

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6150531

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT OF ASSIGNORS INTEREST
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
NABIL ABRAHAM	10/29/2013
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	HOWARD HUGHES MEDICAL INSTITUTE
<b>Street Address:</b>	4000 JONES BRIDGE ROAD
<b>City:</b>	CHEVY CHASE
<b>State/Country:</b>	MARYLAND
<b>Postal Code:</b>	20185
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16123291
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(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>	
<b>Phone:</b>	6176468000
<b>Email:</b>	patents_jessicav@wolfgreenfield.com
<b>Correspondent Name:</b>	JESSICA A. VON REYN
<b>Address Line 1:</b>	WOLF, GREENFIELD & SACKS, P.C.
<b>Address Line 2:</b>	600 ATLANTIC AVENUE
<b>Address Line 4:</b>	BOSTON, MASSACHUSETTS 02210
<b>ATTORNEY DOCKET NUMBER:</b>	Y0087.70068US02
<b>NAME OF SUBMITTER:</b>	JESSICA A. VON REYN
<b>SIGNATURE:</b>	/Jessica A. von Reyn/
<b>DATE SIGNED:</b>	06/12/2020
<b>Total Attachments: 13</b>	
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**ASSIGNMENT**

WHEREAS, Howard Hughes Medical Institute (“HHMI”), a Delaware corporation, has acquired all right, title and interest, in and to the below patent applications and any and all related United States and foreign patent applications disclosing said invention, including provisionals, non-provisionals, divisions and continuations thereof, all Patent Cooperation Treaty (“PCT”) and national phase applications, along with all rights of priority created by said patent application under any treaty relating thereto, including the right to claim priority to said patent application, e.g., under the International Convention for the Protection of Industrial Property and the European Patent Convention (the “Inventions”) entitled below:

**ANTI-INFECTIVE PROPERTIES OF AN ANTIFREEZE PROTEIN**

- 1) U.S. Provisional Application 61/917,326
- 2) PCT Application No. PCT/US14/070894
- 3) U.S. Application No. 15/104,719

WHEREAS, inventor **Nabil Abraham**, a citizen of India, having a mailing address of 131 Bridge Street, No. 2320, Phoenixville, PA 19460, has previously assigned all right, title and interest in the Inventions to HHMI by Confirmation of Assignment dated October 29, 2013 for the Invention Technology **A Novel Broad Spectrum Antiinfective: Anti-biofilm Peptides with Peptide 2 as Prototype**; and

WHEREAS, on September 22, 2016, subsequent to the assignment to HHMI, **Nabil Abraham** unintentionally and without deceptive intent executed an assignment of his entire right, title and interest in and to the invention entitled **Anti-Infective Properties of Antifreeze Protein** to Yale University, and recorded the same at the United States Patent and Trademark Office on November 3, 2016 at Reel and Frame 040211/0086; and

WHEREAS, as of said date September 22, 2016, **Nabil Abraham** no longer possessed any right, title and interest in and to said invention due to previously assigning the entire right,

title and interest to HHMI, and THEREFORE, no right, title or interest was conveyed or assigned; and

WHEREAS, certain employees of HHMI are hosted at Yale University and/or hold appointments as Yale University faculty members, and WHEREAS, pursuant to a written agreement between Yale University and HHMI, all intellectual property created by said certain employees at Yale University is obligated to be assigned to Yale University, subject to retention by HHMI of a fully paid-up, non-exclusive, irrevocable, worldwide research license to such intellectual property, and WHEREAS, **Nabil Abraham** is one of said certain employees; and

WHEREAS, Yale University, a not-for-profit corporation organized and existing under the laws of the State of Connecticut, having a place of business at Two Whitney Avenue, New Haven Connecticut 06511, is desirous of acquiring the entire right, title and interest in and to said inventions as described in the above patent applications, for the territory of the United States and its possessions and territories, and all foreign countries, in and to the above patent applications and any and all related United States and foreign patent applications disclosing said inventions, including all provisional applications, PCT applications, non-provisional applications, divisional applications, and continuations thereof, in and to all United States and foreign patents which may be granted on any and all of said patent applications, including extensions reissues and reexamination certificates thereof;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, HHMI has sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto said Yale University, its successors, legal representatives, and assigns its entire right, title, and interest in, to and under said inventions as described in the above patent applications, and said application and all divisions, renewals, continuations and continuations-in-part thereof, and all Letters Patent of the United States which may be granted thereon or claim priority therefrom and all reissues and extensions thereof, and all applications for Letters Patent which may hereafter be filed for said inventions as described in the above patent applications in any country or countries foreign to the United States, and all Letters Patent which may be granted for said inventions or claim priority therefrom in any country or countries foreign to the United States and all extensions, renewals, and reissues

thereof, subject to retention by HHMI of a fully paid-up, non-exclusive, irrevocable, worldwide research license to such intellectual property; and HHMI hereby authorizes and requests the Commissioner of Patents of the United States and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said inventions as described in the above patent applications to said Yale University, its successors, legal representatives and assigns, in accordance with the terms of this instrument.


AND HHMI HEREBY further assigns and transfer to Yale University all priority rights derived from such inventions as described in the above patent applications therefore by virtue of the International Convention for the Protection of Industrial Property for any and all member countries of the aforesaid International Convention, subject to retention by HHMI of a fully paid-up, non-exclusive, irrevocable, worldwide research license to such intellectual property, and does hereby assign and transfer to Yale University the sole right to file further applications for patents under the patent laws of any country of the world based on any inventions disclosed in said application as fully and entirely as the same would have been held by HHMI had this assignment not been made.

AND HHMI HEREBY covenants that it has full right to convey the entire interest herein assigned, and that HHMI has not executed, and will not execute, any agreement in conflict herewith.

AND **Nabil Abraham** hereby covenants that the previous assignment of his rights, title and interest to Yale University was erroneous, improper, and ineffective.


AND HHMI HEREBY further covenants and agrees that it will communicate to said Yale University, its successors, legal representatives and assigns, any facts known to HHMI respecting said inventions, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuations, continuations-in-part and reissue applications, make all rightful oaths, and generally do everything possible to aid said Yale University, its successors, legal representatives and assigns to obtain and enforce proper patent protection for said inventions in all countries.

IN TESTIMONY WHEREOF, I hereunto set my hands the day and year set opposite my signature and acknowledge that the above statements are a true and accurate representation of the facts.

  
\_\_\_\_\_  
Heidi E. Henning, Vice President & General Counsel  
FOR HHMI


Date: Nov. 28, 2017

IN TESTIMONY WHEREOF, I hereunto set my hands the day and year opposite my signature, and acknowledge that the above statements are a true and accurate representation of the facts.

  
\_\_\_\_\_  
Nabil Abraham

Date: DECEMBER 1, 2017

IN TESTIMONY WHEREOF, I hereunto set my hands the day and year opposite my signature, and acknowledge that the above statements are a true and accurate representation of the facts.

  
\_\_\_\_\_  
Jon Soderstrom, Ph.D., Managing Director  
Office of Cooperative Research  
FOR YALE UNIVERSITY

Date: 4 Dec 2017

CONFIRMATION OF ASSIGNMENT

Confirmation of Assignment made October 29, 2013 by Dr. Nabil Abraham ("Inventor") to the Howard Hughes Medical Institute, a Delaware corporation ("HHMI").

Recitals

WHEREAS, Inventor is an employee of HHMI and, as a condition of his employment, has signed the Intellectual Property Assignment Agreement (the "Intellectual Property Agreement");

WHEREAS, pursuant to the Intellectual Property Agreement, Inventor (a) assigned to HHMI all rights he had in any intellectual property resulting from research by HHMI employees, alone or with others, whether or not patentable or copyrightable, and whether funded in whole or in part by HHMI (each a "Subject Property") and (b) agreed to execute any agreements that may be desired by HHMI in connection with such assignment;

WHEREAS, Inventor has, alone or with others invented "A Novel Broad Spectrum Anti-Infective: Anti-Biofilm Peptides with Peptide P2 as Prototype" which may be the subject of a patent application (the "Invention"), and the Invention is a Subject Property; and

WHEREAS, Inventor seeks to confirm the assignment of his interest in the Invention to HHMI, and HHMI desires the execution of a confirmatory assignment of all of Inventor's right, title, and interest in the Invention.

NOW, THEREFORE, in consideration of the promises contained in and the acts performed and to be performed pursuant to the Intellectual Property Agreement and of other good and valuable consideration, the receipt of which is hereby acknowledged by Inventor, Inventor agrees as follows:

1. Assignment. Inventor hereby confirms the assignment to HHMI of his entire right, title, and interest in the Invention; any United States patent applications and all corresponding foreign patent applications which are directed to the Invention and any and all patents issued therefrom; all United States or foreign division and continuation applications based on any of the foregoing, and any and all patents issued therefrom; and all claims which are directed to the Invention and which may be contained in continuation-in-part applications or in patents which issue therefrom.

2. Cooperation. Inventor agrees to execute upon request such further confirmatory assignments, documents, and other instruments as may be requested by HHMI in connection with the Invention and to assist HHMI (or others at the direction of HHMI) in applying for, obtaining, and enforcing patents, copyrights, or other rights in the United States and in any foreign country with respect to the Invention.

3. Parties. The terms and provisions of the Assignment shall inure to the benefit of HHMI and its successors and assigns and shall be binding on the Inventor and his heirs, personal representatives, successors and assigns.

4. Warranty. Inventor warrants and represents that he has not entered into any assignment, contract, or understanding in conflict herewith.

Inventor: *Nabil*  
Dr. Nabil Abraham

State of Connecticut

County of New Haven

Then personally appeared before me the above-named Dr. Nabil Abraham and acknowledged that he executed the foregoing instrument in his authorized capacity this 29<sup>th</sup> day of October, 2013

(SEAL)

Notary Public: *Mary Jane Chicowski*

(print name) **MARY JANE CHICOSKI**  
**NOTARY PUBLIC**  
MY COMMISSION EXPIRES JULY 31, 2014

My Commission Expires: \_\_\_\_\_

OCR 6291  
HHMI 05566

73387101

**PATENT**  
**REEL: 052922 FRAME: 0972**





## UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

NOVEMBER 4, 2016

PTAS

HEATHER J. DIPIETRANTONIO  
600 ATLANTIC AVENUE  
WOLF, GREENFIELD & SACKS P.C.  
BOSTON, MA 02210

# 504079871

### UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 11/03/2016

REEL/FRAME: 040211/0086  
NUMBER OF PAGES: 22

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: Y0087.70068US01

ASSIGNOR:  
FIKRIG, EROL

DOC DATE: 09/22/2016

ASSIGNOR:  
HEISIG, MARTIN

DOC DATE: 09/26/2016

ASSIGNOR:  
ABRAHAM, NABIL

DOC DATE: 09/22/2016

ASSIGNOR:  
NEELAKANTA, GIRISH

DOC DATE: 09/27/2016

ASSIGNEE:  
YALE UNIVERSITY  
TWO WHITNEY AVENUE  
NEW HAVEN, CONNECTICUT 06511

APPLICATION NUMBER: 15104719

FILING DATE: 06/15/2016

PATENT NUMBER:

ISSUE DATE:

TITLE: ANTI-INFECTIVE PROPERTIES OF ANTIFREEZE PROTEIN

ASSIGNMENT RECORDATION BRANCH  
PUBLIC RECORDS DIVISION

## ASSIGNMENT

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

1. Sell, assign and transfer to Yale University, a Connecticut Corporation having a place of business at Two Whitney Avenue; New Haven, Connecticut, 06511, 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 application for United States Letters Patent filed in the United States Patent and Trademark Office on June 15, 2016 under Application No. 15/104,719, bearing Attorney Docket No. Y0087.70068US01, and entitled ANTI-INFECTIVE PROPERTIES OF ANTIFREEZE PROTEIN (the Inventions), and in and to the application and all corresponding provisional, non-provisional, divisional, continuing, substitute, renewal, reissue and all other applications for Letters Patent, utility models, industrial designs or similar intellectual property rights which have been or shall be filed for in the territory of the United States and its possessions and territories, internationally, and in all foreign countries, including but not limited to China, Japan, and The Republic of 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 for the Inventions, including the right to apply for patent rights in each foreign country and all rights to priority, including the right to apply for patent rights in and claim priority for China, Japan, and The Republic of Korea, and the right to claim priority to the patent application under the International Convention for the Protection of Industrial Property and the European Patent Convention;

2. Agree that the Assignee may apply for and receive Letters 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, I 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 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 to issue the Letters 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 signed under the pains and penalties of perjury under the laws of the United States of America.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Inventor: Erol Fikrig

Address: 255 Dunk Rock Road  
Guilford, Connecticut 06437

Citizenship:

STATE/Commonwealth of \_\_\_\_\_  
COUNTY OF \_\_\_\_\_:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me, the undersigned notary public, personally appeared \_\_\_\_\_ Erol Fikrig \_\_\_\_\_, 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: Martin Heisig

Address: Goldbergstrasse 19  
Marburg, Germany 35043

Citizenship:

STATE/Commonwealth of \_\_\_\_\_  
County of \_\_\_\_\_ :

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me, the undersigned notary public,  
personally appeared \_\_\_\_\_ Martin Heisig \_\_\_\_\_, 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: \_\_\_\_\_

09/22/16  
Date

*Chibi*

Inventor: Nabil Abraham

Address: ~~Crown Street~~ 830 ORANGE ST., #2  
New Haven, Connecticut 06511

N.A.

Citizenship:

STATE/Commonwealth of Connecticut  
COUNTY OF New Haven :

On this 22nd day of Sept., 2016, before me, the undersigned notary public, personally appeared Nabil Abraham, proved to me through satisfactory evidence of identification, which were his Connecticut driver's 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) signed it voluntarily for its stated purpose.

SEAL

Donna J. Matosian  
Notary Public

My commission expires: Jan. 31, 2017

\_\_\_\_\_  
Date

\_\_\_\_\_  
Inventor: Girish Neelakanta

Address: Old Dominion University  
Department of Biological Sciences  
2021 Mills Godwin Building  
Norfolk, VA 23529

Citizenship:

STATE/Commonwealth of \_\_\_\_\_  
COUNTY OF \_\_\_\_\_ :

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me, the undersigned notary public, personally appeared \_\_\_\_\_ Girish Neelakanta \_\_\_\_\_, 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: \_\_\_\_\_