PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3813053

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
J. Keith Joung	11/03/2015
James Angstman	11/06/2015
Jeffry D. Sander	11/20/2015
Morgan Maeder	10/27/2015
Shengdar Tsai	11/03/2015

RECEIVING PARTY DATA

Name:	The General Hospital Corporation
Street Address:	55 Fruit Street
City:	Boston
State/Country:	MASSACHUSETTS
Postal Code:	02114

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14776620

CORRESPONDENCE DATA

Fax Number: (877)769-7945

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: (617) 542-5070 **Email:** apsi@fr.com

Correspondent Name: JANICE K. DEYOUNG
Address Line 1: FISH & RICHARDSON P.C.

Address Line 2: P.O.BOX 1022

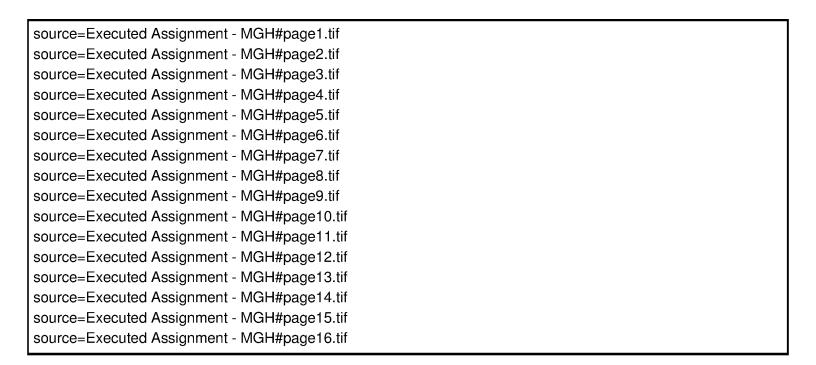
Address Line 4: MINNEAPOLIS, MINNESOTA 55440-1022

ATTORNEY DOCKET NUMBER:	40174-0009US1
NAME OF SUBMITTER:	CHRISTINE M. GRACE
SIGNATURE:	/Christine M. Grace/
DATE SIGNED:	04/03/2016

Total Attachments: 16

PATENT REEL: 038178 FRAME: 0633

503766406



ASSIGNMENT

For valuable consideration, the receipt of which we acknowledge, and intending to be bound legally, we, J. KEITH JOUNG, JAMES ANGSTMAN, JEFFRY D. SANDER, MORGAN MAEDER, and SHENGDAR TSAI, each individually assign to THE GENERAL HOSPITAL CORPORATION, a corporation formed under the laws of Massachusetts and having a principal place of business at 55 Fruit Street, Boston, MA 02114, and its successors, transferees, and assignees (collectively the "Assignee"), all of our individual and joint right, title, and interest throughout the world in the subject matter (the "Subject Matter") of a patent application that names us as inventors, is titled "INCREASING SPECIFICITY FOR RNA-GUIDED GENOME EDITING", and was filed in the United States Patent and Trademark Office on September 14, 2015, as application 14/776,620 (the "Application").

This Assignment assigns (a) the Application and all other applications that may be made for, and all patents, utility models, design registrations, and other rights of exclusion and inventors' certificates for, any of the Subject Matter (collectively the "Applications and Granted Rights") in every country or region, (b) the right to claim priority based on and the benefit of the filing date of any of the Applications and Granted Rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other applicable treaties or conventions, and (c) the right to pursue, collect, and retain in the Assignee's name or otherwise, damages and any other remedies arising from any past, present, or future infringement of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment.

We authorize the Assignee to apply for and pursue protection for any or all of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment in all countries, regions, and territories of the world, in our names or in the Assignee's name.

We represent and warrant that we have the right and power to make this Assignment and that we have not made and will not make any other assignment that conflicts with this Assignment.

We will communicate to the Assignee (or at the request of the Assignee to other parties) all known facts in any form relating to the Subject Matter, will execute and provide all oaths and declarations, statements, testimony, assignments, powers of attorney, applications, and

Assignment Page 1 of 7

documents, and will perform all other lawful acts necessary or desirable to secure fully to the Assignee the rights, titles, and interests assigned by this Assignment.

J. Keith Joung

DATE: //

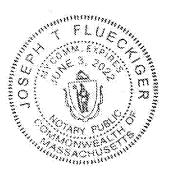
The Commonwealth of Massachusetts

Norfolk, MA ss.



On this 3 day of November, 2015, before me, the undersigned notary public, personally appeared 4e KcTh Vecus, proved to me through satisfactory evidence of identification, which were MADL, 595797383, to be the person(s) whose name(s) is/are signed on the preceding or attached document, and acknowledged to me that 4eves signed it voluntarily for its stated purpose.

Notary Public



Assignment Page 2 of 7

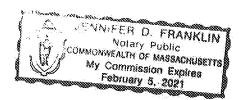
Attorney Docket No.: 40174-0009US1 DATE: 1/6/15 lmes Angstman The Commonwealth of Massachusetts Norfolk On this 6 day of November, 2015, before me, the undersigned notary public, personally appeared Joseph T. Flueckiger, proved to me through satisfactory evidence of identification, which were MADL. #578081316, to be the person(s) whose name(s) is/are signed on the preceding or attached document, and acknowledged to me that VAMCS signed it voluntarily for its stated purpose

Assignment Page 3 of 7

Jeffry D. Sander	DATE:
The Com	monwealth of Massachusetts
ss.	
On this day of	, 20, before me, the undersigned notary
public, personally appeared	proved to me through
satisfactory evidence of identification,	which were, to be
the person(s) whose name(s) is/are sign	ned on the preceding or attached document, and
acknowledged to me thats	igned it voluntarily for its stated purpose.
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N	lotary Public

Assignment Page 4 of 7

DATE: 10/17/15
The Commonwealth of Massachusetts
Middle Sex ss.
On this 2 day of Ctobe, 20, before me, the undersigned notary
public, personally appeared Morton Mark do , proved to me through
satisfactory evidence of identification, which were hice as to be
the person(s) whose name(s) is/are signed on the preceding or attached document, and
acknowledged to me that Morgan signed it voluntarily for its stated purpose.
June D. Frenklin Notary Public



SLL 73 DATE: 11/3/2015
Shengdar Tsal
The Commonwealth of Massachusetts
Norfolk, MA ss.
On this 3 day of November, 2015, before me, the undersigned notary public, personally appeared Shengdar TSAI, proved to me through satisfactory evidence of identification, which were MADLIFE SLESSEDI, to be
the person(s) whose name(s) is/are signed on the preceding or attached document, and
acknowledged to me that TSA / signed it voluntarily for its stated purpose.
Notes y Public
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The Assignee hereby acknowledges	and accepts the foregoing assignment.	
Assignee: THE GENERAL HOSPIT	AL CORPORATION	
Signature:	Date:	
Name:		
Title:		•
The Co.	mmonwealth of Massachusetts	
On this day of	, 20, before me, the undersigned i	notary
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	igned on the preceding or attached document, and	.381
acknowledged to me that	_signed it voluntarily for its stated purpose.	
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	Notary Public	
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Assignment Page 7 of 7

ASSIGNMENT

For valuable consideration, the receipt of which we acknowledge, and intending to be bound legally, we, J. KEITH JOUNG, JAMES ANGSTMAN, JEFFRY D. SANDER, MORGAN MAEDER, and SHENGDAR TSAI, each individually assign to THE GENERAL HOSPITAL CORPORATION, a corporation formed under the laws of Massachusetts and having a principal place of business at 55 Fruit Street, Boston, MA 02114, and its successors, transferees, and assignees (collectively the "Assignee"), all of our individual and joint right, title, and interest throughout the world in the subject matter (the "Subject Matter") of a patent application that names us as inventors, is titled "INCREASING SPECIFICITY FOR RNA-GUIDED GENOME EDITING", and was filed in the United States Patent and Trademark Office on September 14, 2015, as application 14/776,620 (the "Application").

This Assignment assigns (a) the Application and all other applications that may be made for, and all patents, utility models, design registrations, and other rights of exclusion and inventors' certificates for, any of the Subject Matter (collectively the "Applications and Granted Rights") in every country or region, (b) the right to claim priority based on and the benefit of the filing date of any of the Applications and Granted Rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other applicable treaties or conventions, and (c) the right to pursue, collect, and retain in the Assignee's name or otherwise, damages and any other remedies arising from any past, present, or future infringement of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment.

We authorize the Assignee to apply for and pursue protection for any or all of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment in all countries, regions, and territories of the world, in our names or in the Assignee's name.

We represent and warrant that we have the right and power to make this Assignment and that we have not made and will not make any other assignment that conflicts with this Assignment.

We will communicate to the Assignee (or at the request of the Assignee to other parties) all known facts in any form relating to the Subject Matter, will execute and provide all oaths and declarations, statements, testimony, assignments, powers of attorney, applications, and

Assignment Page 1 of 7

documents, and will perform all other lawful acts necessary or desirable to secure fully to the Assignee the rights, titles, and interests assigned by this Assignment.

		DATE:		
J. Keith Joung				
	The Co	mmonwealth of Massa	chusetts	
	8S.			
On this	day of	, 20,	before me, the unde	rsigned notary
public, personally app	eared		, proved to n	ne through
satisfactory evidence	of identificatio	n, which were		, to b
the person(s) whose n	ıame(s) is/are s	igned on the preceding	or attached documer	nt, and
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			60 (1 5 11 6 5 11 1 6 6 1 1 1 1 1 6 1 1 1 1 1 1 1 1 1	

Notary Public

Assignment Page 2 of 7

	DATE:	
James Angstman		
The Comm	onwealth of Massachusetts	
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public, personally appeared	, proved to me through	
satisfactory evidence of identification, w	hich were, t	o be
the person(s) whose name(s) is/are signe	d on the preceding or attached document, and	
acknowledged to me that sign	ned it voluntarily for its stated purpose.	
$\overline{\mathbf{N}}$	ary Public	

Assignment Page 3 of 7

11/20/2015

	The Commo	nwealth of Massac	husetts		
Polk Chy Tan					
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public, personally appear	ired <u>1247 7</u>	D. Saule-	, proved	to me throug	ì
parizing of extremes of	identification, wi		***	***************************************	
the person(s) whose nar acknowledged to me that	ne(s) is/are signed	on the preceding of	r attached doc	ument, and	

Assignment Page 4 of 7

Morgan Maeder	
The Commonwealth of Massachusetts	
On this day of, 20, before m	e, the undersigned notary
public, personally appeared,	proved to me through
satisfactory evidence of identification, which were	, to be
the person(s) whose name(s) is/are signed on the preceding or attached	ed document, and
acknowledged to me that signed it voluntarily for its state	d purpose.
Notary Public	

Assignment Page 5 of 7

n en	ATE:
Shengdar Tsai	
The Commons	vealth of Massachusetts
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ss.	
On this day of	, 20, before me, the undersigned notary
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	h were, to be
the person(s) whose name(s) is/are signed o	n the preceding or attached document, and
acknowledged to me that signed	
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Assignment Page 6 of 7

The Assignee here	by acknowledge	s and accepts the foregoing	g assignment.		
Assignee: THE GI	ENERAL HOSP	ITAL CORPORATION			
Signature:			Date: _		
Name:					
Title:					
	The C	ommonwealth of Massac	husetts		
	SS				

On this	day of	, 20, t	efore me, the	undersigne	d notary
public, personally	appeared		, prove	f to me thro	ugh
satisfactory eviden	ce of identificati	on, which were			, to be
the person(s) whos	se name(s) is/are	signed on the preceding or	attached doc	ument, and	
acknowledged to n	ne that	signed it voluntarily for	its stated pur	pos c .	
		Notary Public			
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Assignment Page 7 of 7

MGH 22290.27

Attorney Docket No.: 40174-0009US1

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Assignment Page 1 of 7

The Assignce hereby acknowledges and accepts the foregoing assignment.					
Assignee: THE GENERAL HOSPITAL CORPORATION					
Signature: <u>Mullo MM</u> Date: <u>2/18/7.016</u>					
Name: Matthew Flindens Title: Senar JP Munager					
Title: Senar IP Munager					
The Commonwealth of Massachusetts					
On this day of					
Notary Public					
gazziane en se de la companya de la					
23447445,dec ANTHONY W. SUTTON Notery Public Commonwealth of Messechusetts My Commission Expires April 25, 2019					

Assignment Page 7 of 7