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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:		NEW ASSI	NEW ASSIGNMENT			
NATURE OF CONVEYANCE:		ASSIGNME	ASSIGNMENT			
CONVEYING PARTY	DATA					
		Name	Name		Execution Date	
RYUICHIRO ISHITAN					1	
RECEIVING PARTY D	ΑΤΑ					
Name:	UNIVE	UNIVERSITY OF TOKYO				
Street Address:	3-1, HC	3-1, HONGO 7-CHOME BUNKYO-KU				
City:	ΤΟΚΥά	ТОКҮО				
State/Country:	JAPAN					
Postal Code:	113-86	113-8654				
PROPERTY NUMBER				_		
Property Type		Nu	umber			
Application Number:1659		16592744				
	DATA	(000) 070 5000				
Fax Number:(202)Correspondence will be sent to the		(202)672-5399 the e-mail addr	occ first: if that is u	neucooseful it will be a	ont	
using a fax number, i						
Phone: 2123		2123383438	383438			
Email: NBEI		NBENOWITZ@F	NOWITZ@FOLEY.COM, IPDOCKETING@FOLEY.COM			
•		FOLEY & LARDN	EY & LARDNER LLP			
			K STREET N.W.			
		SUITE 600				
		WASHINGTON, [C 20007			
Address Line 4:			5.0.20007			
	NUMBER:	114203-578				
ATTORNEY DOCKET			31			
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Address Line 4: ATTORNEY DOCKET I NAME OF SUBMITTEF SIGNATURE: DATE SIGNED:		114203-578 NEIL H. BE	B1 NOWITZ nowitz/			
ATTORNEY DOCKET I NAME OF SUBMITTEF SIGNATURE:		114203-578 NEIL H. BE /Neil H. Ber	B1 NOWITZ nowitz/			
ATTORNEY DOCKET I NAME OF SUBMITTEF SIGNATURE: DATE SIGNED:	:	114203-578 NEIL H. BE /Neil H. Ber 12/22/2022	B1 NOWITZ nowitz/			

Patent 47627.99.2069/BI-2014/005

ASSIGNMENT

I, Ryuichiro Ishitani, residing at: Arakawa 1-35-1-404, Atakawa - ku, Tokyo, Japan being the inventor(s) of certain improvements in the international application entitled: SYSTEMS, METHODS AND COMPOSITIONS FOR SEQUENCE MANIPULATION WITH OPTIMIZED FUNCTIONAL CRISPR-CAS SYSTEMS for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, hereby assign unto **UNIVERSITY OF TOKYO**, having a place of business at 3-1, Hongo 7-chome Bunkyo-ku, Tokyo, 113-8654, Japan, its successors and assigns (1) the entire right, title and interest in all countries throughout the world in and to any and all of my inventions and discoveries in my United States Provisional Application Nos. 61/915,251, filed December 12, 2013, 61/930,214 filed January 22, 2014 and 61/939,242 filed February 12, 2014, and a PCT International Application filed under the Patent Cooperation Treaty in the PCT United States Receiving Office (ROIUS) on 12/12/2014 , identified as International Application No. PCT/US14/70175 , and designating all PCT member countries/states, as well as in any renewals, revivals, reissues, reexaminations, extensions, continuations and divisions thereof, and any substitute applications therefore; (2) the full and complete right to file patent applications in the name of UNIVERSITY OF TOKYO, or their designee's election, on the aforesaid inventions, discoveries and applications in all countries of the world; (3) the entire right title and interest in and to any Letters Patent which may issue on the aforesaid inventions, discoveries and applications in any country of the world and any renewals, revivals, reissues, reexaminations and extensions thereof, and any patents of confirmation, registration and importation of the same; and (4) the entire right, title and interest in and to all Convention and Treaty Rights of all kinds thereon, including without limitation all rights of priority in any country of the world, in and to the following application(s):

United States Provisional Application No. 61/915,251 filed December 12, 2013;

United States Provisional Application No. 61/930,214 filed January 22, 2014; and

United States Provisional Application No. 61/939,242 filed February 12, 2014, and all rights of priority in any country of the world deriving from the above-identified International Application.

I hereby authorize and request the competent authorities to grant and to issue any and all such Letters Patent in any country throughout the world to UNIVERSITY OF TOKYO as the

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assignee of the entire right, title and interest therein, as fully and entirely as the same would have been held and enjoyed by me had this assignment, sale and transfer not been made.

I agree, at any time, upon the request of UNIVERSITY OF TOKYO to execute and to deliver to UNIVERSITY OF TOKYO any additional applications for patents for said inventions and discoveries, or any part or parts thereof, and any applications for patents of confirmation, registration and importation based on any Letters Patent issuing on said inventions, discoveries or applications, and divisions, continuations, renewals, revivals, reissues, reexaminations and extensions thereof.

I further agree, at any time, upon request of UNIVERSITY OF TOKYO to execute and to deliver to UNIVERSITY OF TOKYO, such additional documents, if any, as are necessary or desirable to secure patent protection on said inventions, discoveries and applications throughout all countries of the world, and otherwise to do what is necessary to give full effect to and to perfect any and all rights of UNIVERSITY OF TOKYO, under this Assignment, including the execution, delivery and procurement of any and all further documents evidencing this assignment, transfer and sale as may be necessary or desirable.

In testimony of which I have hereupon affixed my signature it is my intention that this Assignment instrument be effective, and all rights transferred herein shall be considered to have vested in **UNIVERSITY OF TOKYO** as from the December 12, 2013, the filing date of the first filed United States Provisional Application No. 61/915,251, from which priority is hereby claimed.

<u>20[4/12/17</u> Date <u>Witnesses 1</u> <u>Mounsko Aharn</u>

Momoko Ihara

Ryuichiro Ishitani

Witnesses 2 <u>Tomoko Jiyita</u> Signature <u>Tomoko Fujita</u> Print name here

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