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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
FENG ZHANG	01/26/2018

RECEIVING PARTY DATA

Name:	THE BROAD INSTITUTE, INC.	
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State/Country:	MASSACHUSETTS	
Postal Code:	02142	
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Postal Code:	02139	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15838720

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	47627.02.2014	
NAME OF SUBMITTER:	CHRISTINA DIBENEDETTO	
SIGNATURE:	/Christina DiBenedetto/	
DATE SIGNED:	04/03/2018	

PATENT REEL: 045425 FRAME: 0173 504850445

Total Attachments: 3 source=Executed_Assignment_-_F__Zhang#page1.tif source=Executed_Assignment_-_F__Zhang#page2.tif source=Executed_Assignment_-_F__Zhang#page3.tif

PATENT REEL: 045425 FRAME: 0174

Vedder Price P.C.

Application No.: 15/838,720 Filing Date: 12/12/2017

File No.: 47627.02.2014-BI-2015/002.US1

ASSIGNMENT

I, Feng Zhang, have made certain inventions or discoveries (or both) set forth in an application for Letters Patent of the United States of America entitled: ENGINEERING AND OPTIMIZATION OF SYSTEMS, METHODS, ENZYMES AND GUIDE SCAFFOLDS OF CAS9 ORTHOLOGS AND VARIANTS FOR SEQUENCE MANIPULATION and THE BROAD INSTITUTE, INC., whose address is 415 Main Street, Cambridge, MA 02142 and MASSACHUSETTS INSTITUTE OF TECHNOLOGY whose address is 77 Massachusetts Ave., Cambridge, MA 02139 and which, together with its successors and assigns is hereinafter called "Assignee," is desirous of acquiring the title, rights, benefits and privileges hereinafter recited, and of confirming the same or any part thereof heretofore acquired by Assignee.

Now, therefore, for valuable consideration furnished by Assignee to me, receipt and sufficiency of which I hereby acknowledge, I hereby, without reservation:

Assign and convey to and confirm in Assignee the entire right, title and interest in and to said inventions and discoveries, said application for Letters Patent of the United States of America, any and all other applications for Letters Patent on said inventions and discoveries in whatsoever countries, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or discoveries or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions and discoveries or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said discoveries, said applications and said Letters Patent;

Authorize Assignee to file and prosecute patent applications in any or all countries on any or all of said inventions and discoveries in my name or names or in the name of Assignee or otherwise as Assignee may deem advisable, under the International Convention or otherwise;

Authorize and request the Commissioner of Patents of the United States of America and the empowered officials of all other governments to issue or transfer all said Letters Patent to Assignee, as assignee of the entire right, title and interest therein or otherwise as Assignee may direct;

Warrant that I have not knowingly conveyed to others any right in said inventions, discoveries, applications or patents or any license to use the same or to make, use or sell anything embodying or utilizing any of said inventions or discoveries; and that I have good right to assign the same to Assignce without encumbrance;

Bind my heirs and legal representatives, as well as myself to do, upon Assignee's request and at its expense, but without additional consideration to me, all acts reasonably serving to

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assure that the said inventions and discoveries, the said patent applications and the said Letters Patent shall be held and enjoyed by Assignce as fully and entirely as the same could have been held and enjoyed by me or my heirs or representatives if this assignment had not been made; and particularly to execute and deliver to Assignce all lawful application documents including petitions, specifications, and oaths, and all assignments, disclaimers, and lawful affidavits in form and substance as may be requested by Assignce; to communicate to Assignce all facts known to me relating to said inventions and discoveries or the history thereof; and to furnish Assignce with any and all documents, photographs, models, samples and other physical exhibits in my control or in the control of my heirs or legal representatives and which may be useful for establishing the facts of my conceptions, disclosures, and reduction to practice of said inventions and discoveries.

In testimony of which I have affixed n	ny signature.
Manuary 26, 2018 Date	Feng Zhang
Commonwealth of Massachusetts) COUNTY OF Hiddlesex)	SS
Commonwealth aforesaid, do hereby certify t same person whose name is subscribed to the	, a Notary Public in and for the county and that Feng Zhang personally known to me to be the foregoing instrument, appeared before me this day and delivered the said instrument as his free and a set forth.
IN WITNESS WHEREOF, I have hereunto se	et my hand and potarial) Seat, this Zuth day of Notary Public
	My Commission Expires:
SEAL	ERIN B. BLACKWELL Notary Public COMMUNICATIVE OF MASSACHUSETTS My Commission Expires

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June 22, 2023

ACCEPTANCE OF ASSIGNMENT

I, <u>Temper Ellott</u> assignment of Feng Zhang as	on behalf of Assignce, The Broad Institute, Inc., accept the an inventor on the aboye-referenced application.
1/30/18 Date	Signature Elett
	Print Name Ellett
	Title Ducky, 1P
The same of the	ACCEPTANCE OF ASSIGNMENT
I, Lauven Foster accept the assignment of Fen	on behalf of Assignce, Massachusetts Institute of Technology, g Zhang as an inventor on the above-referenced application.
4/2/18 Date	Signature CG
	Lauren C. Foster Associate Director Print Name Technology Licensing Office
	Title

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RECORDED: 04/03/2018

PATENT REEL: 045425 FRAME: 0177