

## PATENTS ONLY

To The Honorable Commissioner of Patents and Trademarks. Please record the attached original documents or copy thereof.

## 1. Name of conveying party(ies):

Charles Allerson March 31, 2004  
First Assignor Date of Execution

Balkrishen Bhat March 11, 2004  
Second Assignor Date of Execution

Anne B. Eldrup March 8, 2004  
Third Assignor Date of Execution

Muthiah Manoharan February 27, 2004  
Fourth Assignor Date of Execution

Richard H. Griffey February 19, 2004  
Fifth Assignor Date of Execution

Brenda H. Baker February 19, 2004  
Sixth Assignor Date of Execution

Additional name(s) of conveying party(ies) attached? ☒ YES ☐ NO

## 2. Name and address of receiving party(ies):

Name: ISIS Pharmaceuticals, Inc.

Street Address: 2292 Faraday Avenue

City: Carlsbad

State: California ZIP 92008

Additional name(s) & address attached? ☐ YES ☒ NO

## 3. Nature of Conveyance (check only one):

☒ New Assignment☐ License Agreement☐ Change of Name☐ Merger☐ Security Agreement☐ Other:

## 4. Identification of Application number(s), patent number(s) OR date of execution of application to which assignment refers:

Application Nos.:

10/701,007

Patent Nos.:

Date application was signed by the first  
named executing inventor(Fill-in this date only if assignment is filed  
together with a new application)5. Name and address of party to whom correspondence  
concerning documents should be mailed:

Name: John W. Caldwell  
WOODCOCK WASHBURN LLP  
One Liberty Place - 46th Floor  
Philadelphia, Pennsylvania 19103-7301  
215-568-3100

## 6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41): \$40.00

☐ Enclosed☒ Authorized to be charged to Deposit Account Number  
23-30508. Please charge any deficiency or credit any overpayment to  
Deposit Account Number 23-3050

DO NOT USE THIS SPACE

## 9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the  
original document.*

JOHN A. HARRISON, JR.

Name of Person Signing

John A. Harrison, Jr.

Signature

May 18, 2004

Date

Total number of pages including cover sheet, assignment document and additional pages attached thereto: 12

Mail documents to be recorded with required cover sheet information to:

Mail Stop Assignment Recordation Services  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

ISIS-5325

CH \$40.00 233050 10701007

Additional Assignors

Eric E. Swayze	March 19, 2004
Seventh Assignor	Date of Execution

DOCKET NO.: ISIS-5325

PATENT

ASSIGNMENT

WHEREAS, we, Charles Allerson of Carlsbad, California; Balkrishen Bhat of Carlsbad, California; Anne B. Eldrup of Ridgefield, Connecticut; Muthiah Manoharan of Weston, Massachusetts; Richard H. Griffey of Vista, California; Brenda F. Baker of Carlsbad, California; and, Eric E. Swayze of Carlsbad, California, have invented a certain invention entitled **Compositions Comprising Alternating 2'-Modified Nucleosides for Use in Gene Modulation**, for which we have made an application for Letters Patent of the United States, said application having been filed November 4, 2003 and assigned Application No. 10/701,007; and

WHEREAS, ISIS Pharmaceuticals, Inc. hereinafter referred to as the assignee, of 2292 Faraday Avenue, Carlsbad, California 92008, a corporation of Delaware, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in consideration of the sum of One Dollar (\$1.00) to each of us in hand paid by said assignee, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said assignors, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said application and any and all continuations, divisions and renewals of and substitutes for said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in our names applications for Letters Patent in all countries, the same to be held and enjoyed by said assignee, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by

DOCKET NO.: ISIS-5325

PATENT

us had this assignment, sale and transfer not been made.

AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees, or legal representatives, and each of us agrees to communicate to said assignee or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, to testify in any legal proceedings, to sign all lawful papers to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said assignee, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries.

AND we hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents on applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, including any and all Letters Patent of the United States which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment.

AND this Assignment may be executed in multiple counterparts, each of which shall be deemed to be an original of this Assignment. Additionally, we hereby authorize our attorneys to collect the signature pages of each executed counterpart and to attach those signature pages to a single copy of this instrument, which single copy and attached signature pages together shall constitute an original of this Assignment.

DOCKET NO.: ISIS-5325

PATENT

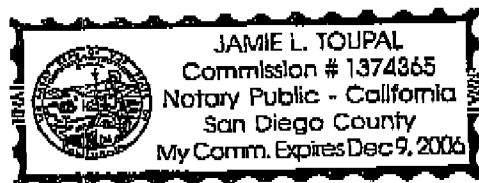
IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Dated: March 31, 2004

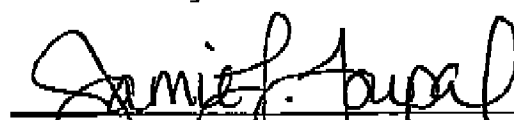
  
Charles Allerson

State of California            )  
  )  
County of San Diego         )       ss.

On this 31st day of March, 2004, before me, the undersigned, a Notary Public for the state, personally appeared **Charles Allerson**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.



WITNESS my hand and official seal.

  
Signature of Notary

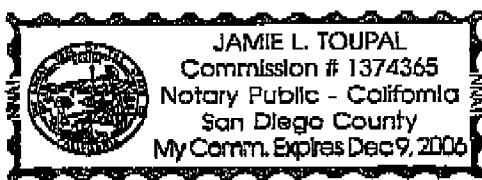
DOCKET NO.: ISIS-5325 PATENT

Dated: 3/11, 2004 Balkrishen Bhat  
Balkrishen Bhat

State of California )  
County of San Diego ) ss.

On this 11th day of March, 2004, before me, the undersigned, a Notary Public for the state, personally appeared **Balkrishen Bhat**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.

WITNESS my hand and official seal.



Jamie L. Toupal  
Signature of Notary

DOCKET NO.: ISIS-5325

PATENT

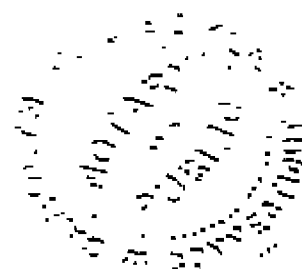
Dated: March 8, 2004Anne B. Eldrup  
Anne B. EldrupState of ConnecticutCounty of Fairfield ) <sup>ss.</sup> City of Danbury, CT

On this 08 day of March, 2004 before me, the undersigned, a Notary Public for the state, personally appeared Anne B. Eldrup, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.

WITNESS my hand and official seal.

Carolyn M. O'Boyle  
Signature of Notary

CAROLYN M. O'BOYLE  
NOTARY PUBLIC  
MY COMMISSION EXPIRES MAR. 31, 2008



DOCKET NO.: ISIS-5325

PATENT

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Dated: 2/27, 2008

Muthiah Manoharan  
Muthiah Manoharan

State of MA )  
County of Middlesex ) ss.

On this 27th day of February, 2008, before me, the undersigned, a Notary Public for the state, personally appeared **Muthiah Manoharan**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.

WITNESS my hand and official seal.

John M. Saitta  
Signature of Notary

My Commission expires: March 7, 2008



DOCKET NO.: ISIS-5325

PATENT

Dated: 2-19-04, 2004 Richard H. Griffey  
Richard H. Griffey

State of California )  
County of San Diego ) ss.

On this 19th day of February, 2004, before me, the undersigned, a Notary Public for the state, personally appeared **Richard H. Griffey**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity; and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.

WITNESS my hand and official seal.




Jamie L. Toupal  
Signature of Notary

DOCKET NO.: ISIS-5325

PATENT

Dated: Feb 19, 2004

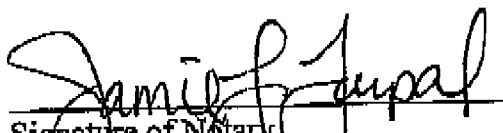
  
Brenda F. Baker

State of California )  
County of San Diego ) ss.

On this 19th day of February, 2004, before me, the undersigned, a Notary Public for the state, personally appeared **Brenda F. Baker**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.



WITNESS my hand and official seal.

  
Signature of Notary

ASSIGNMENT - Page 8 of 9.

PATENT  
REEL: 014640 FRAME: 0684

DOCKET NO.: ISIS-5325

PATENT

Dated: 3/14, 2004

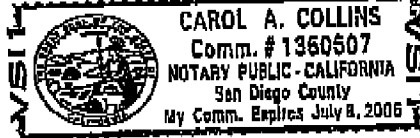
Eric E. Swayze  
Eric E. Swayze

State of California )  
                                  ) ss.  
County of San Diego )

On this 14<sup>th</sup> day of March, 2004, before me, the undersigned, a Notary Public for the state, personally appeared **Eric E. Swayze**, personally known to me/proved to me on the basis of satisfactory evidence to be the person who subscribed the foregoing Assignment and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the Assignment the person, or the entity on behalf of which the person acted, executed the Assignment.

WITNESS my hand and official seal.

Carol A. Collins  
Signature of Notary

 CAROL A. COLLINS  
Comm. # 1360507  
NOTARY PUBLIC - CALIFORNIA  
San Diego County  
My Comm. Expires July 8, 2006

ASSIGNMENT - Page 9 of 9

RECORDED: 05/18/2004

PATENT  
REEL: 014640 FRAME: 0685