorporated into the upcoming and subsequent editions of ESRI Work, in any form now known or later developed, and to claim any rights, title, and interest in the overall ESRI Work. ESRI will be pleased to acknowledge you or your organization's material(s) in a suitable source credit line and proprietary rights attribution supplied by you or your organization.

The materials supplied by you or your organization include (*Please initial all applicable items*):

- Name (individual or organization)
  Voice (electronic recordings)
- Visual likeness (drawings, illustrations, composite, photographs, slides, video, film, electronic recordings, etc.)
- Maps, graphics, screen shots, or other printed and/or digital artwork as specified:
- Printed materials (text, data, quotes, newspaper articles, press releases, etc.)
  Music
  Videotape, film footage, photographs, negatives, transparencies, or other audio/visual materials as specified:

  Other materials as specified:
- FloraMap v 1.0 CD-ROM and Users Manual.

You or your organization warrants that it owns and/or has the full authority and rights from the owner to grant permission(s) to the material(s) offered and submitted herein and that the material(s) do not infringe any proprietary rights of third persons, contain any information which is unlawful, libelous, or violative of any person's right to privacy and/or publicity. You or your organization agrees to defend, indemnify, and hold harmless ESRI, its officers, directors, agents, employees, licensees, and assigns, and all persons acting under ESRI's permission or authority or those for whom ESRI is acting, from and against any and all liability, claims, expenses, costs, or damages arising out of you or your organization's failure to meet the aforementioned obligations.

If you or your organization agree with the foregoing, kindly so indicate by having you or an authorized signatory of your organization sign in the appropriate place(s) provided below and return this original copy to ESRI and retain a photocopy for your files. On behalf of ESRI, we thank you and your organization for its assistance and contribution in promoting GIS awareness.

You or your organization have read the above Copyright Permission and Release Form, prior to its execution, and are fully familiar with the contents thereof, which shall be binding upon you or your organization and the heirs, legal representatives, and/or assigns.

Accepted and Agreed:

Individual or Organization Name

By: 

Authorized Signature

Printed Name: Dr. Peter G. Jones

Title: Land Use Consultant

Date: 6th March 2000

IF THE INDIVIDUAL IS UNDER 18 YEARS OF AGE, THE PARENT OR GUARDIAN MUST SIGN:

Name of Individual Minor

By: _____

Signature of Parent or Guardian

Printed Name: _____

Relationship: _____

Date: _____

Requested Source Credit Line and Proprietary Rights Attribution:

Source Credit Line:

Jones, P. G and Gladkov A. (1999) FloraMap : a computer tool for predicting the distribution of plants and other organisms in the wild.; version 1 1999 CIAT CD-ROM Series. Cali Colombia : Centro Internacional de Agricultura Tropical. 1 CD-ROM + guide (99p)

Copyright Attribution Notice:

Trademark Attribution Notice:

FloraMap ™. (Registration applied for, 1999)

Appendix 17.

CIAT-Trademarks Etc., FloraMap Correspondence

Trademarks, Etc.
2026 Cliff Dr. Suite 102
Santa Barbara, CA 93109
USA

8th January 1999

Dear Sirs,

I would like to request a search on the Trademark of our new product 'FloraMap'.

This is a computer software system for the development of distribution maps of naturally occurring populations of organisms, particularly plants. It uses functions of a Geographic Information System (GIS) and statistical routines to draw the maps from interpolated climate surfaces and data on the collection points of the organism. It will be of use in biodiversity collection and conservation, in biological and ecological research, and in botanical and biological teaching. It is available on CD-ROM.

We have designed the following as logo for the system.

Should the search prove that this does not essentially conflict with existing trademarks, I would like you to prepare the forms for a trademark filing with the US office of patents.

If you would forward me an invoice for the above I can order a company check or an electronic transfer for the amount.

Yours Sincerely

Peter G. Jones

Cc Dr. J. Tohme,
Dr. J. Ashby

TRADEMARKS, ETC.
2026 Cliff Dr. #102
Santa Barbara, Calif. 93109
805 963 4398

CUSTOMER APPLICATION

NAME: Dr. Peter G Jones

ADDRESS: CIAT AA 67-13 CALI COLOMBIA

TELEPHONE: (57)-2-445C (CCO

TRADEMARKS THAT YOU WOULD LIKE SEARCHED:

Flora Maja.

LIST SPECIFIC GOODS OR SERVICES:

Foam Preparation

HOW DID YOU HEAR ABOUT TRADEMARKS, ETC?

INTERNET ✓ MAGAZINE _____ RECOMMENDED BY _____

TELEVISION _____ OTHER _____

SERVICES AND FEES

Searches: $209

Searches cover:

- The up-to-date FEDERAL TRADEMARK REGISTER which includes information on all registered, pending, and inactive trademarks. This will include all intent-to-use applications as well.
- The up-to-date U.S. STATE TRADEMARK REGISTER covering all 50 states.
- COMMON LAW SOURCES, including the "Brands and Their Companies" database, a worldwide directory of over 282,000 consumer brand names and the Thomas Register Online, a directory of approximately 194,000 companies.
- Up to date informational sources from the World Wide Web.

Form Preparations: $160

METHOD OF PAYMENT:

MASTERCARD 5434 6030 1756 4291 exp. 3/00 VISA _____ exp. ____

AMERICAN EXPRESS _____ exp. _____ CHECK _____

I have read the basic facts about registering a trademark (the general information as provided by the U.S. Patent and Trademark office.)

I have provided Trademarks, Etc. with accurate and complete information. I understand that Trademarks, Etc. will provide its services based on this information and that the results of the work depend on the accuracy of the information that I have provided.

By hiring Trademarks, Etc. to conduct a trademark search, I understand that Trademarks, Etc. cannot guarantee that there are no other uses of my desired trademark(s) despite its best efforts in conducting a trademark search. I understand that trademarks can be used and rights can be obtained in that trademark by such use even though the trademark is not registered with the United States Patent and Trademark Office (PTO) or a state trademark office and may not appear on any of the databases that were reviewed in the search conducted by Trademarks, Etc.

I also understand that there is no guarantee that the Patent and Trademark Office (PTO) will register my desired trademark. The PTO may determine the trademark is too similar to an existing mark and would likely cause consumer confusion. By hiring Trademarks, Etc. to prepare the appropriate registration forms, I understand that I am responsible for any follow-up responses requested by the U.S. Patent and Trademark Office regarding the trademark application. I agree that I will not hold Trademarks, Etc. (employees and owners) responsible for any trademark application that is opposed, rejected, abandoned, or cancelled.

Signature _____ Date 23 Feb 99

The staff at Trademarks, Etc are not attorneys and discussions with us should not serve as a substitute for legal advice. Should you have legal questions, we recommend you contact an attorney. Many times a trademark application, after reviewal by an examining attorney, will require the aid of a legal professional. Trademarks, Etc offers a free referral service for customers requiring legal assistance. Fees for this are billed between customers and attorney at attorneys normal hourly rates.

Jones, Peter

From: Haig Fisher [hf@silcom.com]
Sent: Wednesday, March 10, 1999 1:07 PM
To: Jones, Peter
Subject: Re: FloraMap trademark registration.

Hi Peter,

you do not need to send in specimens at this time. The PTO will notify you in about a year to send them (if they approve your application for registration)

You should be able to change the name on the application with Mr. Scobie's approval.

Regards,

Haig
-----Original Message-----
From: Jones, Peter <P.JONES@CGIAR.ORG>
To: 'Haig Fisher' <hf@silcom.com>
Date: Wednesday, March 10, 1999 9:57 AM
Subject: RE: FloraMap trademark registration.

>
>Hi Haig,
> I've received the paperwork for FloraMap. Thanks. I've just 2
>questions in order to be absolutely clear.
> Since we are applying with intent to use, we do not send three
>specimens for each class of goods etc. Is this correct?
>
> Grant Scobie will be leaving CIAT as Director General in Sept 99.
>Does this affect the application?
>
> Regards
> Peter
>

CIAT
Centro Internacional de Agricultura Tropical
International Center For Tropical Agriculture

Autorización de Pago No. 1807

23 FEB 1999

IMPORTANTE: Usese únicamente en caso de no existir COMPROBANTES APROBADOS que respalden el pago

PAGUESE: USD180 (en letras) CIENTO SESENTA DOLARES

A FAVOR DE: PETER C. JONES - (6109)

CONCEPTO: PAGO DE SERVICIOS A TRADEMARK (USA) SOBRE FLORAMAP.

(Adjunto copia de la solicitud enviada)

Programa: MANEJO DE TIERRAS Sección: Código: BL01

Autorizado por: Dr. Alejandro Imbach
Nombre

Firma

Recibí
Nombre

Firma

ORIGINAL: Contraloría (Caja) COPIA: Consecutiva Programa

TRADEMARKS, ETC.
2026 Cliff Dr. #102
Santa Barbara, Calif. 93109
805.963.4398

www.trademarksetc.com

CUSTOMER APPLICATION

NAME: Dr. Peter G Jones

ADDRESS: CIAT AA 67-13 CALI COLOMBIA

TELEPHONE: (57)-2-4450 0000

TRADEMARKS THAT YOU WOULD LIKE SEARCHED:

Flora Map.

LIST SPECIFIC GOODS OR SERVICES:

Form Preparation

HOW DID YOU HEAR ABOUT TRADEMARKS, ETC?

INTERNET ✓ MAGAZINE _____ RECOMMENDED BY _____

TELEVISION _____ OTHER _____

SERVICES AND FEES

Searches: $209

Searches cover:

- The up-to-date FEDERAL TRADEMARK REGISTER which includes information on all registered, pending, and inactive trademarks. This will include all intent-to-use applications as well.
- The up-to-date U.S. STATE TRADEMARK REGISTER covering all 50 states.
- COMMON LAW SOURCES, including the "Brands and Their Companies" database, a worldwide directory of over 282,000 consumer brand names and the Thomas Register Online, a directory of approximately 194,000 companies.
- Up to date informational sources from the World Wide Web.

Form Preparations: $160

METHOD OF PAYMENT:

MASTERCARD 5434 6030 1756 4291 exp. 3/00 VISA _____ exp. ____

AMERICAN EXPRESS _____ exp. _____ CHECK _____

I have read the basic facts about registering a trademark (the general information as provided by the U.S. Patent and Trademark office.)

I have provided Trademarks, Etc. with accurate and complete information. I understand that Trademarks, Etc. will provide its services based on this information and that the results of the work depend on the accuracy of the information that I have provided.

By hiring Trademarks, Etc. to conduct a trademark search, I understand that Trademarks, Etc. cannot guarantee that there are no other uses of my desired trademark(s) despite its best efforts in conducting a trademark search. I understand that trademarks can be used and rights can be obtained in that trademark by such use even though the trademark is not registered with the United States Patent and Trademark Office (PTO) or a state trademark office and may not appear on any of the databases that were reviewed in the search conducted by Trademarks, Etc.

I also understand that there is no guarantee that the Patent and Trademark Office (PTO) will register my desired trademark. The PTO may determine the trademark is too similar to an existing mark and would likely cause consumer confusion. By hiring Trademarks, Etc. to prepare the appropriate registration forms, I understand that I am responsible for any follow-up responses requested by the U.S. Patent and Trademark Office regarding the trademark application. I agree that I will not hold Trademarks, Etc. (employees and owners) responsible for any trademark application that is opposed, rejected, abandoned, or cancelled.

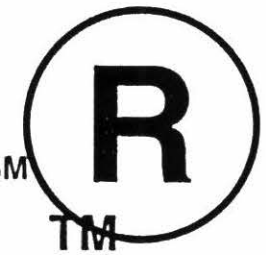
Signature _____ Date 23 Feb 99

The staff at Trademarks, Etc are not attorneys and discussions with us should not serve as a substitute for legal advice. Should you have legal questions, we recommend you contact an attorney. Many times a trademark application, after reviewal by an examining attorney, will require the aid of a legal professional. Trademarks, Etc offers a free referral service for customers requiring legal assistance. Fees for this are billed between customers and attorney at attorneys normal hourly rates.

TRADEMARKS, ETC.™

Searches ... Filings ... Creative Naming

February 26, 1999



Peter Jones
FloraMap

Dear Peter,

Please have Dr. Scobie sign the application and send (along with the drawing page) off to the address listed on the instruction page. Include your check for $245 made payable to the commissioner for patents and trademarks.

If the PTO approves your application for registration they will require a "statement of use" form and $100 before they issue a registration. This will come in approximately 12 months. Feel free to ask for me assistance with this form when the time comes.

Keep the search results for your files. Do not send in.

Thank you for allowing us to assist you with this and give me a call should you have any questions.

Sincerely,

Haig Fisher

2026 Cliff Dr., Suite 102, Santa Barbara, CA 93109 • 805-963-4398 • 888-660-6275 • Fax 805-687-3749

www.trademarksetc.com

* Instructions

To file your application, you **must** submit the following items:

- the signed and dated form (the "Scannable Form");
- the drawing page;
- a check for $245.00 per each class of goods and services, made out to the Commissioner of Patents and Trademarks (*unless using a USPTO deposit account*);
- if the application is based on use in commerce, three specimens for each class of goods and services;
- if the application is based on Section 44(e), a certified copy (and English translation, if applicable) of the certificate of foreign registration.

You **may** also wish to include a self-addressed stamped postcard on which you list every item that you are submitting. This will confirm receipt of your submission.

The mailing address for standard mail is:

Assistant Commissioner for Trademarks
Box-New App-Fee
2900 Crystal Drive
Arlington, Virginia 22202-3513

The mailing address for courier delivery is:

Assistant Commissioner for Trademarks
USPTO- New App-Fee
2900 Crystal Drive, Suite 3B-30
Arlington, Virginia 22202-3513

*

Processing Times

If your application meets all filing requirements, in approximately 40 days we will send you, by regular U.S. mail, an official filing receipt that will include your application serial number. After that, you will hear from the assigned examining attorney in approximately 6 months, either by telephone or regular mail. Please note, however, that your rights are based on filing date, not the examination date.

It is difficult to say exactly how long it takes from the filing of your application to the receipt of a final certificate of registration, because numerous factors can arise during the examination process that can lengthen the process. However, if there are no (or relatively minor) substantive or procedural problems, the application is based on "use in commerce," and no third party files a Notice of Opposition, it may be possible to obtain a registration within 11-12 months from the application filing date. Intent-to-use (ITU) applications having little or no major problems and not opposed by third parties could receive a NOTICE OF ALLOWANCE within 11-12 months of the application filing date. However, an ITU application would not register until you file an acceptable Statement of Use along with specimens showing the mark in use in commerce.

1. BASIC FACTS ABOUT REGISTERING A TRADEMARK: This general information is provided by the U.S. Patent & Trademark Office

What is a Trademark?
A TRADEMARK is either a word, phrase, symbol or design, or combination of words, phrases, symbols or designs, which identifies and distinguishes the source of the goods or services of one party from those of others. A service mark is the same as a trademark except that it identifies and distinguishes the source of a service rather than a product. Throughout this application the terms "trademark" and "mark" are used to refer to both trademarks and service marks whether they are word marks or other types of marks. Normally, a mark for goods appears on the product or on its packaging, while a service mark appears in advertising for the services.

A trademark is different from a copyright or a patent. A copyright protects an original artistic or literary work; a patent protects an invention. For copyright information call the Library of Congress at (202) 707-3000.

Establishing Trademark Rights
Trademark rights arise from either (1) actual use of the mark, or (2) the filing of a proper application to register a mark in the Patent and Trademark Office (PTO) stating that the applicant has a bona fide intention to use the mark in commerce regulated by the U.S. Congress. (See below, under "Types of Applications," for a discussion of what is meant by the terms commerce and use in commerce.) Federal registration is not required to establish rights in a mark, nor is it required to begin use of a mark. However, federal registration can secure benefits beyond the rights acquired by merely using a mark. For example, the owner of a federal registration is presumed to be the owner of the mark for the goods and services specified in the registration, and to be entitled to use the mark nationwide.

There are two related but distinct types of rights in a mark: the right to register and the right to use. Generally, the first party who either uses a mark in commerce or files an application in the PTO has the ultimate right to register that mark. The PTO's authority is limited to determining the right to register. The right to use a mark can be more complicated to determine. This is particularly true when two parties have begun use of the same or similar marks without knowledge of one another and neither has a federal registration. Only a court can render a decision about the right to use, such as issuing an injunction or awarding damages for infringement. It should be noted that a federal registration can provide significant advantages to a party involved in a court proceeding. The PTO cannot provide advice concerning rights in a mark. Only a private attorney can provide such advice.

Unlike copyrights or patents, trademark rights can last indefinitely if the owner continues to use the mark to identify its goods or services. The term of a federal trademark registration is 10 years, with 10-year renewal terms. However, between the fifth and sixth year after the date of initial registration, the registrant must file an affidavit setting forth certain information to keep the registration alive. If no affidavit is filed, the registration is canceled.

Types of Applications for Federal Registration
An applicant may apply for federal registration in three principal ways. (1) An applicant who has already commenced using a mark in commerce may file based on that use (a "use" application). (2) An applicant who has not yet used the mark may apply based on a bona fide intention to use the mark in commerce (an "intent-to-use" application). For the purpose of obtaining federal registration, commerce means all commerce which may lawfully be regulated by the U.S. Congress, for example, interstate commerce or commerce between the U.S. and another country. The use in commerce must be a bona fide use in the ordinary course of trade, and not made merely to reserve a right in a mark. Use of a mark in promotion or advertising before the product or service is actually provided under the mark on a normal commercial scale does not qualify as use in commerce. Use of a mark in purely local commerce within a state does not qualify as "use in commerce." If an applicant files based on a bona fide intention to use in commerce, the applicant will have to use the mark in commerce and submit an allegation of use to the PTO before the PTO will register the mark. (3) Additionally, under certain international agreements, an applicant from outside the United States may file in the United States based on an application or registration in another country. For information regarding applications based on international agreements please call the information number in this application.

A United States registration provides protection only in the United States and its territories. If the owner of a mark wishes to protect a mark in other countries, the owner must seek protection in each country separately under the relevant laws. The PTO cannot provide information or advice concerning protection in other countries. Interested parties may inquire directly in the relevant country or its U.S. offices or through an attorney.

Who May File an Application?
The application must be filed in the name of the owner of the mark; usually an individual, corporation or partnership. The owner of a mark controls the nature and quality of the goods or services identified by the mark. The owner may submit and prosecute its own application for registration, or may be represented by an attorney. The PTO cannot help select an attorney.

Foreign Applicants
Applicants not living in the United States must designate in writing the name and address of a domestic representative - a person residing in the United States "upon whom notices of process may be served for proceedings affecting the mark." The applicant may do so by submitting a statement that the named person at the address indicated is appointed as the applicant's domestic representative under §1(e) of the Trademark Act. The applicant must sign this statement. This person will receive all communications from the PTO unless the applicant is represented by an attorney in the United States.

Searches for Conflicting Marks
An applicant is not required to conduct a search for conflicting marks prior to applying with the PTO. However, some people find it useful. In evaluating an application, an examining attorney conducts a search and notifies the applicant if a conflicting mark is found. The application fee, which covers processing and search costs, will not be refunded even if a conflict is found and the mark cannot be registered.

To determine whether there is a conflict between two marks, the PTO determines whether there would be likelihood of confusion, that is, whether relevant consumers would be likely to associate the goods or services of one party with those of the other party as a result of the use of the marks at issue by both parties. The principal factors to be considered in reaching this decision are the similarity of the marks and the commercial relationship between the goods and services identified by the marks. To find a conflict, the marks need not be identical and the goods and services do not have to be the same.

The PTO does not conduct searches for the public to determine if a conflicting mark is registered, or is the subject of a pending application, except as noted above when acting on an application. However, there are a variety of ways to get this same type of information. First, by performing a search in the PTO public search library. The search library is located on the second floor of the South Tower Building, 2900 Crystal Drive, Arlington, Virginia 22202. Second, by visiting a patent and trademark depository library. These libraries have CD-ROMS containing the trademark database of registered and pending marks. Finally, either a private trademark search company, or an attorney who deals with trademark law, can provide trademark registration information. The PTO cannot provide advice about possible conflicts between marks.

Laws & Rules Governing Federal Registration
The federal registration of trademarks is governed by the Trademark Act of1946, as amended, 15 U.S.C. §1051 et seq.; the Trademark Rules, 37 C.F.R. Part 2; and the Trademark Manual of Examining Procedure (2d ed. 1993).

Other Types of Applications
In addition to trademarks and service marks, the Trademark Act provides for federal registration of other types of marks, such as certification marks, collective trademarks and service marks, and collective membership marks. These types of marks are relatively rare. For forms and information regarding the registration of these marks, please call the appropriate trademark information number indicated below.

Where to Send the Application and Correspondence
The application and all other correspondence should be addressed to "The Assistant Commissioner for Trademarks, 2900 Crystal Drive, Arlington, Virginia 22202-3513." The initial application should be directed to "Box NEW APP / FEE." An AMENDMENT TO ALLEGE USE should be directed to "Attn. AAU." A STATEMENT OF USE or REQUEST FOR AN EXTENSION OF TIME TO FILE A STATEMENT OF USE should be directed to "Box ITU / FEE."

The applicant should indicate its telephone number on the application form. Once a serial number is assigned to the application, the applicant should refer to the serial number in all written and telephone communications concerning the application.

It is advisable to submit a stamped, self-addressed postcard with the application specifically listing each item in the mailing, that is, the written application, the drawing, the fee, and the specimens (if appropriate). The PTO will stamp the filing date and serial number of the application on the postcard to acknowledge receipt. This will help the applicant if any item is later lost or if the applicant wishes to inquire about the application. The PTO will send a separate official notification of the filing date and serial number for every application about two months after receipt.

[illegible] of the "TM," "SM" and "®" Symbols
Anyone who claims rights in a mark may use the TM (trademark) or SM (service mark) designation with the mark to alert the public to the claim. It is not necessary to have a registration, or even a pending application, to use these designations. The claim may or may not be valid. The registration symbol, ®, may only be used when the mark is registered in the PTO. It is improper to use this symbol at any point before the registration issues.

2. REGISTRATION PROCESS

Filing Date - Filing Receipt
The PTO is responsible for the federal registration of trademarks. When an application is received, the PTO reviews it to determine if it meets the minimum requirements for receiving a filing date. If the application meets the filing requirements, the PTO assigns it a serial number and sends the applicant a receipt about two months after filing. If the minimum requirements are not met, the entire mailing, including the filing fee, is returned to the applicant.

Examination
About four months after filing, an examining attorney at the PTO reviews the application and determines whether the mark may be registered. If the examining attorney determines that the mark cannot be registered, the examining attorney will issue a letter listing any grounds for refusal and any corrections required in the application. The examining attorney may also contact the applicant by telephone if only minor corrections are required. The applicant must respond to any objections within six months of the mailing date of the letter, or the application will be abandoned. If the applicant's response does not overcome all objections, the examining attorney will issue a final refusal. The applicant may then appeal to the Trademark Trial and Appeal Board, an administrative tribunal within the PTO.

A common ground for refusal is likelihood of confusion between the applicant's mark and a registered mark. Marks which are merely descriptive in relation to the applicant's goods or services, or a feature of the goods or services, may also be refused. Marks consisting of geographic terms or surnames may also be refused. Marks may be refused for other reasons as well.

Publication for Opposition
If there are no objections, or if the applicant overcomes all objections, the examining attorney will approve the mark for publication in the Official Gazette, a weekly publication of the PTO. The PTO will send a NOTICE OF PUBLICATION to the applicant indicating the date of publication. In the case of two or more applications for similar marks, the PTO will publish the application with the earliest effective filing date first. Any party who believes it may be damaged by the registration of the mark has 30 days from the date of publication to file an opposition to registration. An opposition is similar to a formal proceeding in the federal courts, but is held before the Trademark Trial and Appeal Board. If no opposition is filed, the application enters the next stage of the registration process.

Issuance of Certificate of Registration or Notice of Allowance
If the application was based upon the actual use of the mark in commerce prior to approval for publication, the PTO will register the mark and issue a registration certificate about 12 weeks after the date the mark was published, if no opposition was filed.

If, instead, the mark was published based upon the applicant's statement of having a bona fide intention to use the mark in commerce, the PTO will issue a NOTICE OF ALLOWANCE about 12 weeks after the date the mark was published, again provided no opposition was filed. The applicant then has six months from the date of the NOTICE OF ALLOWANCE to either (1) use the mark in commerce and submit a STATEMENT OF USE, or (2) request a six-month EXTENSION OF TIME TO FILE A STATEMENT OF USE. The applicant may request additional extensions of time only as noted in the instructions on the back of the extension form. If the STATEMENT OF USE is filed and approved, the PTO will then issue the registration certificate.

3. ADDITIONAL REQUIREMENTS FOR INTENT-TO-USE-APPLICATIONS

An applicant who files its application based on having a bona fide intention to use a mark in commerce must make use of the mark in commerce before the mark can register. After use in commerce begins, the applicant must submit:

- three specimens evidencing use as discussed above;
- a fee per class of goods or services in the application; and
- either (1) an AMENDMENT TO ALLEGE USE if the application has not yet been approved for publication (use PTO Form 1579) or (2) a STATEMENT OF USE if the mark has been published and the PTO has issued a NOTICE OF ALLOWANCE (use PTO Form 1580).

If the applicant will not make use of the mark in commerce within six months of the NOTICE OF ALLOWANCE, the applicant must file a REQUEST FOR AN EXTENSION OF TIME TO FILE A STATEMENT OF USE, or the application is abandoned. (Use PTO Form 1581, which is intended only for this purpose.)

The previous information about specimens, identifications of goods and services and dates of use is also relevant to filing an AMENDMENT TO ALLEGE USE or STATEMENT OF USE. Failure to file the necessary papers in proper form within the time provided may result in abandonment of the application.

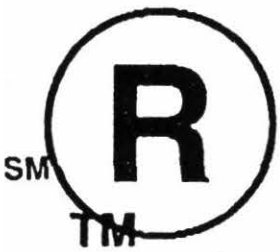
4. INFORMATION NUMBERS

General Trademark or Patent Information	(703) 308-HELP
Automated (Recorded) General Trademark or Patent Information	(703) 557-INFO
Automated Line for Status Information on Trademark Applications	(703) 305-8747
Assignment & Certification Branch (Assignments, Changes of Name, and Certified Copies of Applications and Registrations)	(703) 308-9723
Trademark Assistance Center	(703) 308-9000
Information Regarding Renewals, Affidavits of Use, Incontestability, or Correcting a Mistake on a Registration	(703) 308-9500
Information Regarding Applications Based on International Agreements or for Certification, Collective, or Collective Membership Marks	(703) 308-9000
Trademark Trial and Appeal Board	(703) 308-9300
Assistant Commissioner for Trademarks	(703) 308-8900

TRADEMARKS, ETC.™

Searches ... Filings ... Creative Naming

February 17, 1999



Peter Jones
CIAT

Dear Peter,

Please complete the application and return to me by fax. Thank you.

Sincerely,

Haig Fisher

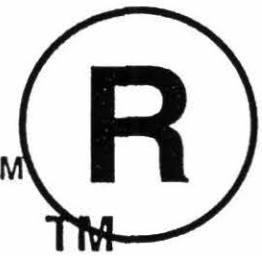
2026 Cliff Dr., Suite 102, Santa Barbara, CA 93109 • 805-963-4398 • 888-660-6275 • Fax 805-687-3749

www.trademarksetc.com

TRADEMARKS, ETC.™

Searches ... Filings ... Creative Naming

February 16, 1999



Peter Jones
FloraMap

Enclosed please find your search results. Our databases found no applications with FloraMap in them. Thank you for allowing me to assist you with this and give me a call should you have any questions.

Sincerely,

Haig Fisher

2026 Cliff Dr., Suite 102, Santa Barbara, CA 93109 • 805-963-4398 • 888-660-6275 • Fax 805-687-3749

www.trademarksetc.com

No trademark records found matching your query:

Mark: floramap **Int'l Class:** 009

Please back up and try different search criteria.

 7 records.
Mark: flora **Int'l Class:** 009

Check All | Uncheck All | Create Report of all checked records.

Home Search Go to Help

1.	75-589074	☐	UNH-FLORATRACK	Pending	UNIVERSITY OF NEW HAMPSHIRE
2.	74-722165	☐	FLORA-BAMA	Registered	FLORA-BAMA LOUNGE & PACKAGE STORE
3.	74-465986	☐	FLORAGUIDE	Abandoned - After Publication	JOHN HENRY COM
4.	73-370216	☐	FLORAPRINT	Abandoned	FLORAPRINT INTERNATIONAL EST.
5.	74-366342	☐	FLORA FRESH	Abandoned	RESEARCH PRODUCTS CORPORATION
6.	74-214996	☐	FLORA-TECH	Abandoned - No Statement of Use	E. M. BROWN
7.	73-087560	☐	HYDRO FLORA (and Design)	Cancelled - Section 8	HEINRICH

Home Search Go to Help

Send us your comments: tm@marksearch.com

New Applications: November 27, 1998 OG/Updates: February 2, 1999

Mark: flora **Int'l Class:** 009

2 records. Search

Table of Contents

Return to Table of Contents

Record 1

Mark	**UNH-FLORATRACK**
Status	Pending
Status Date	Jan 15, 1999
Register	Principal
Serial No.	75-589074
Int'l Class	9 - Electrical and Scientific Apparatus
Goods/Services	COMPUTER SOFTWARE FOR USE IN CONJUNCTION WITH THE GROWING AND MARKETING OF VARIOUS TYPES OF FLOWERS
U.S. Class	21, 23, 26, 36, 38
1st Use	Apr, 1997
Commerce Use	Jul, 1997
Filed	Nov 16, 1998
Correspondent	PAUL C. REMUS
Last Owner	UNIVERSITY OF NEW HAMPSHIRE 105 MAIN STREET DURHAM, NH 03824

Return to Table of Contents

Record 2

Mark	**FLORA-BAMA**
Status	Registered
Status Date	Aug 20, 1996
Register	Principal
Serial No.	74-722165 **Registration No.** 1995490
Int'l Class	9 - Electrical and Scientific Apparatus
Goods/Services	SUNGLASSES
U.S. Class	21, 23, 26, 36, 38

1st Use	Sep 30, 1986
Commerce Use	Sep 30, 1986
Int'l Class	16 - Paper Goods and Printed Matter
Goods/Services	PAPER GOODS, NAMELY BUMPER-STICKERS AND POSTCARDS
U.S. Class	2, 5, 22, 23, 29, 37, 38, 50
1st Use	Dec 31, 1978
Commerce Use	Dec 31, 1978
Filed	Aug 25, 1995
Published	May 28, 1996
Registered	Aug 20, 1996
Owns Reg. No.	1795092, 1819015
Correspondent	GEORGE A. BODE
Last Owner	FLORA-BAMA LOUNGE & PACKAGE STORE, INC. 17401 PERDIDO KEY DRIVE PERDIDO KEY BEACH, FL 32507

Return to Table of Contents

TRADEMARKS, ETC.™

Searches ... Filings ... Creative Naming

January 21, 1999

Peter Jones
CIAT

Dear Mr. Jones,

I received your letter dated January 8th requesting a search for FloraMap. The cost of the search is $209 for the name and $209 for the design. You may pay by credit card also if you like. Feel free to mail payment or email me credit card information. We do accept Visa, Mastercard, and American Express.

INVOICE:	
NAME SEARCH:	$209.
DESIGN SEARCH:	$209
AMOUNT DUE for both	$418

Search includes registration? trademark. before start

160 paperwork

245 registrar

Thank you,

Haig Fisher

Haig Fisher 888.660.6275 Hf@trademarksetc.com

2026 Cliff Dr., Suite 102, Santa Barbara, CA 93109 • 805-963-4398 • 888-660-6275 • Fax 805-687-3749
www.trademarksetc.com

Appendix 18.

FloraMap Word Mark Filing,
U.S. Trademark Electronic Search System (TESS)

U.S. Trademark Electronic Search System (TESS)

TESS was last updated on Tue Oct 31 04:10:33 EST 2000

Logout Please logout when you are done to release system resources allocated for you.

Record 1 out of 1

Check Status *(TARR contains current status, correspondence address and attorney of record for this mark. Use the "Back" button of the Internet Browser to return to TESS)*

Typed Drawing

Word Mark	**FLORAMAP**
Goods and Services	IC 009. US 021 023 026 036 038. G & S: Computer software system for the development of distribution maps of naturally occurring populations of organisms, primarily plants
Mark Drawing Code	(1) TYPED DRAWING
Serial Number	75728054
Filing Date	June 14, 1999
Filed ITU	FILED AS ITU
Published for Opposition	June 27, 2000
Owner	(APPLICANT) Scobie, Grant INDIVIDUAL NEW ZEALAND Apartado Aereo 6713 Cali COLOMBIA
Attorney of Record	FERNANDO POSADA
Type of Mark	TRADEMARK
Register	PRINCIPAL
Live/Dead Indicator	LIVE

Thank you for your request. Here are the latest results from the TARR web server.

Serial Number: 75728054

Registration Number: (NOT AVAILABLE)

Mark (words only): FLORAMAP

Current Status: Opposition period completed, a Notice of Allowance has been issued.

Date of Status: 2000-09-19

Filing Date: 1999-06-14

The Notice of Allowance Date is: 2000-09-19

Registration Date: (DATE NOT AVAILABLE)

Law Office Assigned: TMO Law Office 114

CURRENT APPLICANT(S)/OWNER(S)

1. Scobie, Grant

GOODS AND/OR SERVICES

Computer software system for the development of distribution maps of naturally occurring populations of organisms, primarily plants

PROSECUTION HISTORY

2000-09-19 - Notice of allowance - mailed

2000-06-27 - Published for opposition

2000-05-26 - Notice of publication

2000-04-17 - Approved for Pub - Principal Register (Initial exam)

2000-04-06 - Response to office action

1999-11-22 - Non-final action mailed - 1st action

1999-11-10 - Case file assigned to examining attorney

CONTACT INFORMATION

Attorney of Record: FERNANDO POSADA

Address:
FERNANDO POSADA
1380 NW 78TH AVE.
MIAMI FL 33126
US

CIAT
Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture

Teléfono: (57-2)445-0000 (directo), (1-415)833-6628 (Ma USA)
Fax: (57-2)445-0073 (directo), (1-415)833-6626 (Ma USA)
Correo electrónico: ciat@cgnet.com
Internet: http://www.ciat.cgiar.org/
Apartado Aéreo 6713, Cali, Colombia

TRADEMARK LAW OFFICE 14
Serial Number: 75/728054
Mark: FLORAMAP
Please Place on Upper Right Corner
**of Response to Office Action ONLY **

Ms Paula B. Mays
Trademark Examining Attorney
Law Office 114. (Box Responses - No Fee)
United States Department of Commerce
Assistant Commissioner for Trademarks
2900 Crystal Drive
Arlington
VA 22202--3513

17th Jan 2000

Re Serial number 75/728054 FLORAMAP

Dear Ms Mays,

Thank you for your letter of 22nd Nov 1999. It has just percolated through our system. I would like to confirm that under the Identification of Goods the identification that you have suggested:

Computer software for the development of distribution maps of naturally occurring populations of organisms, primarily plants, (in International class 9) TMEP section 804.

Is accurate and quite satisfactory for us.

We do not wish to prosecute this application as a combined, or multiple class application.

In further correspondence could you please use the following address, which will direct the correspondence straight to me.

Dr P.G. Jones c/o
Fernando Posada
1380 NW 78th Ave
Miami FLA 33126

The application is in the name of Dr Grant Scobie who is our outgoing Director General. In April Dr Joaqim Voss will be taking over. Could you please advise me if I should notify you of this at that time.

Yours Sincerely

Peter G Jones

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

SERIAL NO.	APPLICANT	PAPER NO.
75/728054	Scobie, Grant	
MARK		
FLORAMAP		
ADDRESS	**ACTION NO.**	ADDRESS:
FERNANDO POSADA 1380 NW 78TH AVE. MIAMI FL 33126	01	**Assistant Commissioner for Trademarks** **2900 Crystal Drive** **Arlington, VA 22202-3513**
	MAILING DATE 11/22/99	If no fees are enclosed, the address should include the words "Box Responses - No Fee."
	REF. NO.	Please provide in all correspondence:
FORM PTO-1525 (5-90)	**U.S. DEPT. OF COMM. PAT. & TM OFFICE**	1. Filing Date, serial number, mark and Applicant's name. 2. Mailing date of this Office action. 3. Examining Attorney's name and Law Office number. 4. Your telephone number and ZIP code.

A PROPER RESPONSE TO THIS OFFICE ACTION MUST BE RECEIVED WITHIN 6 MONTHS FROM THE DATE OF THIS ACTION IN ORDER TO AVOID *ABANDONMENT.* *For your convenience and to ensure proper handling of your response, a label has been enclosed. Please attach it to the upper right corner of your response. If the label is not enclosed, print or type the Trademark Law Office No., Serial No., and Mark in the upper right corner of your response.*

RE: Serial Number: **75/728054 FLORAMAP**

The assigned examining attorney has reviewed the referenced application and determined the following:

SEARCH OF OFFICE RECORDS

The examining attorney has searched the Office records and has found no similar registered or pending mark which would bar registration under Trademark Act Section 2(d), 15 U.S.C. Section 1052(d). TMEP section 1105.01.

Informality

The applicant must, however, respond to the following informality prior to registration:

Identification of Goods

The identification of goods is unacceptable as indefinite. The applicant may adopt the following identification, if accurate: *Computer software for the development of distribution maps of*

naturally occurring populations of organizms, primarily plants, (in International Class 9). TMEP section 804.

If the applicant prosecutes this application as a combined, or multiple-class, application, the applicant must comply with each of the following.

☐

☐ (1) The applicant must list the goods by international class with the classes listed in ascending numerical order. TMEP section 1113.01.

☐

☐ (2) The applicant must submit a filing fee for each international class of goods not covered by the fee already paid. Effective December 3, 1993, the filing fee is $245.00 per class. 37 C.F.R. Sections 2.6(a)(1) and 2.86(b); TMEP sections 810.01 and 1113.01.

Applicant's Response

No set form is required for response to this Office action. The applicant must respond to each point raised. If the applicant has any questions or needs assistance in responding to this Office action, please telephone the assigned examining attorney.

PLEASE NOTE: All of the issues raised can be resolved by telephone. The applicant may telephone the examining attorney, instead of submitting a written response, to expedite the application.

Paula B. Mays
Trademark Examining Attorney
Law Office 114
(703) 308-9114 ext. 141

8th June 1999

Assistant Commissioner for Trademarks
Box-New App-Fee
2900 Crystal Drive
Arlington, Virginia 22202-3513

Dear Sirs,

Please find enclosed a Trademark/Service Mark Application form with Drawing page and check for $245 as our application for the Trademark FloraMap.

Yours Sincerely

Peter G. Jones

CIAT
Centro Internacional de Agricultura Tropical
International Center For Tropical Agriculture

Autorización de Pago Nº 1809

7 de mayo 1999

IMPORTANTE: Usese únicamente en caso de no existir COMPROBANTES APROBADOS que respalden el pago

PAGUESE: USD245 (en letras) Doscientos cuarenta y cinco dólares

A FAVOR DE: 'Commissioner for Patents and Trademarks'

CONCEPTO: Patente por el software 'FloraMap' (Dr. Peter G. Jones)

Dirección:
Assistant Commissioner for Trademarks
Box-New App-Fee
2900 Crystal Drive
Arlington, Virginia 22202-3513

Transferencia Electrónica:
.../teastTGet17USPTO-20771237160-1999022621498678-PrintTEAS-112a50674a9c7951b01829 [redacted]

Programa: Manejo de Tierras (PE4) Sección: _____ Código: GD11

Autorizado por: Dr. Peter G. Jones Recibí _____
Nombre Nombre

Firma _____ Firma _____

ORIGINAL: Contraloria (Caja) COPIA: Consecutiva Programa

• Instructions

To file your application, you **must** submit the following items:

- the signed and dated form (the "Scannable Form");
- the drawing page;
- a check for $245.00 per each class of goods and services, made out to the Commissioner of Patents and Trademarks (*unless using a USPTO deposit account*);
- if the application is based on use in commerce, three specimens for each class of goods and services;
- if the application is based on Section 44(e), a certified copy (and English translation, if applicable) of the certificate of foreign registration.

You may also wish to include a self-addressed stamped postcard on which you list every item that you are submitting. This will confirm receipt of your submission.

The mailing address for standard mail is:

Assistant Commissioner for Trademarks
Box-New App-Fee
2900 Crystal Drive
Arlington, Virginia 22202-3513

The mailing address for courier delivery is:

Assistant Commissioner for Trademarks
USPTO- New App-Fee
2900 Crystal Drive, Suite 3B-30
Arlington, Virginia 22202-3513

---

*

The information collected on this form allows the PTO to determine whether a mark may be registered on the Principal or Supplemental register, and provides notice of an applicant's claim of ownership of the mark. Responses to the request for information are required to obtain the benefit of a registration on the Principal or Supplemental register. 15 U.S.C. §1051 et seq. and 37 C.F.R. Part 2. All information collected will be made public. Gathering and providing the information will require an estimated 12 or 13 minutes (depending if the application is based on an intent to use the mark in commerce, use of the mark in commerce, or a foreign application or registration). Please direct comments on the time needed to complete this form, and/or suggestions for reducing this burden to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. Please note that the PTO may not conduct or sponsor a collection of information using a form that does not display a valid OMB control number.