

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
GERHARD RANDERS-PEHRSON	10/31/2013
DAVID JONATHAN BRENNER	11/09/2013
ALAN BIGELOW	11/01/2013
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK
<b>Street Address:</b>	412 LOW MEMORIAL LIBRARY
<b>Internal Address:</b>	535 WEST 116TH STREET
<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10027
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16116593
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(212)309-1100
<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>	
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<b>Correspondent Name:</b>	HUNTON ANDREWS KURTH LLP ATTENTION: INT
<b>Address Line 1:</b>	200 PARK AVENUE
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<b>ATTORNEY DOCKET NUMBER:</b>	219262WOUS05-32883-279781
<b>NAME OF SUBMITTER:</b>	GARY ABELEV
<b>SIGNATURE:</b>	/s/ Gary Abelev
<b>DATE SIGNED:</b>	08/29/2018
<b>Total Attachments: 5</b>	
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ASSIGNMENT

WHEREAS, WE,

**GERHARD RANDERS-PEHRSON**

113 Hawkes Avenue  
Ossining, New York 10562

Citizenship: United States of America

**DAVID JONATHAN BRENNER**

139 West 82<sup>nd</sup> Street, Apt. 9G  
New York, New York 10024

Citizenship: United Kingdom

**ALAN BIGELOW**

97 Washington Avenue  
Hastings-on-Hudson, New York 10706

Citizenship: United States of America

have made an invention entitled "APPARATUS, METHOD AND SYSTEM FOR SELECTIVELY EFFECTING AND/OR KILLING BACTERIA", as set forth and described in U.S. Non-Provisional Patent Application No. 14/021,631 filed September 9, 2013 and in International Patent Application No. PCT/US2012/27963 which was filed on March 7, 2012 and in U.S. Provisional Patent Application No. 61/450,038 filed March 7, 2011 with the United States Patent and Trademark Office; and

WHEREAS, THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, a not-for-profit organization having an office for the transaction of business at 412 Low Memorial Library, 535 West 116<sup>th</sup> Street, New York, New York 10027, is desirous of acquiring our entire right, title and interest in and to said invention, and in and to the said application for Letters Patent therefor, and any Letters Patent which may be obtained therefor;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, BE IT KNOWN, that WE, the GERHARD RANDERS-PEHRSON, DAVID JONATHAN BRENNER and ALAN BIGELOW for and in consideration of the sum of One Dollar (\$1.00), lawful money of the United States, to us in hand paid by said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, and other valuable considerations unto us moving from said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, at or before the ensealing and delivery of these presents, the receipt of which is hereby acknowledged, have sold, assigned, transferred and conveyed and by these presents do sell, assign, transfer and convey, unto said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK,

its successors and assigns, the entire right, title and interest in and to the said invention entitled "APPARATUS, METHOD AND SYSTEM FOR SELECTIVELY EFFECTING AND/OR KILLING BACTERIA", as set forth and described in U.S. Non-Provisional Patent Application No. 14/021,631 filed September 9, 2013 and in International Patent Application No. PCT/US2012/27963 which was filed on March 7, 2012 and in U.S. Provisional Patent Application No. 61/450,038 filed March 7, 2011 with the United States Patent and Trademark Office, and in and to said application and any application claiming priority therefrom, and any non-provisional application, division, continuation or continuation-in-part thereof, and in and to any Letters Patent of the United States which may be issued on any of said applications, and any reissues thereof, and in and to any and all applications for Letters Patent filed in foreign countries for said invention, including all priority rights under the Paris Convention, and any and all Letters Patent which may be granted in foreign countries therefor, TO HAVE AND TO HOLD THE SAME to the full end of the term or terms for which any and all said Letters Patent may be granted;

AND WE, the said GERHARD RANDERS-PEHRSON, DAVID JONATHAN BRENNER and ALAN BIGELOW, do hereby authorize and request the Commissioner of Patents and Trademarks to issue the said Letters Patent of the United States to said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, as the assignee of the entire right, title and interest in and to the same, for the sole use and benefit of said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, its successors and assigns;

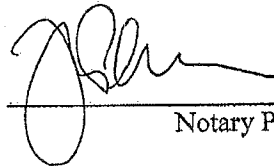
AND WE, the said GERHARD RANDERS-PEHRSON, DAVID JONATHAN BRENNER and ALAN BIGELOW, for the considerations aforesaid, do hereby covenant and agree to and with said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, its successors and assigns, that we have the full power to make this assignment, and that the rights assigned are not encumbered by any grant, license or right heretofore given, and that we, our executors or administrators, shall and will do all lawful acts and things and make, execute and deliver without further compensation, any and all other instruments in writing, further applications, papers, affidavits, powers of attorney, assignments, and other documents which, in the opinion of counsel for said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, its successors and assigns, may be required or necessary to more effectively secure to and vest in said THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, its successors and assigns, the entire right, title and interest in and to said invention, applications, Letters Patent, rights, benefits, privileges and advantages hereby sold, assigned, transferred and conveyed, and that we will sign any applications for reissue which may be desired by the owner of the patent or patents which may be issued for the said invention.

IN WITNESS WHEREOF, GERHARD RANDERS-PEHRSON, DAVID JONATHAN BRENNER and ALAN BIGELOW, have hereunto set our hands and seals on the date below written.

  
GERHARD RANDERS-PEHRSON

STATE OF NY )  
COUNTY OF WESTCHESTER )

BE IT KNOWN, that on this 31<sup>st</sup> day of Oct, 2013, before me personally came GERHARD RANDERS-PEHRSON, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned.

  
Notary Public

JOHN A FERRONE  
NOTARY PUBLIC, STATE OF NEW YORK  
NO. 01PE6130919  
QUALIFIED IN WESTCHESTER COUNTY  
MY COMMISSION EXPIRES JULY 25, 2017

David Brenner  
DAVID JONATHAN BRENNER

STATE OF New York )  
COUNTY OF New York :

BE IT KNOWN, that on this 9<sup>th</sup> day of November, 2013, before me personally came DAVID JONATHAN BRENNER, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned.

Stacey Nichols  
Notary Public

STACEY NICHOLS  
Notary Public - State of New York  
NO. 01N16286540  
Qualified in Queens County  
My Commission Expires Jul 29, 2017

11/9/13 [Signature]

Alan Bigelow  
ALAN BIGELOW

STATE OF )  
          :  
COUNTY OF )

BE IT KNOWN, that on this 1 day of Nov., 2013, before me personally came ALAN BIGELOW, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned.

Perry David Lee  
Notary Public

PERRY DAVID LEE  
NOTARY PUBLIC, STATE OF NEW YORK  
QUALIFIED IN WESTCHESTER COUNTY  
REG. # 01PE6136586  
MY COMM. EXP. NOV. 14, 2013