504829113 03/20/2018

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
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CYRIL LE NOUEN	01/15/2016
LINDA G. BROCK	03/11/2016
URSULA J. BUCHHOLZ	01/15/2016
JOSHUA MARC DINAPOLI	01/21/2016

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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15924012

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DATE SIGNED:	03/20/2018

PATENT 504829113 REEL: 045296 FRAME: 0827

Total Attachments: 5 source=Executed_NIH_Assignment_Full#page1.tif source=Executed_NIH_Assignment_Full#page2.tif source=Executed_NIH_Assignment_Full#page3.tif source=Executed_NIH_Assignment_Full#page4.tif source=Executed_NIH_Assignment_Full#page5.tif

PATENT REEL: 045296 FRAME: 0828

(formerly 100259.02647)

ASSIGNMENT FOR NIH/FDA/CDC INVENTIONS AIA (NIH OR FDA OR CDC AND LEIDOS BIOMEDICAL CO-INVENTORS ONLY)

WHEREAS, I/we, Peter L. Collins, Cyril Le Nouën, Linda G. Brock, Ursula J. Buchholz and Joshua Marc DiNapoli, employees of the United States Department of Health and Human Services, having an address at the Office of Technology Transfer, National Institutes of Health, 6011 Executive Boulevard, Suite 325, MSC 7660, Bethesda, MD 20892-7660, (hereinafter, The Inventors), together with Steffen Mueller and Eckard Wimmer, have made certain inventions as described and claimed in U.S. Patent Application Serial No. 14/766,620, filed August 7, 2015, and which is entitled "ATTENUATION OF HUMAN RESPIRATORY SYNCYTIAL VIRUS BY GENOME SCALE CODON-PAIR DEOPTIMIZATION" ("The Patent Application(s)";

WHEREAS, I/we are the inventor(s) named in The Patent Application(s); and

WHEREAS, the inventions described and claimed in The Patent Application(s) were made under conditions such as to entitle THE UNITED STATES OF AMERICA, as represented by the Secretary, Department of Health and Human Services [hereinafter THE GOVERNMENT] under Executive Order 10096 and its amendments, 35 USC §§200-202, §§206-207, and §210 and 37 CFR Part 501 and 37 CFR Part 401to the entire right, title, and interest in such inventions; and

WHEREAS, THE GOVERNMENT is desirous of acquiring all domestic and foreign right, title, and interest in the inventions described and claimed in The Patent Application(s); and

NOW, THEREFORE, having the legal obligation to assign my/our right, title and interest in the inventions described and claimed in The Patent Application(s) to THE GOVERNMENT, having a place of business at the Office of Technology Transfer, National Institutes of Health, 6011 Executive Boulevard, Suite 325, MSC 7660, Bethesda, MD 20892-7660 and for consideration, the receipt and sufficiency of which are hereby acknowledged, I/we hereby assign and transfer to THE GOVERNMENT:

the entire right, title, and interest in and to any and all inventions described and claimed in **The Patent Applications** and any and all Letters Patent(s) which may be granted thereon, and any and all continuations, divisions, reissues or extensions thereof; and

all rights to claim priority on the basis of **The Patent Application(s)** including but not limited to applications filed through the provisions of the Patent Cooperation Treaty ("PCT Applications"); and

all applications for Letters Patent(s) that may be filed for any and all inventions described and claimed in **The Patent Application(s)** that may be filed in any foreign country and all Letters Patents that may be granted thereon in any foreign country and all extensions, renewals, and reissues thereof; and

any and all such Letters Patents as may be granted in the United States or any foreign country to be held by THE GOVERNMENT to the end of the term for which the same would have been held by the inventors had this assignment not been made.

I/we further agree to make, execute, and deliver to THE GOVERNMENT, upon request, any and all papers, documents, affidavits, or other instruments that may be necessary in the prosecution of any application or applications for improvements or reissues of Letters Patent, and to assist THE GOVERNMENT in every way as may be requested in protecting said invention.

Page 1 of 4

IN WITNESS WHEREOF we subscribe our hands and seals on the dates shown below:

Inventor 1:	
1/15/2016 Date	DOUM Peter L. Collins, PhD
County of Nont gamery State of Navy land Subscribed and sworn to before me	e this <u>16</u> day of <u>January</u> , 20 <u>16</u> .
[Seal] MONICA VALENCIA NOTARY PUBLIC STATE OF MARYLAND My Commission Expires February 11, 2019	——————————————————————————————————————
Inventor 2:	
1] 15 / & 16 Date	Cyril Le Nouën, PhD
County of	e this 15_ day of <u>January</u> . 20 <i>16.</i>
[Seal] MONICA VALENCIA NOTARY PUBLIC STATE OF MARYLAND My Commission Expires February 11, 2019	Ofacica Ooleecia

Page 2 of 4

nventor 3:	
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March 11, 2016	Inda M Brock
Date Date	Linda G. Brock, PhD
County of <u>District</u> Of	Columbia
State of	
	before me this <u>\\</u> day of <u>Manch</u> , 2016
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	Notes of Dublin for
**** **/:/	ALMAZ LUCA OF COLUMB
// //////////////////////////////////	My Commission Expires: NOTARY PUBLIC USTROL OF 14, 2018 My Commission Expires April 14, 2018
S.	
nventor 4:	
Date	Ursula J. Buchholz, PhD, DVM
County of	
State of	
Diago Or	
Subscribed and sworn to	before me this day of, 20
Seal]	
Jean J	
oeaij	Notary Public for

Inventor 3:		
Date	Linda G. Brock, PhD	
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County of		
State of		
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Inventor 4:	······	
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1/15/2016	16.10VD	
r Date	Ursula J. Buchholz, PhD, DVM	
County of Nontgamery		
State of Nowtand		
Subscribed and sworn to before me th	is <u>15</u> day of <u>Joinualy</u>	, 2016.
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pers. 13	l feeig Valeucia	
[Seal] MONICA VALENCIA NOTARY PUBLIC STATE OF MARYLAND My Commission Expine February 11, 2019		
	Notary Public for	
	My Commission Expires: 0244	14.17.019.

ASSIGNMENT Attorney Docket No: 6137NIAID-53-PUS (formerly 100259.02647)

Inventor 5:	
<u> </u>	Joshua Marc DiNapoli, PhD
County of <u>SUFFOLK</u> State of <u>Common wealth</u>	of Massachuroth
1	fore me this a day of January 20 16
[Seal]	Juruah F Finences
	Notary Public for
	My Commission Expires: 2-11-14
	SUSANNAH F. FERNANDEZ
	Notary Public Commonwealth of Massachusetts My Commission Expires February 11, 2018