

SUPERINDUSTRIA Y COMERCIO  
Radicación : 60000126 00300002 Folios 80  
Fecha (FMD): 2001-01-16 15:26:13  
Trámite 002 PATENTES D 1 REGISTRO 329 COMPLETEN  
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

98  
179

**Señores**

**DIVISION DE NUEVAS CREACIONES**

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO**

**Bogotá D C**

**Re. Expediente No 000-80 126**

**Solicitud de Patente**

**MARANTECH HOLDING LLC**

Debidamente traducidas, adjunto acompaño las copias oficiales de las solicitudes de patente básicas estadounidenses No 60/174/793, No 60/214 503 y No. ~~60/184 053~~ las cuales le solicito agregar a este expediente para los fines legales respectivos

De Ustedes atentamente

**GERMAN CASTILLO GRAU**

**T P #2978 del C.S.J**

99  
2  
180

01006804 3  
ESTADOS UNIDOS DE AMERICA  
DEPARTAMENTO DE ESTADO

A todos aquellos a quienes llegase la presente saludos

Por la presente certifico que el documento anexo lleva estampado el sello de la oficina de Patentes y Marcas, Departamento de Comercio, de los Estados Unidos de América y que dicho sello es digno de toda fé y todo crédito

En testimonio de lo cual yo, Thomas R. Pickering Secretario de Estado he ordenado estampar en la presente el sello del departamento de Estado y que mi nombre sea suscrito por el Funcionario de Asistente de Autenticaciones del mencionado Departamento, en la ciudad de Washington, en el Distrito de Columbia, a los veintisiete días del mes de diciembre 2000

(Hay una firma)  
Secretario de Estado  
(Hay una firma)  
funcionario asistente de  
autenticaciones,  
Departamento de Estado

**EL DEPARTAMENTO NO ASUME RESPONSABILIDAD POR EL  
CONTENIDO DEL DOCUMENTO ANEXO**

El presente certificado no es válido si esta despegado o alterado de cualquier manera.

100  
3  
181



SI 37308

**LOS ESTADOS UNIDOS DE AMERICA**

**A TODOS AQUELLOS A QUIENES  
LLEGUEN ESTOS PRESENTES  
DEPTO DE COMERCIO DE LOS EE UU  
OFICINA DE PATENTES Y MARCAS DE  
FABRICA**

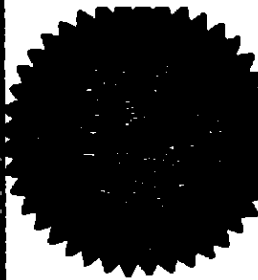
**DICIEMBRE 18 2000**

**ESTA ES PARA CERTIFICAR QUE LOS  
ANEXOS SON COPIA DE LOS ARCHIVOS DE  
LA OF DE PATENTES Y MARCAS DE  
FABRICA DE AQUELLOS PAPELES QUE  
IDENTIFICAN ADELANTE LA SOLICITUD  
DE PATENTE QUE REUNIO LOS  
REQUISITOS PARA SER OTORGADA UNA  
FECHA DE REGISTRO BAJO EL # 35 USC111**

**SOLICITUD # 60/174 793**

**FECHA DE LA SOLICITUD ENERO 6 2000**

**SELLO CIRCULAR EN PAPEL DORADO OF  
DE PATENTES Y MARCAS DE FABRICA (EN  
EL CENTRO EL AGUILA AMERICANA)**



**CON LA AUTORIDAD DEL  
COMISIONADO DE MARCAS Y  
PATENTES**

**FIRMA  
W MONTGOMERY  
OFICIAL CERTIFICADOR**

CARTA CUBIERTA PARA SOLICITUD PROVISIONAL PARA PATENTE

Este es un requisito para el registro de una SOLICITUD PROVISIONAL PARA PATENTE,  
conforme al 37 CFR 1.53 (c)

101  
if  
182

| INVENTOR (ES)                                                                                                                              |           |                               |                                                      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------|------------------------------------------------------|----------------|
| NOMBRE<br>(completo)                                                                                                                       |           | Nombre familiar<br>o apellido | Residencia<br>(Ciudad y Estado o País Extranjero)    |                |
| Marvin S.                                                                                                                                  |           | Antelman                      | PO Box 382<br>9-30 Skolnik Street<br>Rehovot, Israel |                |
| TITULO DE LA INVENCIÓN (máximo 280 caracteres)                                                                                             |           |                               |                                                      |                |
| Ag (I, III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR PARA CÁNCER DE PIEL                                                                   |           |                               |                                                      |                |
| DIRECCIÓN DE CORRESPONDENCIA                                                                                                               |           |                               |                                                      |                |
| Dirigir toda correspondencia a.<br>Número del Cliente → Coloque el número del código de barras<br>Del cliente aquí                         |           |                               |                                                      |                |
| O                                                                                                                                          |           |                               |                                                      |                |
| x Firma o Nombre del individuo                                                                                                             |           |                               | Perman & Green, LLP                                  |                |
| Dirección                                                                                                                                  |           |                               | 425 Post Road                                        |                |
| Ciudad                                                                                                                                     | Fairfield | Estado CT                     | Código                                               | 06430          |
| País                                                                                                                                       |           | Tel (203) 259-1800            | Fax                                                  | (203) 255 5170 |
| PARTES ANEXAS A LA SOLICITUD (Chequear las que correspondan)                                                                               |           |                               |                                                      |                |
| X Especificaciones<br>(Incluyendo las Reivindicaciones y el Resumen)                                                                       |           | Total de Páginas 11           | x. Declaración de Pequeña Entidad                    |                |
| Dibujo (s)                                                                                                                                 |           | Total de Páginas              | Otras (especifique)                                  |                |
| FORMA DE PAGO DE LOS VALORES DE REGISTRO PARA ESTA SOLICITUD PROVISIONAL<br>DE PATENTE (Chequear una)                                      |           |                               |                                                      |                |
| X Se anexa un cheque o giro postal para cubrir los costos de registro                                                                      |           |                               | Valor de la cuota<br>de Registro<br>\$75.00          |                |
| X El comisionado está autorizado por medio del presente para cargar las<br>cuotas de registro y crédito a la Cuenta de Depósito No 16-1350 |           |                               |                                                      |                |
| La invención fue hecha por una agencia del Gobierno de los Estados Unidos o bajo un contrato con una<br>agencia del Gobierno de los EE UU  |           |                               |                                                      |                |
| x No                                                                                                                                       |           |                               |                                                      |                |
| Sí, el nombre de la agencia del gobierno de los EE.UU y el número del contrato del gobierno son                                            |           |                               |                                                      |                |

Sometido en forma respetuosa,

FIRMA (Firmado) Michael J Tully

Fecha. 1 / 06/ 00

Nombre escrito a  
máquina o en imprenta

Michael J Tully

Registro No 25,755

Teléfono

(203) 259-1800

Expediente No 731P009134US

UTILIZAR SOLAMENTE PARA EL REGISTRO  
DE UNA SOLICITUD PROVISIONAL PARA PATENTE

**PATENTE**

~~102~~  
5  
163

**Examinador**

**Firma de la persona que envía los papeles o valores**

Legajo del Practicante No 731P009134-US (-#1)  
x Solicitante Marvin S Antelman  
\_ Solicitud No  
x Presentado en Anexo

PATENTE

\_ Patentado  
\_ Patente No  
\_ Expedido en

Título Ag (I, III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR PARA CÁNCER DE PIEL

**DECLARACIÓN POR LA CUAL SE REIVINDICA LA CONDICIÓN DE PEQUEÑA EMPRESA  
(37 CFR 1 9(f) Y 1 27(b))—INVENTOR INDEPENDIENTE**

El abajo firmante, en su condición de inventor se permite declarar que cumple con las características para que se le califique como inventor independiente según la definición que aparece en 37 CFR 1 9 (c), para propósitos de gozar de reducción de tarifas por los trámites que se surtan ante la Oficina de Marcas y Patentes de los Estados Unidos de conformidad en lo estipulado en las Secciones 41(a) y (b) del Título 35 Código de los Estados Unidos, de la Oficina de Marcas y Patentes, con respecto a la invención que se describe en

x la especificación anexa a la presente cuyo título se menciona arriba  
\_ la solicitud arriba identificada  
\_ la patente arriba identificada

Certifica, así mismo, que no ha asignado, otorgado, conferido o licenciado, ni está en la obligación contractual ni legal de asignar otorgar conferir o licenciar ningún derecho de la invención a ninguna persona que no califique como inventor independiente de conformidad con lo establecido en 37 CFR 1 9 (c), si dicha persona hubiese creado la invención, ni a empresa alguna que no califique como pequeña empresa según lo establecido en 37 CFR 1 9 (d), o una organización sin ánimo de lucro tal como se define en 37 CFR 1 9 (e).

Todas las personas, empresas u organizaciones a las cuales el abajo firmante les haya asignado, otorgado, conferido o licenciado o a las cuales esté en la obligación legal o contractual de asignar otorgar conferir o licenciar cualquier derecho sobre la invención figuran en la lista que aparece a continuación

x No existe ninguna persona, empresa ni organización con estas características.  
\_ Todas las personas, empresas y organizaciones con estas características se mencionan más adelante

*NOTA Es requisito que se haga una declaración por separado para cada una de las personas empresas u organizaciones mencionadas que tengan derechos sobre la invención en cuanto hace a su condición de pequeñas empresas (37 CFR 1 27)*

NOMBRE COMPLETO  
DIRECCIÓN  
\_ INDIVIDUO                      \_ PEQUEÑA EMPRESA                      \_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

NOMBRE COMPLETO  
DIRECCIÓN  
\_ INDIVIDUO                      \_ PEQUEÑA EMPRESA                      \_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

NOMBRE COMPLETO  
DIRECCIÓN  
\_ INDIVIDUO                      \_ PEQUEÑA EMPRESA                      \_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

El suscrito inventor hace constar que conoce su obligación de notificar en esta solicitud o patente, sobre cualquier cambio en su condición que pueda dar lugar a la pérdida de su calificación como pequeña empresa

104  
7  
185

verdaderas además, que estas declaraciones fueron hechas con plena consciencia de que quien incurre voluntariamente en falsedad en las declaraciones y otras manifestaciones se hace sujeto de sanciones penales o detención, o ambas, según la Sección 1001 del Título 18 del Código de los Estados Unidos, y que dichas declaraciones falsas pueden poner en entredicho la validez de la solicitud, de cualquier patente que se expida en respuesta a la misma o cualquier patente a la cual vaya dirigida esta declaración verificada.

|                     |                   |                        |
|---------------------|-------------------|------------------------|
| Nombre del inventor | Marvin S Antelman |                        |
| Firma del inventor  | (hay una firma)   | Fecha. Enero 5 de 2000 |

105  
8  
186

## **REIVINDICACIONES**

- 1 Un método para tratar seres humanos afectados por cáncer de piel que comprende la aplicación de cristales de tetroxido de tetraplata a las áreas afectadas de la piel de los mencionados seres humanos**
- 2 El método de la reivindicación 1 en donde el cáncer es un carcinoma de células basales (basocelular)**
- 3 El método de la reivindicación 1 en donde el cáncer es un carcinoma de células escamosas (escamocelular)**
- 4 El método de la reivindicación 1 en donde el cáncer es un melanoma.**
- 5 El método de la reivindicación 1 en donde el mencionado tetróxido de tetraplata se encuentra en la forma de una composición de transporte (vehículo) que contiene cristales de tetroxido de tetraplata finamente divididas dispersas en el mencionado vehículo**
- 6 El método de la reivindicación 5 en donde los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 0.1 a 10% por peso**

106  
9  
187

- 7 El método de la reivindicación 6 en donde los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 0.25 a 5% por peso
- 8 El método de la reivindicación 6 en donde los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 2 a 4% por peso
- 9 El método de la reivindicación 5 en donde el mencionado vehículo es un ungüento



**CONSULADO DE COLOMBIA**  
**WASHINGTON D C**

107  
10  
188



No. 3336

**EL CONSULADO DE COLOMBIA**  
**CERTIFICA**

Que es auténtica la firma de DENITRA L HAWKINS  
quien el día 27 DE DICIEMBRE DEL 2000  
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DPTO DE ESTADO  
la cual aparece al pie de los documentos anexos relacionados con CERTIFICACION

**DEC 27 2000**

Dado en Washington D.C. a los \_\_\_\_\_ días del mes de  
\_\_\_\_\_ del año dos mil (2000)

|                           |           |
|---------------------------|-----------|
| Pagado Impuesto de Timbre | <u>7</u>  |
| Pagado Derecho Consular   | <u>15</u> |
| Total                     | <u>22</u> |

(El Consulado no asume ninguna  
responsabilidad por el contenido de los  
documentos anexos)

**Lizet Martínez Peña**  
**Cónsul**

# United States of America



## DEPARTMENT OF STATE

*To all to whom these presents shall come, Greeting*



I Certify That the document hereunto annexed is under the Seal of the Patent and Trademark Office Department of Commerce United States of America and that such Seal is entitled to full faith and credit \*



In testimony whereof I Thomas R Pickering Acting Secretary of State have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Authentication Officer of the said Department at the city of Washington in the District of Columbia this twenty-seventh day of December 2000

*Thomas R Pickering*  
Acting Secretary of State

By *Dennis J Hawkins*  
Authentication Officer  
Department of State

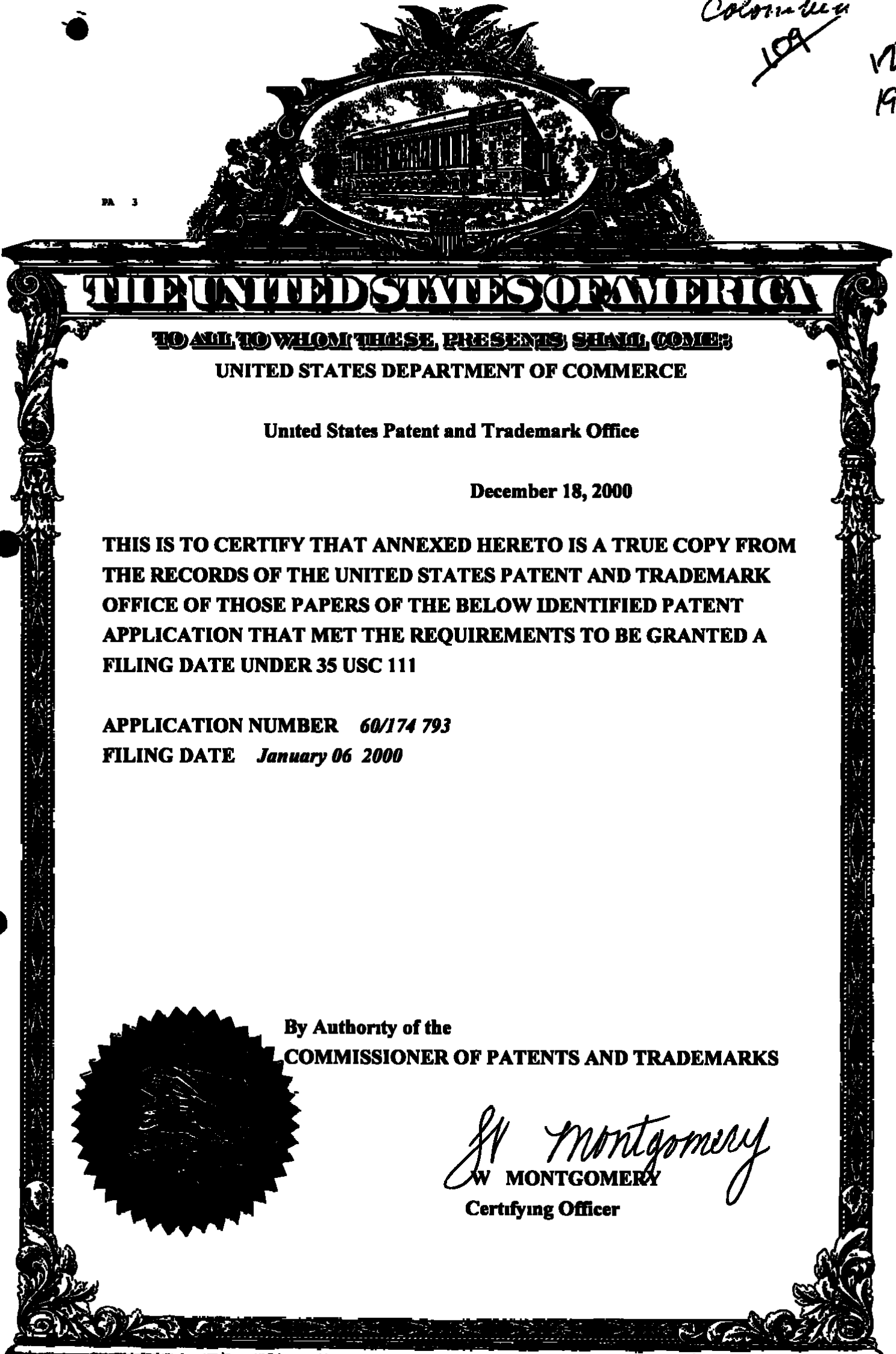
Issued pursuant to CHXIV State of  
Sept 15 1789 1 Stat 68 69 22  
USC 2657 22USC 2651a 5 USC  
301 28 USF 1733 et seq 8 USC  
1443(j) RUI F 44 Federal Rules of  
C. vii Procedure

*For the contents of the annexed document, the Department assumes no responsibility*

*This certificate is not valid if it is removed or altered in any way whatsoever*

Colombian  
109  
VZ  
190

PA 3



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**December 18, 2000**

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM  
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK  
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT  
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A  
FILING DATE UNDER 35 USC 111**

**APPLICATION NUMBER 60/174 793**

**FILING DATE January 06 2000**



**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**

*J. W. Montgomery*  
**J. W. MONTGOMERY**  
**Certifying Officer**

U.S. PATENT AND TRADEMARK OFFICE  
CONSUMER

15714 U S PRO  
01/06/00

60174793 010600

Please type (do not sign) inside this box → ☐ 01-07-00

Approved for use through 01/01/2001. OGC Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to collection of information unless it displays valid OMB control number.

PTO/SB/16 (2-99)

110

A/PROV 35  
191

# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

| INVENTOR(S)                                                                                                                                       |                        |                                                            |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-------|
| Given Name (first and middle (if any))                                                                                                            | Family Name or Surname | Residence (City and other State or Foreign Country)        |       |
| Marvin S                                                                                                                                          | Antelman               | PO Box 382<br>9-30 Skolnik Street<br>Rahovot Israel        |       |
| <input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto                             |                        |                                                            |       |
| TITLE OF THE INVENTION (250 characters max)                                                                                                       |                        |                                                            |       |
| Ag(I III) MOLECULAR DEVICE TREATMENT FOR SKIN CANCER                                                                                              |                        |                                                            |       |
| Direct all correspondence to: CORRESPONDENCE ADDRESS                                                                                              |                        |                                                            |       |
| <input type="checkbox"/> Customer Number                                                                                                          |                        | <input type="text"/>                                       |       |
| OR                                                                                                                                                |                        | Type Customer Number here                                  |       |
| <input checked="" type="checkbox"/> Firm or Individual Name                                                                                       |                        | Perman & Green LLP                                         |       |
| Address                                                                                                                                           |                        | 425 Post Road                                              |       |
| Address                                                                                                                                           |                        |                                                            |       |
| City                                                                                                                                              | Fairfield              | State                                                      | CT    |
| Country                                                                                                                                           |                        | ZIP                                                        | 06430 |
| Telephone (203)259 1800                                                                                                                           |                        | Fax (203)255-5170                                          |       |
| ENCLOSED APPLICATION PARTS (check all that apply)                                                                                                 |                        |                                                            |       |
| <input checked="" type="checkbox"/> Specification Number of Pages (including claims & abstract)                                                   | 11                     | <input checked="" type="checkbox"/> Small Entity Statement |       |
| <input type="checkbox"/> Drawings Number of Sheets                                                                                                |                        | <input type="checkbox"/> Other (specify)                   |       |
| METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)                                                          |                        |                                                            |       |
| <input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees                                                   |                        | FILING FEE AMOUNT (\$)                                     |       |
| <input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 16-1350 |                        | \$75.00                                                    |       |
| The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.           |                        |                                                            |       |
| <input checked="" type="checkbox"/> No.                                                                                                           |                        |                                                            |       |
| <input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____                                |                        |                                                            |       |

Respectfully submitted

SIGNATURE Michael J. Tully

Date 1/6/00

TYPED or PRINTED NAME Michael J. Tully

REGISTRATION NO. 25 755

TELEPHONE (203)259 1800

Doctet Number 7319000134-US (-R)

## USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) provisional applications. Confidentiality is governed by 38 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 4 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231

15714 U S PRO  
60174793  
01/06/00

Attorney's Docket No. 7310008134-US (-#1)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Antalman M  
Serial No 0 / Group No  
Filed herewith Examiner  
For Ag (I III) MOLECULAR DEVICE TREATMENT FOR SKIN CANCER

Assistant Commissioner for Patents  
Washington, D C. 20231

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EL067143726US

Date of Deposit 01/06/00

I hereby certify that the following attached paper or fee  
Provisional Application Cover Sheet (1 page)  
Provisional Application (11 pages)  
Small Entity Form (2 pages)  
Postcard  
Check for \$75 00

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

Shauna Murphy

Typed or printed name of person mailing paper or fee

*Shauna Murphy*

Signature of person mailing paper or fee

NOTE: Each paper must have its own certificate and the "Express Mail" label number as a part thereof or attached thereto. When, as here, the certification is presented on a separate sheet, that sheet must (1) be signed and (2) fully identify and be securely attached to the paper or fee it accompanies. Identification should include the serial number and filing date of the application as well as the type of paper being filed, e.g. complete application, specification and drawings, responses to rejection or refusal, notice of appeal, etc. If the serial number of the application is not known, the identification should include at least the name of the inventor(s) and the title of the invention.

NOTE: The label number need not be placed on each page. It should however be placed on the first page of each separate document, such as, a new application, amendment, assignment, and transmittal letter for fee, along with the certificate of mailing by "Express Mail. Although the label number may be on checks, such practice is not required. In order not to deface formal drawings it is suggested that the label number be placed on the back of each formal drawing or the drawings be accompanied by set of informal drawings on which the label number is placed.

(Express Mail Certificate [B-3])

60174793 010600

112  
193  
y\$

Practitioner's Docket No 731P009134-US (-#1)

PATENT

☒ Applicant Marvin S Antelman Patentee \_\_\_\_\_  
☐ Application No. \_\_\_\_\_ Patent No. \_\_\_\_\_  
☒ Filed on herewith ☐ Issued on \_\_\_\_\_  
Title: Ag (I,III) MOLECULAR DEVICE TREATMENT FOR SKIN CANCER

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR

As a below named inventor I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(s) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.  
☐ the application identified above.  
☐ the patent identified above

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted conveyed or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below

- ☒ No such person, concern, or organization exists  
☐ Each such person concern or organization is listed below

NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention availing to their status as small entities. (37 CFR 1.27)

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

60174793 010 00

15  
16  
194

I acknowledge the duty to file in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application any patent issuing thereon, or any patent to which this verified statement is directed.

Marvin S. Antelman

Name of inventor

*Mary Antelmo*

**Signature of Inventor**

Date Jan 5, 2000

Name of inventor

**Signature of Inventor**

Date \_\_\_\_\_

Name of inventor

**Signature of Inventor**

Date \_\_\_\_\_

60174793 010600

~~114~~  
195

Docket Number 731P009134-US (-#1)

PROVISIONAL PATENT APPLICATION ENTITLED

Ag (I III) MOLECULAR DEVICE TREATMENT FOR SKIN CANCER

FOR

MARVIN S ANTELMAN

0174793.010600

115  
196

**Ag (I, III) MOLECULAR DEVICE TREATMENT FOR SKIN CANCER**

**BACKGROUND OF THE INVENTION**

- 5 The present invention relates to the employment of molecular crystals to treat skin cancer but more particularly to the molecular crystal semiconductor tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) which has two monovalent and two trivalent silver ions per molecule
- 10 The term "skin cancer" encompasses the three major forms of skin cancer basal cell and squamous carcinoma together with melanoma. The carcinomas account for about 97% of skin cancers. However melanoma accounts for over 87% of deaths due to said cancers
- 15 The present invention is based on an extrapolation of concepts previously elucidated and disclosed in applicant's US Patent Numbers 5 211 855 (1993) 5 336 499 (1994) 5 571 520 (1996) and 5 676 977 (1997). Said concepts have also been published in an article entitled "Silver (I, III) Disinfectants" (Soap/Cosmetics/Chemical Specialties, 1994 March pp 52-9) and by the
- 20 American Society of Mechanical Engineers (99 IMECE/TEX-6) entitled "Silver (I, III) Antimicrobial Fabrics" presented at their Congress and Exposition November 17 1999
- At the 135<sup>th</sup> National Meeting of the American Chemical Society (ACS) in
- 25 1959 the instant inventor presented a paper (Biological Chemistry No 138) entitled "Comparative Diffusion Effects of Carcinogens and Non Carcinogens" which enabled in vitro screening of carcinogens and potential cancer cures by measuring diffusion rates in gelatin gels treated with various agents. Thereafter he was the first to prove in conjunction with the National Cancer

50174793 010600

101 50174793 010600

416  
19719

Institute screening in mice the efficiency of tumor suppression by hydrazine sulfate

- Subsequently in 1961 at another ACS National Meeting in Chicago was presented one of the first applications of molecular biology to the field of cancer in a paper (Physical Chemistry No. 84) entitled "A Chemical Bonding Approach To Cancer Chemotherapy" In this paper the instant inventor illustrated the connection between bonding effects on cells resulting from chemical carcinogens viruses and radiation maintaining that the latter caused skin cancer as a result of degradation of key protein polymers within the cell. Essentially once a skin cells DNA programming has become genetically unstable mutation progresses rapidly resulting in the development of a malignant skin cancer
- Previously elucidated was the mechanism through which pathogens were destroyed by tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) as an "electrocution" process resulting from electron transfer between  $\text{Ag(I)}$  and  $\text{Ag(III)}$  ions. In the process  $\text{Ag(I)}$  is oxidized to  $\text{Ag(II)}$  and  $\text{Ag(III)}$  is reduced to  $\text{Ag(II)}$  The  $\text{Ag(II)}$  enhances the kill. If R represents the inert biomass of microbial cell membrane surfaces respectively of disulfide (S-S) and imide  $\text{C=NH}$  linkages  $\text{Ag(II)}$  ions will form chelate complexes with them further enhancing the efficacy of the kill S/N ligands of cancer and microbes can both react with  $\text{Ag(II)}$   $\text{Ag(II)} + \text{RS-S} = \text{Ag(II)S-SR}$  and  $\text{Ag(II)} + \text{RC=NH} = \text{Ag(II)HN=CR}$ .  $\text{Ag}_4\text{O}_4$  has been found to behave as a nontoxic disinfecting antimicrobial.
- Disinfectants as a class are not known to cure cancer However the "electrocution" effect is unique when  $\text{Ag}_4\text{O}_4$  behaves as a molecular device The concept is now accepted as a result of macro and micro scale processes involving living things that biology is essentially an information science.

27  
20  
198

60174793 010600

5 The main object of this invention is to provide for a molecular scale device of a single tetrasilver tetroxide crystalline single molecule capable when employed en mass against even a single cancer cell of treating humans afflicted with skin cancer comprising its three forms, basal and squamous cell carcinoma and melanoma.

10 Another object of this invention is to provide for a treatment for skin cancer without side effects involving said tetroxide which has been proven in its effective dosage parameters as being nontoxic.

Still another object of this invention is to provide for a treatment for skin cancer which features ease of application effectuated by the application of an ointment containing tetrasilver tetroxide

15 SUMMARY OF THE INVENTION

The invention provides for the treatment of skin cancer by utilizing tetrasilver tetroxide by applying it over a period of time to the affected skin area until an apparent cure results.

20 More particularly the invention relates to a method of treating humans afflicted with skin cancer comprising applying tetrasilver tetroxide crystals to the affected skin areas of said humans.

25 Even more particularly the invention relates to a method wherein tetrasilver tetroxide is in the form of a carrier composition containing finely divided tetrasilver tetroxide crystals dispersed in said carrier is applied to the affected skin areas

113

21 199

## DESCRIPTION OF THE INVENTION

5 This invention is based on the discovery that pathogenic electrocution can interfere with microbe genome programming and the resultant reading of the information. Accordingly it was decided that the skin cancer genomes could have analogous communication difficulties and resulted in  $\text{Ag}_4\text{O}_4$  evaluations as a treatment for skin cancer. The trials proved successful irrespective of the validity of the programming thesis.

10

6 174793 010600

The rationale for using tetrasilver tetroxide for treatment of skin cancer is dependent on the single molecular crystal of said entity which acts as a molecular crystal device. The physical chemistry of said device has already been elucidated in my US Patent Numbers 5 211 855 5 336 499 5 571 520 and 5 676 977 incorporated herein by reference. The quintessence of the operating mechanism of this molecular device is its discharging electrons from its  $\text{Ag(I)}$  ions which are believed to disrupt programming of cancer cell genomes disabling them in their ability to read information vital to the wild multiplication of the cancer cells, and thus arresting them. The electron discharges described in the aforementioned patents result in pathogen electrocution as differentiated from programming information disruption in cancer cells. Nevertheless it is posited that the electron attraction to both pathogens and cancer cells is due to sulfur and nitrogen rich chemical bonds exposed in cytoplasmic elongation during cell mitosis. The divalent silver ion end products of the electron firing will chelate S and N ligands leading to cancer cell death.

15

20

25

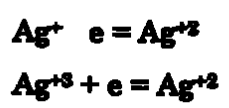
The crystal lattice of the  $\text{Ag}_4\text{O}_4$  molecular device operates against cancer cells by transferring electrons from its two monovalent silver ions to its two

119  
22200

009070 8674709

trivalent silver ions in the crystal The electron transfer involves the electrons traversing cancer cells disrupting their genetic genome programming The electrons are attracted to the cells by sulfur and nitrogen rich ligands exposed during mitosis The electrons are forced out of their  
5 crystal lattice by such labile groups as S-S SH NH and NH<sub>2</sub> However normal cells containing the same groups will not be affected because they do not proliferate fast enough in comparison to the wild tumor cells to expose these labile bonds. The key to understanding this lies with the stability of said lattice

10 The K<sub>A</sub> of Ag<sub>4</sub>O<sub>4</sub> is 7.9 x 10<sup>-13</sup> therefore the molecule will not be disturbed unless more stable complexes are formed with such ligands as those comprising the pathogen cell membrane surface in a dynamic state Indeed the end result of the electron transfer which is a redox reaction results in  
15 the monovalent Ag ions being oxidized to Ag(II) and the trivalent Ag ions being reduced to the same end product Ag(II) Accordingly the well known affinity for monovalent silver for certain elements such as sulfur and nitrogen is far exceeded here for divalent silver will not merely bind to these elements as does silver but will actually form chelate complexes with their ligands.  
20 The molecular crystal attraction for the cells is thus driven by powerful covalent bonding forces The electron transfer can be depicted by the following redox half reactions



25 It was found by rigorous testing that silver tetroxide was comparatively non toxic For acceptance of said oxide in commerce for which an EPA registration number was obtained (no 3432-64) it was necessary for the oxide to undergo a series of toxicity tests for which a 3% concentrate was

200  
23  
201

used and evaluation by a certified laboratory employing good laboratory practice (GLP) according to the Code of Federal Regulations. The results were as follows.

|   |                         |                  |                            |
|---|-------------------------|------------------|----------------------------|
| 5 | Acute Oral Toxicity     | LD <sub>50</sub> | Greater than 5 000 mg./Kg. |
|   | Acute Dermal Toxicity   | LD <sub>50</sub> | Greater than 2 000 mg./Kg. |
|   | Primary Eye Irritation  |                  | Mildly Irritating          |
|   | Primary Skin Irritation |                  | No Irritation              |
|   | Skin Sensitization      |                  | Non Sensitizing            |

10 Subsequent evaluations showed that unless persons were prone to silver allergies the pure tetroxide could be applied to the skin without any ill effects or evidence of irritation, despite the fact that said oxide is a powerful oxidizing agent. This can perhaps be explained by its stability manifested by  
15 its aforesaid KA.

Accordingly the oxide may be applied topically to the affected skin areas directly in powder form as well as in compounded formulations

20 A preferred mode of application of the oxide of the invention is as a topical agent, either in non-sprayable or sprayable form. Non-sprayable forms can be semi-solid or solid forms comprising a carrier indigenous to topical application and having a dynamic viscosity preferably greater than that of water Suitable formulations include but are not limited to solutions,  
25 suspensions emulsions creams ointments powders liniments salves and the like If desired, these may be sterilized or mixed with auxiliary agents e g thixotropes stabilizers wetting agents and the like Preferred vehicles for non-sprayable topical preparations include ointment bases, e g polyethylene glycol 1000 (PEG-1000) conventional ophthalmic vehicles

60174793 010600

121  
24  
202

creams and gels, as well as petroleum jelly and the like. These topical preparations may also contain emollients perfumes and/or pigments to enhance their acceptability for various usages.

5 In the preferred embodiment of the invention, the tetrasilver tetroxide crystals are applied to the affected skin areas one to three times per day in the form of a dispersion of the crystals in an ointment such as a hydrocarbon (petroleum) jelly carrier

10 The concentration of the tetrasilver tetroxide crystals dispersed in the carrier may range from about 0.1 to 10% by weight more preferably from about 0.25 to 5% by weight and most preferably from about 2 to 4% by weight.

The following examples are illustrative of the invention.

15

EXAMPLE 1

A paraffinic hydrocarbon ointment was prepared by heating under agitation a mixture comprising about 33 wt % heavy mineral oil and about 67 wt % of petroleum jelly to a temperature of 70 C and then dispersing in this mixture the finely divided tetrasilver tetroxide powder sufficient to provide a 3% by weight concentration of the oxide in the carrier. The mixture was then cooled to room temperature with continuous stirring until the mixture was no longer liquefied.

25

EXAMPLE 2

A male age 47 was diagnosed as having melanoma at least for three years. He exhibited at least 15 blotchy brown infections scattered on both forearms.

30 The size of the affected areas varied from 0.3mm to 1.2mm. The ointment of

50174793 010600

122  
203

Example 1 was applied to the affected skin areas of the arms at least once a day After one week the brown blotches had been replaced by pink ones After 2 weeks the pink areas were gone After 3 and 4 weeks there was no evidence of any melanoma.

5

EXAMPLE 3

Two patients one male, age 83 and the other a female age 63 were treated in the same manner as in Example 2 for basal cell carcinoma. The female had one large brown cancer growth varying from 0 6 1 4mm by 0 9 3 6mm on top of the scalp The male had several white head pimples 0 3-0 7mm. One was on the right ear Five were on the scalp and another was on the left leg After one week the female had experienced that her tumor had diminished to just a minor pink skin irritation After two weeks the pink irritation had vanished. After four weeks had elapsed the skin was clear and normal in appearance As for the male after one week all white head pimples had regressed to a pink inflammation except for the ear which appeared to be completely healed. After the second week all pink areas were gone as well as any indications of inflammation After the third and fourth weeks all previously afflicted areas showed no evidence of any contra indication.

00 070 864709

EXAMPLE 4

A male patient age 74 was afflicted with squamous cell carcinoma. The sores were on both arms Five on the right and seven on the left. Their appearance was oval shaped ranging from 2 5 5 5mm in length This patient was treated in the same manner as in Example 2 by applying the ointment of Example 1 to the affected skin areas After one week of treatment all open sores had closed and were in the process of heahng During the second week

123  
26  
204

sores continued to heal at a rapid pace Scabs were completely gone by the end of the second week. At the end of the third week, only slight pink areas remained in the place of the previous sores By the end of the fourth week, there were no traces of the previous affliction.

5

601747 3 010600

179  
28  
205

# CLAIMS

1 A method of treating humans afflicted with skin cancer comprising applying tetrasilver tetroxide crystals to the affected skin areas of said humans

2 The method of claim 1 wherein the cancer is basal cell carcinoma

3 The method of claim 1 wherein the cancer is squamous carcinoma.

4 The method of claim 1 wherein the cancer is melanoma

5 The method of claim 1 wherein said tetrasilver tetroxide is in the form of a carrier composition containing finely divided tetrasilver tetroxide crystals dispersed in said carrier

6 The method of claim 5 wherein said crystals are present in said carrier at a level of from about 0.1 to 10% by weight.

7 The method of claim 6 wherein said crystals are present in said carrier at a level of from about 0.25 to 5% by weight.

8 The method of claim 6 wherein said crystals are present in said carrier at a level of from about 2 to 4% by weight.

9 The method of claim 5 wherein said carrier is an ointment.

50174793 010600

125  
28  
266

ABSTRACT

The diamagnetic semiconducting molecular crystal tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) is utilized as an Ag (I III) driven molecular device for treating the  
5 three forms of skin cancer melanoma, and basal/squamous cell carcinomas without toxic side effects. Optimum results are obtained by mere repetitive application of an ointment containing 3% of the tetroxide

50174793 010600

127  
207

01006804 7  
ESTADOS UNIDOS DE AMERICA  
DEPARTAMENTO DE ESTADO

A todos aquellos a quienes llegase la presente saludos

Por el presente certifico que el documento anexo lleva estampado el sello de la oficina de Patentes y Marcas Departamento de Comercio de los Estados Unidos, y que dicho sello es digno de toda fé y todo crédito

En testimonio de lo cual yo, Thomas R Pickering, Secretario de Estado, he ordenado estampar en la presente el sello del departamento de Estado y que mi nombre sea suscrito por el Funcionario de Asistente de Autenticaciones del mencionado Departamento, en la ciudad de Washington, en el Distrito de Columbia, a los veintisiete días del mes de diciembre 2000

(Hay una firma)  
Secretario de Estado  
(Hay una firma)  
funcionario asistente de  
autenticaciones,  
Departamento de Estado

EL DEPARTAMENTO NO ASUME RESPONSABILIDAD POR EL  
CONTENIDO DEL DOCUMENTO ANEXO

El presente certificado no es válido si está despegado o alterado de cualquier manera.

128

2/208



277048

**LOS ESTADOS UNIDOS DE AMERICA**

**A TODOS AQUELLOS A QUIENES  
LLEGUEN ESTOS PRESENTES  
DEPTO DE COMERCIO DE LOS EE UU  
OFICINA DE PATENTES Y MARCAS DE  
FABRICA**

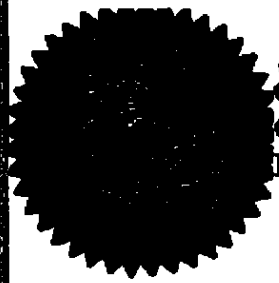
**DICIEMBRE 18 2000**

**ESTA ES PARA CERTIFICAR QUE LOS  
ANEXOS SON COPIA DE LOS ARCHIVOS DE  
LA OF DE PATENTES Y MARCAS DE  
FABRICA DE AQUELLOS PAPELES QUE  
IDENTIFICAN ADELANTE LA SOLICITUD  
DE PATENTE QUE REUNIO LOS  
REQUISITOS PARA SER OTORGADA UNA  
FECHA DE REGISTRO BAJO EL # 35 USC111**

**SOLICITUD # 60/214 503**

**FECHA DE LA SOLICITUD JUNIO 28 2000**

**SELLO CIRCULAR EN PAPEL DORADO OF  
DE PATENTES Y MARCAS DE FABRICA (EN  
EL CENTRO EL AGUILA AMERICANA)**



**CON LA AUTORIDAD DEL  
COMISIONADO DE MARCAS Y  
PATENTES**

**FIRMA  
W MONTGOMERY  
OFICIAL CERTIFICADOR**

129  
38  
209

CARTA CUBIERTA PARA SOLICITUD PROVISIONAL PARA PATENTE

Este es un requisito para el registro de una  
SOLICITUD PROVISIONAL PARA PATENTE,  
conforme al 37 CFR 1.53 (c)

|                                                                                                                                           |           |                               |                                                   |                |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------|---------------------------------------------------|----------------|
| INVENTOR (ES)                                                                                                                             |           |                               |                                                   |                |
| NOMBRE<br>(completo)                                                                                                                      |           | Nombre familiar<br>o apellido | Residencia<br>(Ciudad y Estado o País Extranjero) |                |
| Marvin S.                                                                                                                                 |           | Antelman                      | Rehovot, Israel                                   |                |
| TITULO DE LA INVENCIÓN (máximo 280 caracteres)                                                                                            |           |                               |                                                   |                |
| Ag (I, III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR PARA CÁNCER DEL CÉRVIX<br>UTERINO                                                    |           |                               |                                                   |                |
| DIRECCIÓN DE CORRESPONDENCIA                                                                                                              |           |                               |                                                   |                |
| Dirigir toda correspondencia a.<br>X Número del Cliente 2512 → Coloque el número del código de<br>barras del cliente aquí                 |           |                               |                                                   |                |
| O                                                                                                                                         |           |                               |                                                   |                |
| X. Firma o Nombre del individuo                                                                                                           |           |                               | Pernan & Green, LLP                               |                |
| Dirección                                                                                                                                 |           |                               | 425 Post Road                                     |                |
| Ciudad                                                                                                                                    | Fairfield | Estado CT                     | Código                                            | 06430          |
| País                                                                                                                                      | EE UU     | Tel. (203) 259-1800           | Fax                                               | (203) 255 5170 |
| PARTES ANEXAS A LA SOLICITUD (Chequear las que correspondan)                                                                              |           |                               |                                                   |                |
| X. Especificaciones                                                                                                                       |           | Total de Páginas 13           | x Declaración de Entidad                          |                |
| Dibujo (s)                                                                                                                                |           | Total de Páginas              | Otras (especifique)                               |                |
| FORMA DE PAGO DE LOS VALORES DE REGISTRO PARA ESTA SOLICITUD PROVISIONAL<br>DE PATENTE (Chequear una)                                     |           |                               |                                                   |                |
| X Se anexa un cheque o giro postal para cubrir los costos de registro                                                                     |           |                               |                                                   |                |
| X El comisionado está autorizado por medio del presente para cargar las<br>CUOTA DE REGISTRO                                              |           |                               | VALOR DE LA                                       |                |
| cuotas de registro y crédito a la Cuenta de Depósito No                                                                                   |           |                               | \$75.00                                           |                |
| La invención fue hecha por una agencia del Gobierno de los Estados Unidos o bajo un contrato con una<br>agencia del Gobierno de los EE UU |           |                               |                                                   |                |
| x No                                                                                                                                      |           |                               |                                                   |                |
| Sí, el nombre de la agencia del gobierno de los EE.UU y el número del contrato del gobierno son                                           |           |                               |                                                   |                |

Sometido en forma respetuosa,

FIRMA (Firmado) Michael J Tully

Fecha.

6 / 28/ 00

Nombre escrito a  
máquina o en imprenta

Michael J Tully

Registro No

25,755

Teléfono

(203) 259-1800

Expediente No

731P009511 us ( 1#1)

UTILIZAR SOLAMENTE PARA EL REGISTRO

130  
31  
210

DE UNA SOLICITUD PROVISIONAL PARA PATENTE

Legajo del Practicante No 731P009511 US (-#1)

PATENTE

EN LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

Solicitante Marvin S Antelman

Serie No

Grupo No

Presentado en Anexo

Examinador

Título Ag (I, II) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR PARA CÁNCER DEL CÉRVIX UTERINO

Certificado de Express Mail

Número de Guía del "Express Mail" EL627419755US

Fecha de Depósito 6/28/00

Por el presente certifico que los siguientes papeles o valores

- 1 Carta Cubierta de la Solicitud Provisional
- 2 Solicitud Provisional (13 páginas)
- 3 Declaración de Entidad Menor
- 4 Postal
- 5 Cheque por \$75 00

Se depositan a través del servicio postal de los EE UU "Express Mail Post Office to Addressee" conforme a la 37 CFR 1.10 en la fecha que se indica arriba y dirigido al Comisionado Asistente para Patentes, Washington, D C 20231

June Adams

Nombre a máquina o en imprenta de la persona que envía los papeles o valores

Firma de la persona que envía los papeles o valores

Legajo del Practicante No 731P009511 US (-#1)

x Solicitante Marvin S Antelman

\_ Solicitud No

x Presentado en Anexo

PATENTE

\_ Patentado

\_ Patente No

\_ Expedido en

Título Ag(L.III) TRATAMIENTO PARA CÁNCER DEL CÉRVIX UTERINO CON UN DISPOSITIVO MOLECULAR

**DECLARACIÓN POR LA CUAL SE REIVINDICA LA CONDICIÓN DE PEQUEÑA EMPRESA  
(37 CFR 1.9(f) Y 1.27(b))—INVENTOR INDEPENDIENTE**

El abajo firmante, en su condición de inventor se permite declarar que cumple con las características para que se le califique como inventor independiente según la definición que aparece en 37 CFR 1.9 (c), para propósitos de gozar de reducción de tarifas por los trámites que se surtan ante la Oficina de Marcas y Patentes de los Estados Unidos de conformidad en lo estipulado en las Secciones 41(a) y (b) del Título 35 Código de los Estados Unidos, de la Oficina de Marcas y Patentes, con respecto a la invención que se describe en.

x la especificación anexa a la presente, cuyo título se menciona arriba

\_ la solicitud arriba identificada

\_ la patente arriba identificada

Certifica, así mismo, que no ha asignado, otorgado, conferido o licenciado, ni está en la obligación contractual ni legal de asignar otorgar conferir o licenciar ningún derecho de la invención a ninguna persona que no califique como inventor independiente de conformidad con lo establecido en 37 CFR 1.9 (c), si dicha persona hubiese creado la invención, ni a empresa alguna que no califique como pequeña empresa según lo establecido en 37 CFR 1.9 (d), o una organización sin ánimo de lucro tal como se define en 37 CFR 1.9 (e)

Todas las personas, empresas u organizaciones a las cuales el abajo firmante les haya asignado, otorgado, conferido o licenciado o a las cuales esté en la obligación legal o contractual de asignar otorgar conferir o licenciar cualquier derecho sobre la invención figuran en la lista que aparece a continuación.

x No existe ninguna persona, empresa ni organización con estas características

\_ Todas las personas, empresas y organizaciones con estas características se mencionan más adelante

*NOTA Es requisito que se haga una declaración por separado para cada una de las personas, empresas u organizaciones mencionadas que tengan derechos sobre la invención en cuanto hace a su condición de pequeñas empresas (37 CFR 1.27)*

NOMBRE COMPLETO

DIRECCIÓN

\_ INDIVIDUO

\_ PEQUEÑA EMPRESA

\_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

NOMBRE COMPLETO

DIRECCIÓN

\_ INDIVIDUO

\_ PEQUEÑA EMPRESA

\_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

NOMBRE COMPLETO

DIRECCIÓN

\_ INDIVIDUO

\_ PEQUEÑA EMPRESA

\_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

132  
35  
212

El suscrito inventor hace constar que conoce su obligación de notificar en esta solicitud o patente, sobre cualquier cambio en su condición que pueda dar lugar a la pérdida de su calificación como pequeña empresa antes de hacer el pago, o en el momento de hacer el pago, lo más pronto posible, de las tarifas de expedición o de cualquier tarifa de mantenimiento que se cause después de la fecha en la cual se haya perdido la condición de pequeña empresa (37 CFR 1.28 (b)).

Por la presente el infrascrito declara que todas las manifestaciones aquí consignadas son verdaderas según su leal saber y entender y que cree que todas las declaraciones que ha hecho sobre mformaciones y opiniones son verdaderas además, que estas declaraciones fueron hechas con plena consciencia de que quien incurre voluntariamente en falsedad en las declaraciones y otras manifestaciones se hace sujeto de sanciones penales o detención, o ambas, según la Sección 1001 del Título 18 del Código de los Estados Unidos, y que dichas declaraciones falsas pueden poner en entredicho la validez de la solicitud, de cualquier patente que se expida en respuesta a la misma o cualquier patente a la cual vaya dirigida esta declaración verificada.

|                     |                   |                    |
|---------------------|-------------------|--------------------|
| Nombre del inventor | Marvin S Antelman |                    |
| Firma del inventor  | (hay una firma)   | Fecha. 6 – 24 – 00 |

23  
26  
213

## **REIVINDICACIONES**

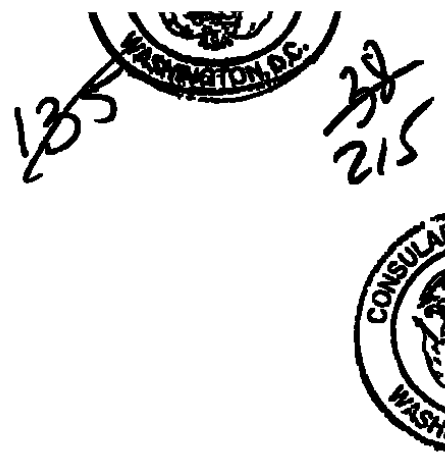
- 1 Un método para tratar mujeres afectadas por cáncer del cérvix uterino que comprende la aplicación de tetróxido de tetraplata a las áreas afectadas que comprenden el cérvix uterino y las áreas relacionadas de la región pélvica de estas pacientes**
- 2 Un método para curar las úlceras sangrantes y no sangrantes asociadas con el cáncer del cérvix uterino que comprende la aplicación de tetróxido de tetraplata a las úlceras**
- 3 El método de las reivindicaciones 1 o 2 en el cual el mencionado tetróxido de tetraplata viene en la forma de una composición de transporte (vehículo) que contiene cristales de tetróxido de tetraplata finamente divididos dispersados en el mencionado vehículo**
- 4 El método de la reivindicación 3 en el cual los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 0.1 a 10% por peso**
- 5 El método de la reivindicación 4 en el cual los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 0.25 a 5% por peso**

~~13A~~  
37  
214

- 6 El método de la reivindicación 4 en el cual los mencionados cristales están presentes en el mencionado vehículo en un nivel de aproximadamente 2 – 4% por peso
- 7 El método de la reivindicación 3 en el cual el vehículo mencionado es un ungüento



**CONSULADO DE COLOMBIA  
WASHINGTON D C**



**No. 3337**

**EL CONSULADO DE COLOMBIA  
CERTIFICA**

Que es auténtica la firma de DENITRA L HAWKINS  
quien el día 27 DE DICIEMBRE DEL 2000  
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DPTO DE ESTADO  
la cual aparece al pie de los documentos anexos relacionados con CERTIFICACION

**DEC 27 2000**

Dado en Washington D.C. a los \_\_\_\_\_ días del mes de  
\_\_\_\_\_ del año dos mil (2000)

Pagado Impuesto de Timbre 7  
Pagado Derecho Consular 15  
Total 22

**Lizet Martínez Peña**  
Cónsul

(El Consulado no asume ninguna  
responsabilidad por el contenido de los  
documentos anexos)

# United States of America

135  
216



## DEPARTMENT OF STATE

*To all to whom these presents shall come, Greeting*



I Certify That the document hereunto annexed is under the Seal of the Patent and Trademark Office Department of Commerce United States of America and that such Seal is entitled to full faith and credit \*



In testimony whereof I Thomas R Pickering Acting Secretary of State have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Authentication Officer of the said Department at the city of Washington in the District of Columbia this twenty-seventh day of December 2000

Thomas R Pickering  
Acting Secretary of State  
By Dennis J Hawken  
Authentication Officer  
Department of State

Issued pursuant to CHXIV State of  
Sept 15 1789 1 Stat 68 69 22  
USC 2637 22USC 2651a 5 USC  
301 28 USE 1733 et seq 8 USC  
1443(j) RULE 44 Federal Rules of  
Civil Procedure

*\*For the contents of the annexed document the Department assumes no responsibility*

*This certificate is not valid if it is removed or altered in any way whatsoever*

Colombo 9  
137  
78  
212

PA 3 3



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**December 18 2000**

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM  
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK  
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT  
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A  
FILING DATE UNDER 35 USC 111**

**APPLICATION NUMBER 60/214 503**

**FILING DATE June 28 2000**



**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**

*W. Montgomery*  
**W MONTGOMERY**  
**Certifying Officer**



Patent type ☐ plus sign (+) inside this box → ☒ F

06-29-00

PTO/SB 02-09  
Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

| INVENTOR(S)                                                                                                                              |                        |                                                            |                                 |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|---------------------------------|
| Given Name (first and middle if any)                                                                                                     | Family Name or Surname | Residence (City and other State or Foreign Country)        |                                 |
| Marvin S                                                                                                                                 | Antelman               | Rehovot Israel                                             |                                 |
| <input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto                    |                        |                                                            |                                 |
| TITLE OF THE INVENTION (200 characters max)                                                                                              |                        |                                                            |                                 |
| Ag(I III) MOLECULAR DEVICE TREATMENT FOR CERVICAL CANCERS                                                                                |                        |                                                            |                                 |
| Direct all correspondence to: CORRESPONDENCE ADDRESS                                                                                     |                        |                                                            |                                 |
| <input checked="" type="checkbox"/> Customer Number                                                                                      | 2512                   | Place Customer Number Bar Code Label here                  |                                 |
| OR Type Customer Number here                                                                                                             |                        |                                                            |                                 |
| <input checked="" type="checkbox"/> Firm or Individual Name                                                                              | Perman & Green LLP     |                                                            |                                 |
| Address                                                                                                                                  | 425 Post Road          |                                                            |                                 |
| Address                                                                                                                                  |                        |                                                            |                                 |
| City                                                                                                                                     | Fairfield              | State                                                      | CT ZIP 06430                    |
| Country                                                                                                                                  | USA                    | Telephone                                                  | (203)259 1800 Fax (203)255-5170 |
| ENCLOSED APPLICATION PARTS (check all that apply)                                                                                        |                        |                                                            |                                 |
| <input checked="" type="checkbox"/> Specification Number of Pages                                                                        | 13                     | <input checked="" type="checkbox"/> Small Entity Statement |                                 |
| <input type="checkbox"/> Drawing(s) Number of Sheets                                                                                     |                        | <input type="checkbox"/> Other (specify)                   |                                 |
| METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)                                                 |                        |                                                            |                                 |
| <input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees                                          |                        |                                                            | FILING FEE AMOUNT \$75 00       |
| <input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number |                        |                                                            |                                 |
| The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.  |                        |                                                            |                                 |
| <input checked="" type="checkbox"/> No.                                                                                                  |                        |                                                            |                                 |
| <input type="checkbox"/> Yes, then name of the U.S. Government agency and the Government contract number are: _____                      |                        |                                                            |                                 |

Respectfully submitted,  
SIGNATURE Michael J. Tully  
TYPED or PRINTED NAME Michael J. Tully  
TELEPHONE (203)259-1800

Date 6/28/00  
REGISTRATION NO. 25 755  
(if appropriate)  
Docket Number 731P009511-

## USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 4 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C., 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C., 20231

3040 U.S. PTO  
06/28/00

60214503 062800

138  
A/PROV  
2/8  
60/214503  
06/28/00

Practitioner's Docket No. 731P009511-US (-#1)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Marvin S Antelman

Serial No. 0 / Group No.

Filed: herewith Examiner

For Ag(I III) MOLECULAR DEVICE TREATMENT FOR CERVICAL CANCERS

Assistant Commissioner for Patents  
Washington, D.C. 20231

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EL627419755US

Date of Deposit 6/28/00

I hereby certify that the following attached paper or fee

- 1 Provisional Application Cover Sheet
- 2 Provisional Application (13 Pages)
- 3 Small Entity Statement
- 4 Postcard
- 5 Check for \$75 00

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

June Adams

Typed or printed name of person mailing paper or fee



Signature of person mailing paper or fee

NOTE: Each paper must have its own certificate and the "Express Mail" label number as a part thereof or attached thereto. When, as here, the certification is presented on a separate sheet, that sheet must (1) be signed and (2) fully identify and be securely attached to the paper or fee it accompanies. Identification should include the serial number and filing date of the application as well as the type of paper being filed, e.g. complete application, specification and drawings, responses to rejection or refusal, notice of appeal, etc. If the serial number of the application is not known, the identification should include at least the name of the inventor(s) and the title of the invention.

NOTE: The label number need not be placed on each page. It should, however, be placed on the first page of each separate document, such as, a new application, amendment, assignment, and transmittal letter for a fee, along with the certificate of mailing by "Express Mail." Although the label number may be on checks, such a practice is not required. In order not to deface formal drawings it is suggested that the label number be placed on the back of each formal drawing or the drawings be accompanied by a set of informal drawings on which the label number is placed.

(Express Mail Certificate [B-3])

008290 80547209

140  
43  
220

Practitioner's Docket No. 731P009511-US (-#1)

PATENT

☒ Applicant Marvin S Antelman ☐ Patentee \_\_\_\_\_  
☐ Application No. \_\_\_\_\_ ☐ Patent No. \_\_\_\_\_  
☒ Filed on herewith ☐ Issued on \_\_\_\_\_

Title: Ag(I,III) MOLECULAR DEVICE TREATMENT FOR CERVICAL CANCERS

**STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35 United States Code, to the Patent and Trademark Office with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.  
☐ the application identified above  
☐ the patent identified above

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below

- ☒ No such person, concern, or organization exists.  
☐ Each such person, concern or organization is listed below

**NOTE:** Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

008290 E054T2 9 214503 062800

141  
44 221

I acknowledge the duty to file in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying or at the time of paying the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon or any patent to which this verified statement is directed

Martin S. Antelman

Name of Inventor

Martin S. Antelman

Signature of Inventor

Date 6-24-00

\_\_\_\_\_  
Name of Inventor

\_\_\_\_\_  
Signature of Inventor

Date \_\_\_\_\_

\_\_\_\_\_  
Name of Inventor

\_\_\_\_\_  
Signature of Inventor

Date \_\_\_\_\_

60214503 062800

~~142~~ ~~45~~  
222

### Ag (P III) MOLECULAR DEVICE TREATMENT OR CERVICAL CANCERS

4

**191 192/0527 127**

॥ श्रीगणेशाय नमः ॥

143  
46  
223

731P009511-US (-#1)

## AG (I, III) MOLECULAR DEVICE TREATMENT FOR CERVICAL CANCERS

5

## BACKGROUND OF THE INVENTION

10 The present invention relates to the employment of molecular crystals to treat cervical cancers but more particularly to the molecular crystal semiconductor tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) which has two monovalent and two trivalent silver ions per molecule

15 The term "cervical cancers" encompasses those cancer moieties which are indigenous to the cervix generally referred to as cervical carcinomas of which 85 - 90% are squamous cell carcinomas and the balance are largely adenocarcinomas. The severity of cervical cancers are  
20 gauged by the clinical tests called PAP smears which indicate whether the carcinoma cells are confined to the cervix or have penetrated beyond it but not to the pelvic wall or to the pelvic wall itself and even beyond the pelvis. Cervical cancers kill about 33% of their victims  
25 annually in the United States

The present invention is based on an extrapolation of concepts previously elucidated and disclosed in applicant's  
30 US Patent Numbers 5 211 855 (1993) 5 336 499 (1994) 5 571 520 (1996) and 5 676 977 (1997). Said concepts have also been published in an article entitled "Silver (II,

60214503-062800

~~144~~47  
224

III) Disinfectants" (Soap/Cosmetics/Chemical Specialties  
1994 March pp 52-9) and by the American Society of  
Mechanical Engineers (99-IMECE/TEX-6) entitled "Silver (I  
III) Antimicrobial Fabrics" presented at their Congress and  
5 Exposition November 17 1999

At the 135<sup>th</sup> National Meeting of American Chemical Society  
(ACS) in 1959 the instant inventor presented a paper  
(Biological Chemistry No 138) entitled "Comparative  
10 Diffusion Effects of Carcinogens and Non Carcinogens" which  
enabled in vitro screening of carcinogens and potential  
cancer cures by measuring diffusion rates in gelatin gels  
treated with various agents Thereafter he was the first  
to prove in conjunction with the National Cancer Institute  
15 screening in mice the efficacy of the tumor suppression by  
hydrazine sulfate

Subsequently in 1961 at another ACS National Meeting in  
Chicago was presented one of the first applications of  
20 molecular biology to the field of cancer in a paper  
(Physical Chemistry No 84) entitled "A Chemical Bonding  
Approach To Cancer Chemotherapy " In this paper the  
instant inventor illustrated the connection between bonding  
effects on cells resulting from chemical carcinogens  
25 viruses and radiation maintaining that the latter caused  
cancer as a result of degradation of key protein polymers  
within the cell Essentially once a cell s DNA programming  
has become genetically unstable mutation progresses  
rapidly resulting in the development of a malignant cancer

30

60214503 062800

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

145  
48  
225

Previously elucidated was the mechanism through which pathogens were destroyed by tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) as an "electrocution" process resulting from electron transfer between  $\text{Ag(I)}$  and  $\text{Ag(III)}$  ions. In the process  $\text{Ag(I)}$  is oxidized to  $\text{Ag(II)}$  and  $\text{Ag(III)}$  is reduced to  $\text{Ag(II)}$ . The  $\text{Ag(II)}$  enhances the kill. If R represents the inert biomass of microbial cell membrane surfaces respectively of disulfide (S-S) and imide C-NH linkages,  $\text{Ag(II)}$  ions will form chelate complexes with them further enhancing the efficacy of the kill. S/N ligands of cancer and microbes can both react with  $\text{Ag(II)}$ .  $\text{Ag(II)} + \text{RS-S} = \text{Ag(II)S-SR}$  and  $\text{Ag(II)} + \text{RC-NH} = \text{Ag(II)HN-CR}$ .  $\text{Ag}_4\text{O}_4$  has been found to behave as a nontoxic disinfecting antimicrobial. Disinfectants as a class are not known to cure cancer. However, the "electrocution" effect is unique when  $\text{Ag}_4\text{O}_4$  behaves as a molecular device. The concept is now accepted as a result of macro and micro scale processes involving living things, that biology is essentially an information science. The electron transfer involves the electrons traversing cancer cells disrupting their genetic genome programming.

The main object of this invention is to provide for a molecular scale device of a single tetrasilver tetroxide crystalline single molecule capable when employed en masse against even a single cancer cell of treating human females afflicted with cervical cancers.

Another object of this invention is to provide for a treatment for cervical cancers without side effects.

60214503 062800

146

49  
226

involving said tetroxide which has been proven in its effective dosage parameters as being nontoxic

Still another object of this invention is to provide for a treatment for cervical cancers which features ease of application effectuated by the application of an ointment containing tetrasilber tetroxide

#### SUMMARY OF THE INVENTION

10

The invention provides for the treatment of cervical cancers by utilizing tetrasilber tetroxide by applying it over a period of time to the affected cervical pelvic area until an apparent cure results

15

More particularly the invention relates to a method of treating human females afflicted with cervical cancers comprising applying tetrasilber tetroxide crystals to the affected cervical pelvic region areas of said females

20

Even more particularly the invention relates to a method wherein tetrasilber tetroxide is in the form of a carrier composition containing finely divided tetrasilber tetroxide crystals dispersed in said carrier is applied to the cervical pelvic region afflicted areas

25

#### DESCRIPTION OF THE INVENTION

This invention is based on the discovery that pathogenic electrocution can interfere with microbe genome programming and the resultant reading of the information Accordingly

30

008290-062800

147  
50  
227

it was decided that the cervical cancer genomes could have analogous communication difficulties and resulted in  $\text{Ag}_2\text{O}_4$  evaluations as a treatment for cervical cancers. The trials proved successful irrespective of the validity of the programming thesis.

The rationale for using tetrasilver tetroxide for treatment of cervical cancers is dependent on the single molecular crystal of said entity which acts as a molecular crystal device. The physical chemistry of said device has already been elucidated in my US Patent Numbers 5 211 855 5 336 499 5 571 520 and 5 676 977 incorporated herein by reference. The quintessence of the operating mechanism of this molecular device is its discharging electrons from its  $\text{Ag(I)}$  ions which are believed to disrupt programming of cancer cell genomes disabling them in their ability to read information vital to the wild multiplication of the cancer cells and thus arresting them. The electron discharges described in the aforementioned patents result in pathogen electrocution as differentiated from programming information disruption in cancer cells. Nevertheless it is posited that the electron attraction to both pathogens and cancer cells is due to sulfur and nitrogen rich chemical bonds exposed in cytoplasmic elongation during cell mitosis. The divalent silver ion end products of the electron firing will chelate S and N ligands leading to cancer cell death.

The crystal lattice of the  $\text{Ag}_2\text{O}_4$  molecular device operates against cancer cells by transferring electrons from its two monovalent silver ions to its two trivalent silver ions in

60214503-062800

~~148~~ 5+  
228

the crystal The electron transfer involves the electrons traversing cancer cells disrupting their genetic genome programming The electrons are attracted to the cells by sulfur and nitrogen rich ligands exposed during mitosis

5 The electrons are forced out of their crystal lattice by such labile groups as S-S SH NH and NH<sub>2</sub> However normal cells containing the same groups will not be affected because they do not proliferate fast enough in comparison to the wild tumor cells to expose these labile bonds The

10 key to understanding this lies with the stability of said lattice

The K<sub>a</sub> of Ag<sub>2</sub>O<sub>4</sub> is 7.9 x 10<sup>-13</sup> therefore the molecule will not be disturbed unless more stable complexes are formed

15 with such ligands as those comprising the pathogen cell membrane surface in a dynamic state Indeed the end result of the electron transfer which is a redox reaction results in the monovalent Ag ions being oxidized to Ag(II) and the trivalent Ag ions being reduced to the same end

20 product Ag(II) Accordingly the well-known affinity for monovalent silver for certain elements such as sulfur and nitrogen is far exceeded here for divalent silver will not merely bind to these elements as does silver but will actually form chelate complexes with their ligands The

25 molecular crystal attraction for the cells is thus driven by powerful covalent bonding forces The electron transfer can be depicted by the following redox half reactions



30



008290 20541209

149  
52  
229

It was found by rigorous testing that silver tetroxide was comparatively non toxic For acceptance of said oxide in commerce for which an EPA registration number was obtained (no 3432-64) it was necessary for the oxide to undergo a series of toxicity tests for which a 3% concentrate was used and evaluation by a certified laboratory employing good laboratory practice (GLP) according to the Code of Federal Regulations The results were as follows

10

|                         |                  |                          |
|-------------------------|------------------|--------------------------|
| Acute Oral Toxicity     | LD <sub>50</sub> | Greater than 5 000 mg/Kg |
| Acute Dermal Toxicity   | LD <sub>50</sub> | Greater than 2 000 mg/Kg |
| Primary Eye Irritation  |                  | Mildly Irritating        |
| Primary Skin Irritation |                  | No Irritation            |
| Skin Sensitization      |                  | Non Sensitizing          |

15

Subsequent evaluations showed that unless persons were prone to silver allergies the pure tetroxide could be applied to the skin without any ill effects or evidence of irritation despite the fact that said oxide is a powerful oxidizing agent This can perhaps be explained by its stability manifested by its aforecited K<sub>a</sub>

20

Accordingly the oxide may be applied to cervical pelvic region afflicted areas directly in powder form as well as in compounded formulations Application can be made either digitally or using a suitable applicator

25

A preferred mode of application of the oxide of the invention is as an ointment Suitable formulations include but are not limited to salves and the like If

30

60214503 062800

ISO  
230

desired these may be sterilized or mixed with auxiliary agents e g thixotropes stabilizers wetting agents and the like Preferred vehicles include ointment bases e g polyethylene glycol-1000 (PEG-1000) conventional  
5 ophthalmic vehicles creams; and gels as well as petroleum jelly and the like

In the preferred embodiment of the invention the tetrasilver tetroxide crystals are applied to the affected  
10 cervical pelvic region once per day in the form of a dispersion of the crystals in an ointment such as a hydrocarbon (petroleum) jelly carrier

The concentration of the tetrasilver tetroxide crystals  
15 dispersed in the carrier may range from about 0.1 to 10% by weight more preferably from about 0.25 to 5% by weight and most preferably from about 2 to 4% by weight

The following examples are illustrative of the invention  
20

In the following examples the cervical cancer afflictions are divided into two main categories The first is based on PAP smear test results following the Bethesda System for reporting cervical cytologic diagnose bearing designations  
25 CIN- the acronym for cervical intraepithelial neoplasia The second is based on designated stages of which

- 0 = Carcinoma in situ intraepithelial carcinoma
- 1 = Carcinoma Strictly confined to the cervix and
- 1A= Microinvasive carcinoma

30

008290 E054T209  
50214503 062800

151  
54  
231

EXAMPLE 1

Exetec Lab S A located in Honduras Central America which performs clinical tests for major pharmaceutical companies  
5 did the clinical evaluations of tetrasilver tetroxide on the patients having various cervical cancers All the clinical testing involved applying 300 mg Of an ointment comprising 3% tetrasilver tetroxide dispersed in a proprietary hydrocarbon base comprising mostly white  
10 petrolatum and mineral oil once a day to the affected cervical/pelvic area

Five patients classified with CIN 1 cervical cancer according to cytologic diagnoses were selected The  
15 diagnoses were conducted two months prior to the tetrasilver tetroxide clinical trials The ointment was applied directly to the cervix and its entrance (endocervix and exocervix) by a skilled physician The period of administration was ten days per patient Evaluations were  
20 made for any side effects A biopsy was taken at the end of the treatment The biopsies indicated that all patients were cured without any recurrences

EXAMPLE 2

25 Five patients who were confirmed as CIN 2 i e having high grade squamous intraepithelial lesions including moderate dysplasia 3 months prior to the clinical studies Two of the patients had familial history of the cervical cancers  
30 This group was treated as outlined by the protocol in Example 1 for 10 days All patients were cured The

0214503 062800

~~57~~ ~~5~~  
~~232~~

cytologist reported no more atypical cells present and the cytopathologist reported normal cells with no recurrences

EXAMPLE 3

5

Five patients were confirmed as CIN 3 i e having high grade squamous intraepithelial lesions severe dysplasia and carcinoma in situ one month prior to clinical studies The ointment was administered to the patients in conformity  
10 with the protocol of Example 1 for 10 days All patients were cured as confirmed by both cytologist and cytopathologist

EXAMPLE 4

15

Five patients were confirmed as Stage 0 cervical cancer Three of the patients selected had a familial history of cervical cancer One patient had a non bleeding cervical ulcer 1 2 x 1 5 centimeters The diagnoses were made  
20 days prior to clinical evaluations The ointment was administered to the patients in conformity with the protocol of Example 1 for 10 days All patients were cured including the one with the ulcer said ulcer healing in 5 days This was confirmed by both cytologist and  
25 cytopathologist with no recurrences

EXAMPLE 5

Five patients were selected who suffered from Stage 1  
30 cervical cancer Three of the patients had bleeding ulcers Four had a familial history of cervical cancers

008290 00547209  
50214503 062800

~~53~~ 56 233

Diagnoses were made 12 days prior to the commencement of clinical trials. The ointment was administered in accordance with the protocol of Example 1 for 15 days. Four out of the five patients were cured. The fifth did not respond. As for the patients with the bleeding ulcers, the ulcers stopped bleeding on the fourth day of the treatment. There were no recurrences in those who were cured.

10

EXAMPLE 6

Five patients with Stage 1A cervical cancer were selected for therapy. Four out of the five had bleeding ulcers. Diagnoses were made 3 weeks prior to clinical evaluations. Treatment entailed the protocol of Example 1 over a 20 day period. Three of the patients were completely cured. Those with bleeding ulcers including the one who was not cured had all bleeding arrested on the sixth day of therapy. There were no side effects in this group as with all the other groups cited in the previous examples.

All of the thirty patients in these examples were in the age range of 40-60 years old.

25 CLAIMS

1 A method of treating human females afflicted with cervical cancers comprising applying tetrasilver tetroxide to the affected areas comprising the cervix and related areas of the pelvic region of said females.

008290 20541209

154  
57  
234

2 A method for curing bleeding and non bleeding ulcers associated with cervical cancers comprising applying tetrasilver tetroxide to the ulcers

5 3 The method of claims 1 or 2 wherein said tetrasilver tetroxide is in the form of a carrier composition containing finely divided tetrasilver tetroxide crystals dispersed in said carrier

10 4 The method of claim 3 wherein said crystals are present in said carrier at a level of about 0.1 to 10% by weight

15 5 The method of claim 4 wherein said crystals are present in said carrier from about 0.25 to 5% by weight

6 The method of claim 4 wherein said crystals are present in said carrier from about 2-4% by weight

20 7 The method of claim 3 wherein said carrier is an ointment

60214503 0628 0

155  
58  
235ABSTRACT

The diamagnetic semiconducting crystal tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) is utilized as an Ag(I III) driven molecular device for treating cervical cancers and the ulcers associated with them without toxic side effects. Optimum results are obtained by repetitive application of an ointment containing 3% of the tetroxide by a skilled physician to the cervical pelvic afflicted area.

10

008290-6054720

157  
\$  
236

01006804-2  
ESTADOS UNIDOS DE AMERICA  
DEPARTAMENTO DE ESTADO

A todos aquellos a quienes llegase la presente, saludos

Por la presente certifico que el documento anexo lleva estampado el sello de la oficina de Patentes y Marcas, Departamento de Comercio de los Estados Unidos de América y que dicho sello es digno de toda fé y todo credito

En testimonio de lo cual yo Thomas R. Pickering, Secretario de Estado he ordenado estampar en la presente el sello del departamento de Estado y que mi nombre sea suscrito por el Funcionario de Asistente de Autenticaciones del mencionado Departamento, en la ciudad de Washington, en el Distrito de Columbia, a los veintisiete días del mes de diciembre, 2000

(Hay una firma)  
Secretario de Estado  
(Hay una firma)  
funcionario asistente de  
autenticaciones,  
Departamento de Estado

EL DEPARTAMENTO NO ASUME RESPONSABILIDAD POR EL  
CONTENIDO DEL DOCUMENTO ANEXO

El presente certificado no es válido si está despegado o alterado de cualquier manera



**LOS ESTADOS UNIDOS DE AMERICA**

**A TODOS AQUELLOS A QUIENES  
LLEGUEN ESTOS PRESENTES  
DEPTO DE COMERCIO DE LOS EE UU  
OFICINA DE PATENTES Y MARCAS DE  
FABRICA**

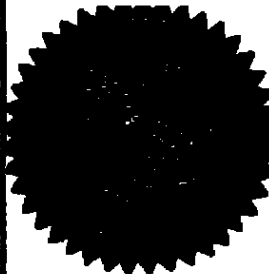
**DICIEMBRE 13 2000**

**ESTA ES PARA CERTIFICAR QUE LOS  
ANEXOS SON COPIA DE LOS ARCHIVOS DE  
LA OF DE PATENTES Y MARCAS DE  
FABRICA DE AQUELLOS PAPELES QUE  
IDENTIFICAN ADELANTE LA SOLICITUD  
DE PATENTE QUE REUNIO LOS  
REQUISITOS PARA SER OTORGADA UNA  
FECHA DE REGISTRO BAJO EL # 35 USC111**

**SOLICITUD # 60/184 053**

**FECHA DE LA SOLICITUD FEB 22 2000**

**SELLO CIRCULAR EN PAPEL DORADO OF  
DE PATENTES Y MARCAS DE FABRICA (EN  
EL CENTRO EL AGUILA AMERICANA)**



**CON LA AUTORIDAD DEL  
COMISIONADO DE MARCAS Y  
PATENTES**

**FIRMA**

**L EDELEN**

**OFICIAL CERTIFICADOR**

159  
62  
238

CARTA CUBIERTA PARA SOLICITUD PROVISIONAL PARA PATENTE

Este es un requisito para el registro de una SOLICITUD PROVISIONAL PARA PATENTE,  
conforme al 37 CFR 1.53 (c)

|                                                                                                                                           |                  |                               |                                                   |                |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|---------------------------------------------------|----------------|
| INVENTOR (ES)                                                                                                                             |                  |                               |                                                   |                |
| NOMBRE<br>(completo)                                                                                                                      |                  | Nombre familiar<br>o apellido | Residencia<br>(Ciudad y Estado o País Extranjero) |                |
| Marvin S.                                                                                                                                 |                  | Antelman                      | Rehovot, Israel                                   |                |
| TITULO DE LA INVENCIÓN (máximo 280 caracteres)                                                                                            |                  |                               |                                                   |                |
| Ag (I, III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR VIA PARENTERAL PARA<br>CÁNCER DE AMPLIO ESPECTRO                                     |                  |                               |                                                   |                |
| DIRECCIÓN DE CORRESPONDENCIA                                                                                                              |                  |                               |                                                   |                |
| Dirigir toda correspondencia a.<br>Número del Cliente → Coloque el número del código de barras<br>Del cliente aquí                        |                  |                               |                                                   |                |
| O                                                                                                                                         |                  |                               |                                                   |                |
| x. Firma o Nombre del individuo                                                                                                           |                  |                               | Perman & Green, LLP                               |                |
| Dirección                                                                                                                                 |                  |                               | 425 Post Road                                     |                |
| Ciudad                                                                                                                                    | Fairfield        | Estado CT                     | Código                                            | 06430          |
| País                                                                                                                                      |                  | Tel (302) 259-1800            | Fax                                               | (203) 255 5170 |
| PARTES ANEXAS A LA SOLICITUD (Chequear las que correspondan)                                                                              |                  |                               |                                                   |                |
| X Especificaciones                                                                                                                        | Total de Páginas | 12                            | x. Declaración de Pequeña Entidad                 |                |
| X Dibujo (s)                                                                                                                              | Total de Páginas | 0                             | Otras (especifique)                               |                |
| FORMA DE PAGO DE LOS VALORES DE REGISTRO PARA ESTA SOLICITUD PROVISIONAL<br>DE PATENTE (Chequear una)                                     |                  |                               |                                                   |                |
| X Se anexa un cheque o giro postal para cubrir los costos de registro                                                                     |                  |                               | Valor de la cuota<br>de Registro<br>\$75.00       |                |
| X El comisionado está autorizado por medio del presente para cargar las<br>cuotas de registro y crédito a la Cuenta de Depósito No        |                  |                               |                                                   |                |
| La invención fue hecha por una agencia del Gobierno de los Estados Unidos o bajo un contrato con una<br>agencia del Gobierno de los EE.UU |                  |                               |                                                   |                |
| x No                                                                                                                                      |                  |                               |                                                   |                |
| Sí el nombre de la agencia del gobierno de los EE UU y el número del contrato del gobierno son                                            |                  |                               |                                                   |                |

Sometido en forma respetuosa,

FIRMA (Firmado) Michael J Tully

Fecha 2 / 22 / 00

Nombre escrito a

máquina o en imprenta

Michael J Tully

Registro No

25,755

Teléfono

(203) 259-1800

Expediente No.

UTILIZAR SOLAMENTE PARA EL REGISTRO  
DE UNA SOLICITUD PROVISIONAL PARA PATENTE

160  
13  
239

EN LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

\_ Solicitante Marvin S Antelman  
\_ Serie No 0 / Grupo No  
\_ Presentado en Anexo Examinador  
Título Ag (L III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR VIA PARENTERAL PARA  
CÁNCER DE AMPLIO ESPECTRO

Certificado de Express Mail

Número de Guía del "Express Mail" EL336863156US  
Fecha de Depósito 2/22/2000

Por el presente certifico que los siguientes papeles o valores.

Solicitud provisional

Por favor enviar correspondencia a.

Michael J Tully  
Perman & Green, LLP  
425 Post Road  
Fairfield, CT 06430

Se deposita a través del servicio postal de los EE UU "Express Mail Post Office to Addressee" conforme a la  
37 CFR 1 10 en la fecha que se indica arriba y dirigido al Comisionado Asistente para Patentes, Washington,  
D C 20231

\_\_\_\_\_  
Nombre a máquina o en imprenta de la persona que envía los papeles o valores

\_\_\_\_\_  
Firma de la persona que envía los papeles o valores

Legajo del Practicante No 731P009238-US (-#1)

PATENTE

161  
64  
240

EN LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

☒ Solicitante Marvin S Antelman

☐ Serie No 0 /

Grupo No

☒ Presentado en Anexo

Examinador

Título Ag (I, III) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR VIA PARENTERAL PARA  
CÁNCER DE AMPLIO ESPECTRO

Certificado de Express Mail

Número de Guía del Express Mail" EL336863156US

Fecha de Depósito 2/22/2000

Por el presente certifico que los siguientes papeles o valores

Solicitud provisional

Por favor enviar correspondencia a.

Michael J Tully  
Perman & Green LLP  
425 Post Road  
Fairfield, CT 06430

Se deposita a través del servicio postal de los EE UU "Express Mail Post Office to Addressee" conforme a la 37 CFR 1.10 en la fecha que se indica arriba y dirigido al Comisionado Asistente para Patentes, Washington, D C 20231

\_\_\_\_\_  
Nombre a máquina o en imprenta de la persona que envía los papeles o valores

\_\_\_\_\_  
Firma de la persona que envía los papeles o valores

Legajo del Practicante No 731P009238-US (-#1)

x Solicitante Marvin S Antelman

\_ Solicitud No

x Presentado en Anexo

PATENTE

\_ Patentado

\_ Patente No

\_ Expedido en

Título Ag (I, IID) TRATAMIENTO CON UN DISPOSITIVO MOLECULAR VIA PARENTERAL PARA CÁNCER DE AMPLIO ESPECTRO

**DECLARACIÓN POR LA CUAL SE REIVINDICA LA CONDICIÓN DE PEQUEÑA EMPRESA  
(37 CFR 1 9(f) Y 1.27(b))—INVENTOR INDEPENDIENTE**

El abajo firmante, en su condición de inventor se permite declarar que cumple con las características para que se le califique como inventor independiente según la definición que aparece en 37 CFR 1 9 (c), para propósitos de gozar de reducción de tarifas por los trámites que se surtan ante la Oficina de Marcas y Patentes de los Estados Unidos de conformidad en lo estipulado en las Secciones 41(a) y (b) del Título 35 Código de los Estados Unidos, de la Oficina de Marcas y Patentes, con respecto a la invención que se describe en

x la especificación anexa a la presente, cuyo título se menciona arriba

\_ la solicitud arriba identificada

\_ la patente arriba identificada

Certifica, así mismo, que no ha asignado, otorgado, conferido o licenciado, ni está en la obligación contractual ni legal de asignar otorgar conferir o licenciar ningún derecho de la invención a ninguna persona que no califique como inventor independiente de conformidad con lo establecido en 37 CFR 1 9 (c) si dicha persona hubiese creado la invención, ni a empresa alguna que no califique como pequeña empresa según lo establecido en 37 CFR 1 9 (d), o una organización sin ánimo de lucro tal como se define en 37 CFR 1 9 (e)

Todas las personas, empresas u organizaciones a las cuales el abajo firmante les haya asignado, otorgado, conferido o licenciado o a las cuales esté en la obligación legal o contractual de asignar otorgar conferir o licenciar cualquier derecho sobre la invención figuran en la lista que aparece a continuación

x No existe ninguna persona, empresa ni organización con estas características

\_ Todas las personas, empresas y organizaciones con estas características se mencionan más adelante

*NOTA Es requisito que se haga una declaración por separado para cada una de las personas empresas u organizaciones mencionadas que tengan derechos sobre la invención en cuanto hace a su condición de pequeñas empresas (37 CFR 1 27)*

NOMBRE COMPLETO

DIRECCIÓN

\_ INDIVIDUO

\_ PEQUEÑA EMPRESA

\_ ORGANIZACIÓN SIN ÁNIMO DE LUCRO

El suscrito inventor hace constar que conoce su obligación de notificar en esta solicitud o patente, sobre cualquier cambio en su condición que pueda dar lugar a la pérdida de su calificación como pequeña empresa antes de hacer el pago, o en el momento de hacer el pago, lo más pronto posible, de las tarifas de expedición o de cualquier tarifa de mantenimiento que se cause después de la fecha en la cual se haya perdido la condición de pequeña empresa (37 CFR 1.28 (b)).

Por la presente el infrascrito declara que todas las manifestaciones aquí consignadas son verdaderas según su leal saber y entender y que cree que todas las declaraciones que ha hecho sobre informaciones y opiniones son

163  
66  
242

Por la presente, el infrascrito declara que todas las manifestaciones aquí consignadas son verdaderas según su leal saber y entender y que cree que todas las declaraciones que ha hecho sobre informaciones y opiniones son verdaderas además, que estas declaraciones fueron hechas con plena consciencia de que quien incurre voluntariamente en falsedad en las declaraciones y otras manifestaciones se hace sujeto de sanciones penales o detención, o ambas, según la Sección 1001 del Título 18 del Código de los Estados Unidos, y que dichas declaraciones falsas pueden poner en entredicho la validez de la solicitud, de cualquier patente que se expida en respuesta a la misma o cualquier patente a la cual vaya dirigida esta declaración verificada.

|                     |                    |                      |
|---------------------|--------------------|----------------------|
| Nombre del inventor | Marvin S. Antelman |                      |
| Firma del inventor  | (hay una firma)    | Fecha. 2 – 21 – 2000 |

## REIVINDICACIONES

164  
12  
243

Lo que se reivindica es

- 1 Un método para matar células de cáncer de mama que comprende poner en contacto dichas células con cristales de tetróxido de tetraplata administrados por vía parenteral
- 2 Un método para tratar mamíferos afectados por cáncer que comprende la administración parenteral de cristales de tetroxido de tetraplata a dichos mamíferos
- 3 El método de las reivindicaciones 1 y 2 en donde el mencionado mamífero es un ser humano
- 4 El método de la reivindicación 2 en donde los mencionados cristales se inyectan en el torrente sanguíneo
- 5 El método de la reivindicación 4 en donde los mencionados cristales se inyectan a un nivel de dosificación en sangre de cerca de 5 a 50 PPM, con base en el volumen sanguíneo
- 6 El método de la reivindicación 5 en donde la mencionada dosificación es de cerca de 400 PPM
- 7 El método de la reivindicación 2 en donde el mencionado tetróxido de tetraplata está en la forma de una dispersión en una solución de amortiguador



**CONSULADO DE COLOMBIA  
WASHINGTON D C**

165  
68  
244

No. 3335

**EL CONSULADO DE COLOMBIA  
CERTIFICA**

Que es auténtica la firma de DENITRA L HAWFINS  
quien el día 27 DE DICIEMBRE DEL 2000  
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DPTO ESTADO  
la cual aparece al pie de los documentos anexos relacionados con CERTIFICACION

**DEC 27 2000**

Dado en Washington D.C. a los \_\_\_\_\_ días del mes de  
\_\_\_\_\_ del año dos mil (2000)

Pagado Impuesto de Timbre 7  
Pagado Derecho Consular 15  
Total 22

(El Consulado no asume ninguna  
responsabilidad por el contenido de los  
documentos anexos)

**Lizet Martínez Peña**  
Cónsul

# United States of America

166 64  
245



## DEPARTMENT OF STATE

*To all to whom these presents shall come, Greeting*



I Certify That the document hereunto annexed is under the Seal of the Patent and Trademark Office Department of Commerce United States of America and that such Seal is entitled to full faith and credit \*



In testimony whereof I Thomas R Pickering Acting Secretary of State have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Authentication Officer of the said Department at the city of Washington in the District of Columbia this twenty-seventh day of December 2000

*Thomas R Pickering*  
Acting Secretary of State  
By *Dimitrie S. Haiduk*  
Authentication Officer  
Department of State

Issued pursuant to CHXIV State of  
Sept 15 1789 1 Stat 68 69 22  
USC 2657 22USC 2651a 5 USC  
301 28 USE 1733 et seq 8 USC  
1443(f) RULE 44 Federal Rules of  
Civil Procedure

*\*For the contents of the annexed document the Department assumes no responsibility*

*This certificate is not valid if it is removed or altered in any way whatsoever*

C. C. M. L. L.

167 20  
246

PA 22 3



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**December 13, 2000**

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM  
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK  
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT  
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A  
FILING DATE UNDER 35 USC 111**

**APPLICATION NUMBER 60/184 053**

**FILING DATE February 22 2000**



**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**

*L. Edelen*

**L. EDELEN  
Certifying Officer**

Please type or print name (or) inside this box → ☒

62-23 00

Approved for use through 01/01/2001. OMB 0881-0002

Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to collection of information unless it displays a valid OMB control number.

# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

A/PROV

168 249

168 249  
60/104053  
JAN 23/00

02/22/00  
16759 U S PTO

60184053 022200

| INVENTOR(S)                                                                                                                              |                          |                                                            |                        |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------|------------------------|
| Given Name (first and middle (if any))                                                                                                   | Family Name or Surname   | Residence (City and other State or Foreign Country)        |                        |
| MARVIN S                                                                                                                                 | INTELMIAN                | REHOVOT ISRAEL                                             |                        |
| <input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto                    |                          |                                                            |                        |
| TITLE OF THE INVENTION (250 characters max)                                                                                              |                          |                                                            |                        |
| Ag (II) MOLECULAR DEVICE FOR PARENTERAL TREATMENT OF BROAD SPECTRUM CANCER                                                               |                          |                                                            |                        |
| Direct all correspondence to:                                                                                                            |                          | CORRESPONDENCE ADDRESS                                     |                        |
| <input type="checkbox"/> Customer Number                                                                                                 |                          | Place Customer Number Bar Code Label here                  |                        |
| OR                                                                                                                                       |                          |                                                            |                        |
| <input checked="" type="checkbox"/> Firm or Individual Name                                                                              | Perman & Green LLP       |                                                            |                        |
| Address                                                                                                                                  | 425 Post Road            |                                                            |                        |
| City                                                                                                                                     | Fairfield                | State                                                      | CT                     |
| Country                                                                                                                                  |                          | ZIP                                                        | 06430                  |
|                                                                                                                                          | Telephone (203) 259 1800 | Fax                                                        | (203) 255-5170         |
| ENCLOSED APPLICATION PARTS (check all that apply)                                                                                        |                          |                                                            |                        |
| <input checked="" type="checkbox"/> Specification Number of Pages                                                                        | 12                       | <input checked="" type="checkbox"/> Small Entity Statement |                        |
| <input checked="" type="checkbox"/> Drawing(s) Number of Sheets                                                                          | 0                        | <input type="checkbox"/> Other (specify)                   |                        |
| METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)                                                 |                          |                                                            |                        |
| <input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees                                          |                          |                                                            | FILING FEE AMOUNT (\$) |
| <input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number |                          |                                                            | \$75 00                |
| The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.  |                          |                                                            |                        |
| <input checked="" type="checkbox"/> No.                                                                                                  |                          |                                                            |                        |
| <input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____                       |                          |                                                            |                        |

Respectfully submitted,

Date 2, 22, 00

SIGNATURE Michael J. Tully

REGISTRATION NO. 25 755

TYPED or PRINTED NAME MICHAEL J. TULLY

(If appropriate)  
Docket Number

TELEPHONE (203) 259-1800

## USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) provisional applications. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Marvin S Antelman  
 Serial No 0 / Group No  
 Filed Herewith Examiner  
 For Ag (I III) Molecular Device For Parenteral Treatment of  
 Broad Spectrum Cancer

Assistant Commissioner for Patents  
 Washington, D.C. 20231

EXPRESS MAIL CERTIFICATE

\*Express Mail label number EL336863156US

Date of Deposit 2/22/2000

I hereby certify that the following attached paper or fee~

Provisional Application

Please send correspondence to:

Michael J Tully  
 Perman & Green LLP  
 425 Post Road

Fairfield CT 06430

Is being deposited with the United States Postal Service Express Mail Post Office to  
 Addressee service under 37 CFR 1.10 on the date indicated above and is addressed to  
 the Assistant Commissioner for Patents Washington, D.C. 20231

Elaine F. Mian

Typed or printed name of person mailing paper or fee

Elaine F. Mian

Signature of person mailing paper or fee

NOTE: Each paper must have its own certificate and the "Express Mail" label number as a part thereof or attached thereto. When, as here, the certification is presented on separate sheet, that sheet must (1) be signed and (2) fully identify and be securely attached to the paper or fee it accompanies. Identification should include the serial number and filing date of the application as well as the type of paper being filed, e.g. complete application, specification and drawings, responses to rejection or refusal, notice of appeal, etc. If the serial number of the application is not known, the identification should include at least the name of the inventor(s) and the title of the invention.

NOTE: The label number need not be placed on each page. It should, however be placed on the first page of each separate document, such as, new application, amendment, assignment, and transmittal letter for a fee, along with the certificate of mailing by "Express Mail. Although the label number may be on checks, such a practice is not required. In order not to deface formal drawings it is suggested that the label number be placed on the back of each formal drawing or the drawings be accompanied by set of informal drawings on which the label number is placed.

60184053 022200

169 248 72

Practitioner's Docket No. 731P009238-US (-41)

PATENT

☒ Applicant Marvin S Antelman ☐ Patentee \_\_\_\_\_  
☐ Application No. \_\_\_\_\_ ☐ Patent No. \_\_\_\_\_  
☒ Filed on Herewith ☐ Issued on \_\_\_\_\_  
Title Ag (I, III) Molecular Device For Prenteral Treatment  
Of Broad Spectrum Cancer

**STATEMENT CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(c) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office, with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.  
☐ the application identified above.  
☐ the patent identified above.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below

- ☒ No such person, concern, or organization exists.  
☐ Each such person, concern or organization is listed below

**NOTE:** Separate statements are required from each named person, concern or organization having rights in the invention as to their status as small entities. (37 CFR 1.27)

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

60184053 022200

171  
74  
250

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.29(b))

(check the following item, if desired)

NOTE: The following verification statement need not be made in accordance with the rules published on Oct. 14, 1997 62 Fed. Reg. 52337, effective Dec. 1, 1997.

NOTE: "The presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether practitioner or non-practitioner, constitutes a certification under § 10.106 of this chapter. Violation of § 10.106 of this chapter by a party, whether a practitioner or non-practitioner, may result in the imposition of sanctions under § 10.106 of this chapter. Any practitioner violating § 10.106 may also be subject to disciplinary action. See §§ 10.106 and 10.202(c). 37 C.F.R. § 1.402(b).

☐ I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like as made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Marvin S. Antelman  
Name of inventor  
Marvin S. Antelman  
Signature of inventor

Date 2/24/2000

\_\_\_\_\_  
Name of inventor  
\_\_\_\_\_  
Signature of inventor

Date \_\_\_\_\_

\_\_\_\_\_  
Name of inventor  
\_\_\_\_\_  
Signature of inventor

Date \_\_\_\_\_

(Small Entity—Independent Inventor [7-1]—page 2 of 2)

TOTAL P 63

60184053 022200

~~172~~ 251

Docket Number 731P009238-US (-#1)

PROVISIONAL PATENT APPLICATION ENTITLED

Ag (I III) MOLECULAR DEVICE FOR PARENTERAL TREATMENT OF  
BROAD SPECTRUM CANCER

FOR

MARVIN S ANTELMAN

002220 5508109

252

MOLECULAR DEVICE FOR PARENTERAL TREATMENT  
OF BROAD SPECTRUM CANCER

BACKGROUND OF THE INVENTION

The present invention relates to the employment of molecular crystals to treat a variety of cancers but more particularly to the molecular crystal semiconductor tetrasilver tetroxide ( $\text{Ag}_4\text{O}_4$ ) which has two monovalent and two trivalent silver ions per molecule

Most current methods of cancer therapy include treatment with chemotherapeutic agents that inhibit cell division or radiation therapy that disrupts DNA in dividing cells. However, these treatments also affect normal cells that happen to be dividing or synthesizing DNA at the time of treatment. Dosage levels low enough to insure survival of a cancer patient often are not sufficiently cytotoxic to tumor cells to retard continuing cell division after treatment.

The present invention is based on an extrapolation of concepts previously elucidated and disclosed in applicant's US Patent Numbers 5 211 855 (1993), 5 336 449 (1994), 5 571 520 (1996) and 5 676 977 (1997). Said concepts have also been published in an article entitled "Silver (II, III) Disinfectants" (Soap/Cosmetics/Chemical Specialties 1994 March pp 52-9) and by the American Society of Mechanical Engineers (99-IMECE/TEX-6) entitled "Silver (I, III) Antimicrobial Fabrics" presented at their Congress and Exposition November 17, 1999.

At the 135<sup>th</sup> National Meeting of the American Chemical Society (ACS) in 1959, the instant inventor presented a

50184053 022200

173  
253

paper (Biological Chemistry No 138) entitled "Comparative Diffusion Effects of Carcinogens and Non Carcinogens" which enabled in vitro screening of carcinogens and potential cancer cures by measuring diffusion rates in gelatin gels treated with various agents Thereafter he was the first to prove in conjunction with the National Cancer Institute screening in mice the efficacy of tumor suppression by hydrazine sulfate

Subsequently in 1961 at another ACS National Meeting in Chicago was presented one of the first applications of molecular biology to the field of cancer in a paper (Physical Chemistry No 84) entitled " A Chemical Bonding Approach To Cancer Chemotherapy " In this Paper the instant inventor illustrated the connection between bonding effects on cells resulting from chemical carcinogens viruses and radiation maintaining that the latter caused cancer as a result of degradation of key protein polymers within the cell Essentially once the cell s DNA programming has become genetically unstable mutation progresses rapidly resulting in the development of a malignant cancer

Previously elucidated was the mechanism through which pathogens were destroyed by tetrasilber tetroxide ( $\text{Ag}_4\text{O}_4$ ) as an "electrocution" process resulting from electron transfer between  $\text{Ag(I)}$  and  $\text{A(III)}$  ions In the process  $\text{Ag(I)}$  is oxidized to  $\text{Ag(II)}$  and  $\text{Ag(III)}$  is reduced to  $\text{Ag(II)}$  The  $\text{Ag(II)}$  enhances the kill If R represents the inert biomass of microbial cell membrane surfaces respectively of disulfide (S-S) and imide  $\text{C=NH}$  linkages  $\text{Ag(II)}$  ions will form chelate complexes with them further enhancing the efficacy of the kill S/N ligands of

60184053-022200

174 27  
254

cancer and microbes can both react with Ag(II)  $\text{Ag(II)} + \text{RS-S} = \text{Ag(II)S-SR}$  and  $\text{Ag(II)} + \text{RC=NH} = \text{Ag(II)HN=CR}$   $\text{Ag}_4\text{O}_4$  has been found to behave as a nontoxic disinfecting antimicrobial Disinfectants as a class are not known to cure cancer However the "electrocution" effect is unique when  $\text{Ag}_4\text{O}_4$  behaves as a molecular device The concept is now accepted as a result of macro and micro scale processes involving living things that biology is essentially an information science

The main object of this invention is to provide for a molecular scale device of a single tetrasilber tetroxide crystalline single molecule capable when employed en mass against even a single cancer cell of treating mammals (humans and animals) afflicted with any of a broad spectrum of cancers

Another object of this invention is to provide for a treatment for cancer without side effects involving said tetroxide which has been proven in its effective dosage parameters as being nontoxic both externally and internally

#### SUMMARY OF THE INVENTION

The invention provides for the treatment of cancer by utilizing tetrasilber tetroxide Said oxide may be injected intravenously into the patient affected

50184053 022200

125  
7A  
255

The invention also provides a method for killing mammalian cancer cells comprising contacting said cells with tetrasilver tetroxide crystals

More particularly the invention provides a method of treating mammals including human beings afflicted with cancer comprising injecting tetrasilver tetroxide crystals into the bloodstream and depending on the etiology of said cancer in close proximity to or into an affected organ

Even more particularly the invention relates to a method wherein said oxide is in the form of a dispersion in a buffer solution which is injected into the body

#### DESCRIPTION OF THE INVENTION

This invention is based on the discovery that pathogenic electrocution can interfere with microbe genome programming and resultant reading of the information Accordingly it was decided that cancer genomes could have analogous communication difficulties and resulted in  $\text{Ag}_2\text{O}_4$  evaluations as a treatment for various cancers The trials proved successful irrespective of the validity of the programming thesis

The term "cancer" encompasses all major forms of cancer except skin cancers which have not metastasized in the body Exemplary of said forms of cancer involving specific organs are the colon lung breast kidney pancreas prostate uterus liver and the stomach Also included are vicarious cell proliferations such as leukemia which is a malignant overproduction of white blood cells lymphoma and metastasized melanoma which has

60184053 022200

176

80  
256

proliferated from skin via blood and/or the lymphatic system

The rationale for using tetrasilver tetroxide for treatment of cancer is dependent on the single molecular crystal of said entity which acts as a molecular crystal device. The physical chemistry of said device has already been elucidated in previous US Patent numbers 5 211 855 5 336 499 5 571 520 and 5 676 977 incorporated herein by reference. The quintessence of the operating mechanism of this molecular device is its discharging electrons from its Ag(I) ions which are believed to disrupt programming of cancer cell genomes disabling them in their ability to read information vital to the wild multiplication of the cancer cells and thus arresting them. The electron discharges described in the aforementioned patents result in pathogen electrocution as differentiated from programming information disruption in cancer cells. Nevertheless it is posited that the electron attraction to both pathogens and cancer cells is due to sulfur and nitrogen rich chemical bonds exposed in cytoplasmic elongation during cell mitosis. The divalent silver ion end products of the electron firing will form Ag (II) chelates involving S and N ligands leading to cancer cell death.

The crystal lattice of the Ag<sub>4</sub>O<sub>4</sub> molecular device operates against a cancer cell by transferring electrons from its two monovalent silver ions to its two trivalent silver ions in the crystal. The electron transfer involves the electrons traversing cancer cells disrupting their genetic genome programming. The electrons are attracted to the cells by sulfur and nitrogen rich ligands exposed during mitosis. The electrons are forced out of their

60184053 022200

177  
257

crystals by such labile groups as S-S SH NH and NH<sub>2</sub>. However normal cells containing the same groups will not be affected because they do not proliferate fast enough in comparison to the wild tumor cells to expose these labile bonds. The key to understanding this lies with the stability of said lattice.

The  $K_A$  of  $Ag_2O_4$  is  $7.9 \times 10^{13}$  therefore the molecule will not be disturbed unless more stable complexes are formed with such ligands as those comprising the pathogen cell membrane surface in a dynamic state. Indeed the end result of the electron transfer which is a redox reaction results in the monovalent Ag ions being oxidized to Ag(II) and the trivalent Ag ions being reduced to the same end product Ag(II). Accordingly the well-known affinity for monovalent silver for certain elements such as sulfur and nitrogen is far exceeded here for divalent silver will not merely bind to these elements as does silver but will actually form chelate complexes with their ligands. The molecular crystal attraction for the cells is thus driven by powerful covalent bonding forces. The electron transfer can be depicted by the following redox half reactions



It was found by rigorous testing that silver tetroxide was comparatively non toxic. From acceptance of said oxide in commerce for which an EPA registration number was obtained (no 3432-34) it was necessary for the oxide to undergo a series of toxicity tests for which a 3% concentrate was used and evaluation by a certified laboratory employing good laboratory practice (GLP).

60184053 022200

178  
258

according to the Code of Federal Regulations The results were as follows

|                                        |                           |
|----------------------------------------|---------------------------|
| Acute Oral Toxicity LD <sub>50</sub>   | Greater than 5 000 mg /Kg |
| Acute Dermal Toxicity LD <sub>50</sub> | Greater than 2 000 mg /Kg |
| Primary Eye Irritation                 | Mildly Irritating         |
| Primary Skin Irritation                | No Irritation             |
| Skin Sensitization                     | Non Sensitizing           |

Subsequent evaluations showed that unless persons were prone to silver allergies the pure tetroxide could be applied to the skin without any ill effects or evidence of irritation despite the fact that said oxide is a powerful oxidizing agent This can perhaps be explained by its stability manifested by its aforesaid K<sub>a</sub>

The efficacy and safety of the injection of Ag<sub>4</sub>O<sub>4</sub> crystal dispersions into the bloodstream for treatment of certain pathogen-origin diseases has been demonstrated For example US Patent 5 571 520 discloses that the single dose injection into the human bloodstream of said crystals at a bloodstream level of about 40PPM resulted in apparent cures for human subjects suffering from Candida Ablicans and Amoebic Dysentery In addition it is disclosed in US Patent 5 676 977 that injection of similar levels of Ag<sub>4</sub>O<sub>4</sub> dispersion into the bloodstream of AIDS-afflicted human subjects resulted in an apparent cure for AIDS and an increase in white blood cell counts for patients so treated

The Ag<sub>4</sub>O<sub>4</sub> crystals may be administered parenterally e g intravenously subcutaneously or intermuscularly Alternatively the crystals may be incorporated into sustained release matrices such as biodegradable

002220 E5078708

179

23  
259

polymers the polymers being implanted in the vicinity of where deliver is desired for example at the site of a tumor Administration may be a simple dose multiple doses over a predetermined time period or sustained administration for a predetermined period of time Preferably the crystals are administered by injection directly into the bloodstream

For intravenous injections the  $\text{Ag}_2\text{O}_4$  crystals may be dispersed in any suitable pharmaceutically acceptable carrier material such as water or combinations of water and glycol saline and the like and preferably having a PH buffer compatible with physiologic conditions The concentration of the  $\text{Ag}_2\text{O}_4$  crystals dispersed in the carrier composition should be such that it delivers the desired PPM blood volume dosage level after a single injection or over a set period involving multiple administrations

Based on previous experience involving parenteral administration of  $\text{Ag}_2\text{O}_4$  to treat disease other than cancer and also based on in-vitro test data the preferred dosage level for cancer treatment should provide an  $\text{Ag}_2\text{O}$  bloodstream content of about 5 to about 50 PPM  $\text{Ag}_2\text{O}_4$  based on total blood volume with 40 PPM being the most preferred dosage

As indicated above in a preferred embodiment of the invention the tetrasilber tetroxide is injected at a concentration of about 40 PPM in the bloodstream This calculates in the average adult s 2 5 liters of blood to 200mg The efficacy of dosages is dependent on the nature of the particular cancer

50184053 022200

180-  
260

Cell tumor proliferation studies have been done in vitro with human tissue cultures. The following examples are illustrative of the performance of said oxide in cell proliferation studies.

#### EXAMPLE 1

An independent laboratory MDS Panlabs was selected for cytotoxicity tumor cell proliferation studies and evaluations. A culture of leukemia K562 was tested in vitro against media concentrations of tetrasilver tetroxide at

0 5 1 5 10 50 100 500 and 1000 PPM

The tetroxide was dispersed in pure dimethyl sulfoxide and then diluted with PBS (PH=7.4) in culture media to achieve the aforesaid final assay concentrations. The culture media comprised RPMI 1640 90% and fetal bovine serum 10%. Said leukemia culture was obtained from a cell line provided by the American Type Culture Collection (ATCC) and were incubated at 37 C with 5% CO<sub>2</sub> in air atmosphere. The culture was a human chronic myelogenous leukemia of cell line source ATCCCL-243.

As for the actual evaluation cell proliferation was based on the ability of viable cells to cause alamar blue to change from oxidized (non-fluorescent blue) to reduced (fluorescent Red) form. Details of the procedure are described in an article by S. Ansar Ahmed et al. in the Journal of Immunological Methods 170 (1994) 211-224.

The results were as follows

50184053 022200

181 261

IC<sub>50</sub> (50% Inhibition Concentration) = 5 3 PPM

TGI (Total Growth Inhibition) = 6 2 PPM

LC<sub>50</sub> (50% Lethal Concentration) = 7 1 PPM

EXAMPLE 2

The methodology of Example 1 was applied to a human malignant melanoma cell line of source ATCCHTB-70 having the cell name SK-MEL-5. The culture media comprised 90% Minimum Essential Medium and fetal bovine serum 10%.

The results were as follows

IC<sub>50</sub> = 8 1 PPM

TGI = 8 5 PPM

LC<sub>50</sub> = 9 0 PPM

60184053 022200

182 86  
262CLAIMS

What is claimed is

1 A method for killing mammalian cancer cells comprising contacting said cells with parenterally administered tetrasilver tetroxide crystals

2 A method of treating mammals afflicted with cancer comprising parenterally administering tetrasilver tetroxide to said mammal

3 The method of claims 1 or 2 wherein said mammal is a human

4 The method of claim 2 wherein said crystals are injected into the bloodstream

5 The method of claim 4 wherein said crystals are injected at a dosage level in the blood of about 5 to 50 PPM based on blood volume

6 The method of claim 5 wherein said dosage is about 40PPM

7 The method of claim 2 wherein said tetrasilver tetroxide is in the form of a dispersion in a buffer solution

60184053 022200

182 86  
262

183  
87  
263

## ABSTRACT

The diamagnetic semiconducting molecular crystal tetrasilver tetroxide is utilized as an Ag(I III) driven molecular device for parenteral treatment of a wide spectrum range of cancers in mammals Preferred method of administration is injection of a single dose of a dispersion of  $\text{Ag}_4\text{O}_4$  in buffer solution into the bloodstream such that the blood contains from about 5 to 50 PPM tetroxide based on blood volume

60184053-022200

1

10/10/10