

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5992814

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
HARVEY LODISH	01/20/2017
HIDDE L. PLOEGH	11/21/2016
HSIANG-YING LEE	01/17/2017
JIAHAI SHI	01/11/2017
LENKA HOFFMAN	01/13/2017
NOVALIA PISHESHA	02/10/2017
RECEIVING PARTY DATA	
Name:	WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH
Street Address:	455 MAIN STREET
City:	CAMBRIDGE
State/Country:	MASSACHUSETTS
Postal Code:	02142
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16572425
CORRESPONDENCE DATA	
Fax Number:	(617)646-8646
<i>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.</i>	
Phone:	6176468000
Email:	patents_JessicaChao@wolfgreenfield.com, kfortunati@wolfgreenfield.com
Correspondent Name:	JESSICA CHAO
Address Line 1:	WOLF, GREENFIELD & SACKS, P.C.
Address Line 2:	600 ATLANTIC AVENUE
Address Line 4:	BOSTON, MASSACHUSETTS 02210
ATTORNEY DOCKET NUMBER:	W0571.70039US03
NAME OF SUBMITTER:	JESSICA J. CHAO
SIGNATURE:	/Jessica J. Chao/
DATE SIGNED:	03/03/2020

Total Attachments: 42

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ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned Assignor, hereby:

1. Sell, assign, and transfer to Whitehead Institute for Biomedical Research, a Delaware corporation having a place of business at Nine Cambridge Center, Cambridge, Massachusetts 02142, its successors, assigns, and legal representatives, all hereinafter referred to as the Assignee, my entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and designs which are disclosed in the international PCT application filed on May 9, 2014, under Serial No. PCT/US2014/037554, bearing Attorney Docket No. W0571.70039WO00, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in the U.S. national stage patent application filed with the United States Patent and Trademark Office under U.S.S.N. 14/890,241, bearing Attorney Docket No. W0571.70039US01, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in and to the application, and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications, utility models, industrial designs, or similar intellectual property rights which have been or shall be filed in the United States, internationally, and in any foreign country, including, but not limited to, China, Japan, and Korea, on any of the inventions; and in and to all original and reissued patents which have been or shall be issued in the United States or any other jurisdiction on the inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to claim priority for China, Japan, and Korea, as well as the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent;
2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
3. Request the Director of the United States Patent and Trademark Office and non-US patent authorities to issue the patent to the Assignee;
4. Covenant with the Assignee that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by me and that full right to convey the same as herein expressed is possessed by me; and
5. Appoint Assignee, through its designee, my attorney-in-fact to execute, in my name and on my behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

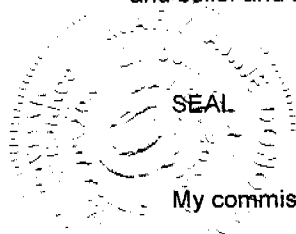
This instrument is executed under seal and signed under the pains and penalties of perjury under the laws of the United States of America.

1/20/17
Date

Inventor: Harvey Lodish
Address: 195 Fisher Avenue 120 SEAVEN ST., UNIT 202C
Brookline, Massachusetts 02446
Citizenship: US 02445

STATE/Commonwealth of MASSACHUSETTS
COUNTY OF MIDDLESEX:

On this 20th day of JANUARY, 2017, before me, the undersigned notary public, personally appeared Harvey Lodish, proved to me through satisfactory evidence of identification, which were PERSONALLY KNOWN, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.



Marylouise J.
Notary Public
My commission expires: MAY 27, 2022

Date

Inventor: Hidde L. Ploegh

Address: 1 Toxteth Street

Brookline, Massachusetts 02445

Citizenship: Netherlands

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hidde L. Ploegh _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hsiang-Ying Lee

Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138

Citizenship: Taiwan ROC

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hsiang-Ying (Sherry) Lee _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Jiahai Shi
Address: 88 Tak Chee Avenue
Kowloon, Hong Kong 000000
Citizenship: Republic of Singapore

Witness:

Date

Signature

Name: _____

Address: _____

Witness:

Date

Signature

Name: _____

Address: _____

Date

Inventor: Lenka Hoffman

Address: 12 Quarry Lane

Malden, Massachusetts 02148

Citizenship: US

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Lenka Kundrat _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Novalia Pishesha

Address: 70 Pacific Street, Apt. 285A
Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Novalia Pishesha _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned Assignor, hereby:

1. Sell, assign, and transfer to Whitehead Institute for Biomedical Research, a Delaware corporation having a place of business at Nine Cambridge Center, Cambridge, Massachusetts 02142, its successors, assigns, and legal representatives, all hereinafter referred to as the Assignee, my entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and designs which are disclosed in the international PCT application filed on May 9, 2014, under Serial No. PCT/US2014/037554, bearing Attorney Docket No. W0571.70039WO00, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in the U.S. national stage patent application filed with the United States Patent and Trademark Office under U.S.S.N. 14/890,241, bearing Attorney Docket No. W0571.70039US01, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in and to the application, and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications, utility models, industrial designs, or similar intellectual property rights which have been or shall be filed in the United States, internationally, and in any foreign country, including, but not limited to, China, Japan, and Korea, on any of the inventions; and in and to all original and reissued patents which have been or shall be issued in the United States or any other jurisdiction on the inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to claim priority for China, Japan, and Korea, as well as the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent;
2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
3. Request the Director of the United States Patent and Trademark Office and non-US patent authorities to issue the patent to the Assignee;
4. Covenant with the Assignee that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by me and that full right to convey the same as herein expressed is possessed by me; and
5. Appoint Assignee, through its designee, my attorney-in-fact to execute, in my name and on my behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

This instrument is executed under seal and signed under the pains and penalties of perjury under the laws of the United States of America.

Date _____

Inventor: Harvey Lodish

Address: 195 Fisher Avenue

Brookline, Massachusetts 02446

Citizenship: US

STATE/Commonwealth of _____

County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared Harvey Lodish, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

NOV 21 2016
Date

[Signature]
Inventor: Hidde L. Ploegh

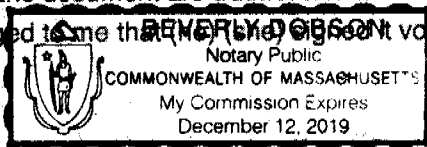
Address: 1 Toxteth Street

Brookline, Massachusetts 02445

Citizenship: Netherlands

STATE/Commonwealth of Massachusetts
COUNTY OF Middlesex :

On this 21 day of November, 2016, before me, the undersigned notary public, personally appeared Hidde L. Ploegh, proved to me through satisfactory evidence of identification, which were MA Drivers License, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that he/she/it signed voluntarily for its stated purpose.



SEAL

Notary Public

My commission expires: 12-12-19

Date

Inventor: Hsiang-Ying Lee

Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138

Citizenship: Taiwan ROC

STATE/Commonwealth of _____
County of _____

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hsiang-Ying (Sherry) Lee _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date _____

Inventor: Jiahai Shi

Address: 11 Peabody Terrace, Apt. 2202
Cambridge, Massachusetts 02138

Citizenship: Republic of Singapore

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared Jiahai Shi, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date _____

Inventor: Lenka Kundrat

Address: 10 Roberts Street, Apt. 34
Somerville, Massachusetts 02145

Citizenship: US

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared Lenka Kundrat, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Novalia Pishesha

Address: 70 Pacific Street, Apt. 285A
Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Novalia Pishesha _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned Assignor, hereby:

1. Sell, assign, and transfer to Whitehead Institute for Biomedical Research, a Delaware corporation having a place of business at Nine Cambridge Center, Cambridge, Massachusetts 02142, its successors, assigns, and legal representatives, all hereinafter referred to as the Assignee, my entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and designs which are disclosed in the international PCT application filed on May 9, 2014, under Serial No. PCT/US2014/037554, bearing Attorney Docket No. W0571.70039WO00, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in the U.S. national stage patent application filed with the United States Patent and Trademark Office under U.S.S.N. 14/890,241, bearing Attorney Docket No. W0571.70039US01, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in and to the application, and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications, utility models, industrial designs, or similar intellectual property rights which have been or shall be filed in the United States, internationally, and in any foreign country, including, but not limited to, China, Japan, and Korea, on any of the inventions; and in and to all original and reissued patents which have been or shall be issued in the United States or any other jurisdiction on the inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to claim priority for China, Japan, and Korea, as well as the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent;
2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
3. Request the Director of the United States Patent and Trademark Office and non-US patent authorities to issue the patent to the Assignee;
4. Covenant with the Assignee that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by me and that full right to convey the same as herein expressed is possessed by me; and
5. Appoint Assignee, through its designee, my attorney-in-fact to execute, in my name and on my behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

This instrument is executed under seal and signed under the pains and penalties of perjury under the laws of the United States of America.

Date

Inventor: Harvey Lodish

Address: 195 Fisher Avenue

Brookline, Massachusetts 02446

Citizenship: US

STATE/Commonwealth of _____

County of _____

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Harvey Lodish _____, proved to me through satisfactory evidence of identification, which were _____,

to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hidde L. Ploegh

Address: 1 Toxteth Street

Brookline, Massachusetts 02445

Citizenship: Netherlands

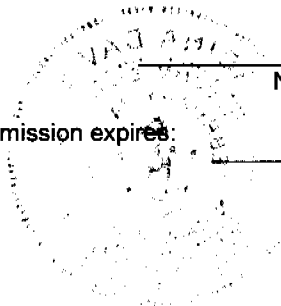
STATE/Commonwealth of _____

County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hidde L. Ploegh _____, proved to me through satisfactory evidence of identification, which were _____,

to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL



Notary Public

My commission expires: _____

1/17/2017

Date

Hsiang-Ying Lee

Inventor: Hsiang-Ying Lee

Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138

Citizenship: Taiwan ROC

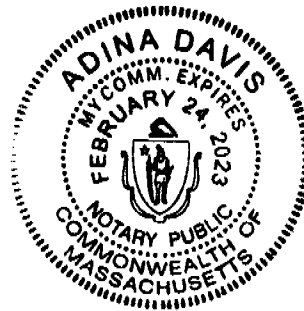
STATE/Commonwealth of Massachusetts
COUNTY OF Middlesex:

On this 17th day of January, 2017, before me, the undersigned notary public, personally appeared Hsiang-Ying (Sherry) Lee, proved to me through satisfactory evidence of identification, which were personal knowledge to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Adina Davis
Notary Public

My commission expires: 2.24.23



Date

Inventor: Jiahai Shi
Address: 88 Tak Chee Avenue
Kowloon, Hong Kong 000000
Citizenship: Republic of Singapore

Witness:

Date

Signature

Name: _____

Address: _____

Witness:

Date

Signature

Name: _____

Address: _____

Date

Inventor: Lenka Kundrat Hoffman

Address: 12 Quarry Lane

Malden, Massachusetts 02148

Citizenship: US

STATE/Commonwealth of _____

County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Lenka Kundrat _____, proved to me through satisfactory evidence of identification, which were _____,

to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date _____

Inventor: Novalia Pishesha

Address: 70 Pacific Street, Apt. 285A
Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of _____
COUNTY OF _____

On this _____ day of _____, before me, the undersigned notary public,
personally appeared Novalia Pishesha, proved to me through satisfactory evidence of
identification, which were _____,
to be the person who signed the preceding or attached document in my presence and swore or affirmed
to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge
and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

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2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
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Date

Inventor: Harvey Lodish

Address: 195 Fisher Avenue

Brookline, Massachusetts 02446

Citizenship: US

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Harvey Lodish _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hidde L. Ploegh

Address: 1 Toxteth Street

Brookline, Massachusetts 02445

Citizenship: Netherlands

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hidde L. Ploegh _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hsiang-Ying Lee
Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138
Citizenship: Taiwan ROC

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hsiang-Ying (Sherry) Lee _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Jan. 11/2017
Date

Jiahai Shi
Inventor: Jiahai Shi
Address: 88 Tak Chee Avenue
Kowloon, Hong Kong 000000
Citizenship: Republic of Singapore

Witness:
Jan 11, 2017
Date

Zongli Zheng
Signature
Name: Zongli Zheng
Address: 88 Tak Chee Avenue
Kowloon, HK.

Witness:
Jan 11, 2017
Date

Nguyet Minh
Signature
Name: Le Thi Nguyet Minh
Address: 88 Tak Chee Avenue
Kowloon, HK.

Date

Inventor: Lenka Hoffman

Address: 12 Quarry Lane

Malden, Massachusetts 02148

Citizenship: US

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Lenka Kundrat _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Novalia Pishesha

Address: 70 Pacific Street, Apt. 285A
Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Novalia Pishesha _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned Assignor, hereby:

1. Sell, assign, and transfer to Whitehead Institute for Biomedical Research, a Delaware corporation having a place of business at Nine Cambridge Center, Cambridge, Massachusetts 02142, its successors, assigns, and legal representatives, all hereinafter referred to as the Assignee, my entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and designs which are disclosed in the international PCT application filed on May 9, 2014, under Serial No. PCT/US2014/037554, bearing Attorney Docket No. W0571.70039WO00, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in the U.S. national stage patent application filed with the United States Patent and Trademark Office under U.S.S.N. 14/890,241, bearing Attorney Docket No. W0571.70039US01, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in and to the application, and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications, utility models, industrial designs, or similar intellectual property rights which have been or shall be filed in the United States, internationally, and in any foreign country, including, but not limited to, China, Japan, and Korea, on any of the inventions; and in and to all original and reissued patents which have been or shall be issued in the United States or any other jurisdiction on the inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to claim priority for China, Japan, and Korea, as well as the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent;
2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
3. Request the Director of the United States Patent and Trademark Office and non-US patent authorities to issue the patent to the Assignee;
4. Covenant with the Assignee that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by me and that full right to convey the same as herein expressed is possessed by me; and
5. Appoint Assignee, through its designee, my attorney-in-fact to execute, in my name and on my behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

This instrument is executed under seal and signed under the pains and penalties of perjury under the laws of the United States of America.

Date

Inventor: Harvey Lodish
Address: 195 Fisher Avenue
Brookline, Massachusetts 02446
Citizenship: US

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public,
personally appeared _____ Harvey Lodish _____, proved to me through satisfactory evidence of
identification, which were _____,
to be the person who signed the preceding or attached document in my presence and swore or affirmed
to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge
and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date _____

Inventor: Hsiang-Ying Lee

Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138

Citizenship: Taiwan ROC

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared Hsiang-Ying (Sherry) Lee, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Jiahai Shi
Address: 88 Tak Chee Avenue
Kowloon, Hong Kong 000000
Citizenship: Republic of Singapore

Witness:

Date

Signature

Name: _____

Address: _____

Witness:

Date

Signature

Name: _____

Address: _____

1/13/17
Date

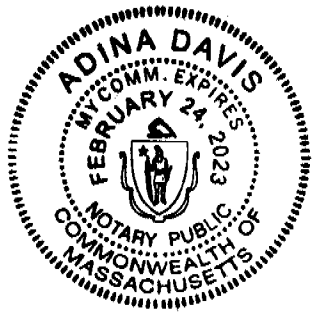
Lenka Hoffman
Inventor: Lenka Hoffman
Address: 12 Quarry Lane
Malden, Massachusetts 02148
Citizenship: US

STATE/Commonwealth of Massachusetts
COUNTY OF Middlesex:

On this 13th day of January, 2017, before me, the undersigned notary public, personally appeared Lenka Kundret ^(AD), proved to me through satisfactory evidence of identification, which were Hoffman personal knowledge, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL Adina Davis
Notary Public

My commission expires: 2.24.23



Date _____

Inventor: Novalia Pishesha

Address: 70 Pacific Street, Apt. 285A

Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of _____
COUNTY OF _____ :

On this _____ day of _____, before me, the undersigned notary public,
personally appeared Novalia Pishesha, proved to me through satisfactory evidence of
identification, which were _____,

to be the person who signed the preceding or attached document in my presence and swore or affirmed
to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge
and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned Assignor, hereby:

1. Sell, assign, and transfer to Whitehead Institute for Biomedical Research, a Delaware corporation having a place of business at Nine Cambridge Center, Cambridge, Massachusetts 02142, its successors, assigns, and legal representatives, all hereinafter referred to as the Assignee, my entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and designs which are disclosed in the international PCT application filed on May 9, 2014, under Serial No. PCT/US2014/037554, bearing Attorney Docket No. W0571.70039WO00, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in the U.S. national stage patent application filed with the United States Patent and Trademark Office under U.S.S.N. 14/890,241, bearing Attorney Docket No. W0571.70039US01, and entitled IN VITRO PRODUCTION OF RED BLOOD CELLS WITH SORTAGGABLE PROTEINS, and in and to the application, and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent applications, utility models, industrial designs, or similar intellectual property rights which have been or shall be filed in the United States, internationally, and in any foreign country, including, but not limited to, China, Japan, and Korea, on any of the inventions; and in and to all original and reissued patents which have been or shall be issued in the United States or any other jurisdiction on the inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to claim priority for China, Japan, and Korea, as well as the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent;
2. Agree that the Assignee may apply for and receive patent and utility model and industrial design registrations for the inventions in its own name; and when requested, without charge to but at the expense of the Assignee, we agree to carry out in good faith the intent and purpose of this assignment, by executing all non-provisional, divisional, continuing, substitute, renewal, reissue, and all other patent, utility model, and industrial design applications on any and all the inventions, by executing all rightful oaths, assignments, powers of attorney, and other papers, by communicating to the Assignee all facts known to me relating to the inventions and the history thereof, and generally by doing everything reasonably possible which the Assignee shall consider desirable for aiding in securing and maintaining proper protection for the inventions and for vesting title to the inventions and all applications for patents and all patents on the inventions, in the Assignee;
3. Request the Director of the United States Patent and Trademark Office and non-US patent authorities to issue the patent to the Assignee;
4. Covenant with the Assignee that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by me and that full right to convey the same as herein expressed is possessed by me; and
5. Appoint Assignee, through its designee, my attorney-in-fact to execute, in my name and on my behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

This instrument is executed under seal and signed under the pains and penalties of perjury under the laws of the United States of America.

Date

Inventor: Harvey Lodish

Address: 195 Fisher Avenue

Brookline, Massachusetts 02446

Citizenship: US

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Harvey Lodish _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hidde L. Ploegh

Address: 1 Toxteth Street

Brookline, Massachusetts 02445

Citizenship: Netherlands

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Hidde L. Ploegh _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Hsiang-Ying Lee

Address: 26 John F. Kennedy Street, Apt. 6
Cambridge, Massachusetts 02138

Citizenship: Taiwan ROC

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public,
personally appeared _____ Hsiang-Ying (Sherry) Lee _____, proved to me through satisfactory evidence of
identification, which were _____,
to be the person who signed the preceding or attached document in my presence and swore or affirmed
to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge
and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

Date

Inventor: Jiahai Shi
Address: 88 Tak Chee Avenue
Kowloon, Hong Kong 000000
Citizenship: Republic of Singapore

Witness:

Date

Signature

Name: _____

Address: _____

Witness:

Date

Signature

Name: _____

Address: _____

Date

Inventor: Lenka Hoffman

Address: 12 Quarry Lane

Malden, Massachusetts 02148

Citizenship: US

STATE/Commonwealth of _____
County of _____ :

On this _____ day of _____, _____, before me, the undersigned notary public, personally appeared _____ Lenka Kundrat _____, proved to me through satisfactory evidence of identification, which were _____, to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

SEAL

Notary Public

My commission expires: _____

2/10/17

Date

Inventor: Novalia Pishesha

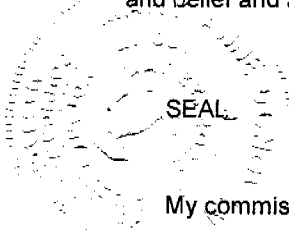
Address: 70 Pacific Street, Apt. 285A

Cambridge, Massachusetts 02139

Citizenship: Indonesia

STATE/Commonwealth of MASSACHUSETTS
COUNTY OF MIDDLESEX :

On this 10th day of FEBRUARY, 2017, before me, the undersigned notary public, personally appeared Novalia Pishesha, proved to me through satisfactory evidence of identification, which were PERSONALLY KNOWN to be the person who signed the preceding or attached document in my presence and swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.



Mary Louie
Notary Public

My commission expires: May 21, 2022