I	R 08-31	-2001			
To The Hanorable Commissioner of Patents	aı		original doc	cuments or copy thereof.	
Name of conveying party(ies):	1018	30920	s of receiving	g party(ies):	
Muthiah Manoharan	June 21, 2001	Name: ISIS Pharma	ceuticals, Inc.		
First Assignor	Date of Execution	Street Address: 229	92 Faraday Av	renue	
Vasulinga T. Ravikumar Second Assignor	July 26, 2001 Date of Execution	City: Carlsbad			
		State California		ZIP 92008	
Third Assignor	Date of Execution	Additional name(s)	& address atta	ached? ()YES (X)NO	
Fourth Assignor	Date of Execution	3. Nature of Conve	eyance (check	only one):	
Fifth Assignor	Date of Execution	(X) New Assignn () License Agree () Change of Na	ement	() Merger () Security Agreement () Other:	
Sixth Assignor	Date of Execution	()Cross-reference of Assignment filed in United States Application No/, recorded on/_/_ at Reel No. and Frame No			
Additional name(s) of conveying party(ies) attached	ed? () YES (X) NO				
4. Identification of Application number(s), p	patent number(s) OR d	ate of execution of a	pplication to v	which assignment refers:	
Application Nos.: 09/708,224	Patent Nos.:			ntion was signed by the first uting inventor	
			(Fill-in this d	ate only if assignment is er with a new application)	
5. Name and address of party to whom correspondence concerning documents should be mailed:		6. Total number of	applications a	and patents involved: 1	
Name: WOODCOCK WASHBURN KURTZ MACKIEV One Liberty Place - 46th Floor Philadelphia, Pennsylvania 19103-7301 £15-568-3100	7. Total fee (37 CFR 3.41):\$40.00 (X) Enclosed () Authorized to be charged to Deposit Account Number 23-3050				
08/30/2001 DBYRNE 00000201 09708224)	8. Please charge a overpayment to	ny deficiency Deposit Acco	or credit any ount Number 23-3050	
01 FC+581 +0.00 OP	DO NOT USE	THIS SPACE			
9. Statement and signature. To the best of my knowledge and belief, the theoriginal document.	ne foregoing information	on is true and correct	and any attao		
Michael P. Straher/ 38,325	Malustan Arylit 22, 2001 Signature Date				
Name of Person Signing/Reg. No.	Name of Person Signing/Reg. No. Signature Total number of pages including cover sheet, assignment document and additional pages attached thereto: 4				
		nt document and add	itional pages a	attached dioloto.	
Mail documents to be recorded with required cover she	Box As	atents and Trademarks signments n, D.C. 20231			

PATENT REEL: 012112 FRAME: 0209 DOCKET NO.: ISIS-4388 PATENT

ASSIGNMENT

WHEREAS, We, Muthiah Manoharan of Carlsbad, California 92009 and Vasulinga T. Ravikumar of Carlsbad, California 92009, have invented a certain invention entitled ACTIVATORS FOR OLIGONUCLEOTIDE SYNTHESIS, for which we have made application for Letters Patent of the United States, said application having been filed on November 8, 2000 and assigned Application No. 09/708,224; and

WHEREAS, ISIS Pharmaceuticals, Inc. hereinafter referred to as the assignee, of 2292 Faraday Avenue, Carlsbad CA, 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 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

Page 1 of 3

Assignment

PATENT REEL: 012112 FRAME: 0210 DOCKET NO.: ISIS-4388 PATENT

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.

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

Dated:	, year of <u>2001</u>	Muthiah Manoharan
State of California)) ss.	
County of San Diego)	

On this 127 day of ________, year of ________, 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.

LANE B.D. SCHWARIX

Commission # 1196197

Son Diego County

My Comm. Expires Sep 13, 2002

WITNESS my hand and official seal.

Signature of Notary

Dated: 7/26	_, year of <u>2001</u> _	V.T. Rout		
		Vasulinga T. Ravikumar		
State of California)			
County of San Diego) ss.)			

On this day of , year of , year of , before me, the undersigned, a Notary Public for the state, personally appeared Vasulinga T. Ravikumar 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.

RAQUEL L. TIMMER
Comm. # 1202866
NOTARY PUBLIC - CALIFORNIA
San Diego County
My Comm. Expires Nov. 22, 2002

Signature of Notary

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