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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:							
NATURE OF CONVEYANCE:		ASSIGNMENT	ASSIGNMENT				
CONVEYING PARTY DA	٩ΤΑ						
		Name			Execution Date		
HAO H. ZHANG					08/16/2017		
WARREN D. D'SOUZA					08/16/2017		
BYONG YONG YI					08/07/2017		
GOKHAN KIRLIK				08/21/2017			
RECEIVING PARTY DA	TA						
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City:	BALTIMORE						
State/Country:	MARYLAND						
Postal Code:	21201						
PROPERTY NUMBERS	Total: 1						
Property Type		Number					
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ATTORNEY DOCKET NUMBER:		15024-339US2 /HZ-2016-	15024-339US2 /HZ-2016-119				
NAME OF SUBMITTER:		YELENA KOVALETS	YELENA KOVALETS				
SIGNATURE:		/Yelena Kovalets/	/Yelena Kovalets/				
DATE SIGNED:		02/08/2019	02/08/2019				
Total Attachments: 3		I					

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> PATENT REEL: 048274 FRAME: 0174

UMB Docket No: HZ-2016-119

ASSIGNMENT

In consideration of UMB's agreement to consider Assignors as "UMB Inventors" who are entitled to revenue distributions under the University System of Maryland Policy on Intellectual Property, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Hao H. Zhang, Warren D. D'Souza, Byong Yong Yi, and Gokhan Kirlik ("Assignors") hereby convey, assign, and transfer to the University of Maryland, Baltimore, a public university that is part of the University System of Maryland (which is a public corporation and an instrumentality of the State of Maryland) ("UMB"), and having an office c/o Office of Research and Development, 620 W. Lexington Street, 4th floor, Baltimore, MD 21201, their entire right, title, and interest in and to the invention known as "System and Method for Optimizing a Treatment Plan for Irradiation Therapy" (the "Invention"):

check applicable space(s) [X] for the United States of America (as defined in 35 U.S.C. §100)

[X] and throughout the world,

for which application for patent was filed under the Patent Cooperation Treaty on August 3, 2017 (also known as international patent application number PCT/US2017/045285), claiming benefit of US provisional patent application number 62/372,492, filed August 9, 2016, and in any and all non-provisional and/or international or foreign patent applications thereon, continuing patent applications thereon (including without limitation substitutions, divisionals, continuations, and continuations-in-part), patents or Letters Patent issued therefrom, and reissues, extensions, renewals, and reexaminations of such applications or patents.

Such entire right, title, and interest in the Invention are to be held and enjoyed by UMB to the same extent as they would have been held and enjoyed by Assignors had this Assignment not been made, to the full end of the term or terms for which any such patent(s) issue. Assignors hereby represent and warrant that they have full right to convey their right, title, and interest in the Invention herein assigned, and that he/she/they has/have not executed and will not execute any agreement or other document in conflict therewith.

Assignors agree to execute and deliver separate Assignments, patent applications, and other documents necessary or expedient in connection with, and to cooperate with and to assist UMB in connection with: further perfecting the assignment of the Invention to UMB; UMB's preparation, filing, prosecution (including without limitation defense in interference proceedings, reexaminations, or litigation), enforcement, and/or maintenance of the patents and patent applications; or for UMB to protect and commercialize its intellectual property right, title, and interests in the Invention (including without limitation copyright and/or trademarks).

IN WITNESS WHEREOF, executed by Assignors on the date opposite his/her name.

)

ASSIGNOR:

8/16/17

2-2-	2
Hao H. Zhang	

Address: 8052 Tuckerman Lane Potomac, MD 20854

STATE OF _______

I HEREBY CERTIFY, that on this ______ day of ______, 20____, before me, Notary Public of the State of _______, personally appeared **Hao H. Zhang**, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that, being authorized to do so, he or she executed the same as for the purposes contained therein.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above-mentioned.

Notary Public

[SEAL]

(SEAL)

My Commission Expires:

{00074590-2}

PATENT REEL: 048274 FRAME: 0175

Date

	,
UMB Docket No: HZ-2016-119	
,	ASSIGNOR:
8/16/17	(SEAL)
Date	Warren D. D'Souza Address:
	<u>6 Westspring Way</u> Timonium, MD 21093
STATE OF Mary land CITY / COUNTY OF Baltimen City	
I HEREBY CERTIFY, that on this <u>/</u> day of of <u><i>Waller</i></u> , personally appeared Wan person whose name is subscribed to the within instrume executed the same as for the purposes contained therein.	$\mathcal{M}_{\mathcal{A}}$, 20 17, before me, Notary Public of the State rren D, D'Souza, known to me (or satisfactorily proven) to be the nt, and acknowledged that, being authorized to do so, he or she
IN WITNESS WHEREOF, I have hereunto set my	hand and official seal the day and year last above-mentioned.
A second second	Notary Public / MAL
My Commission Expires: <u>01/13/18</u>	
Aug 72019 Date	ASSIGNOR: Byong Yong Yi Address: 11118 Radcliff Lane Fulton, MD 20759
STATE OF Mary And CITY / COUNTY OF <u>Baltmaste</u> Cosfy }	<u>August</u> , 20 <u>17</u> , before me, Notary Public of the State ig Yong/Vi , known to me (or satisfactorily proven) to be the person
whose name is subscribed to the within instrument, and ack same as for the purposes contained therein.	knowledged that, being authorized to do so, he or she executed the
IN WITNESS WHEREOF, I have hereunto set my $Byong yong y'$ My Commission Expires: $\frac{D1/13/18}{16}$	hand and official seal the day and year last above-mentioned.
My Commission Expires:///////////////////////////////	
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PATENT REEL: 048274 FRAME: 0176

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UMB Docket No: HZ-2016-119		
L		
	ASSIGNOR:	
8/21/12	and the second sec	(SEAL)
Date	Gokhan Kirlik	
	Address: 11.N. Eutaw Street, Apt. 611	2825 Mirilaho Dr 4
	Baltimore, MD-21201	Elense Mo uda
Max Land		
STATE OF ///////////////////////////////////		G.K 8/21/19
CITY/COUNTYOFAAAAA	As a la som	
I HEREBY CERTIFY, that on this day of	han Kirlik known to me for satisfact	me, Notary Public of the State
whose name is subscribed to the within instrument, and ac	knowledged that, being authorized to	do so, he or she executed the
same as for the purposes contained therein.	a a a marka di adi a a	
IN WITNESS WHEREOF, I have hereunto set my	hand and official seal the day and yea	r last above-mentioned.
· · · ·	Notary Public	[SEAL]
My Commission Expires: 8-1-24/16-	monury rublic 7	
My Condition Expires		
	Gall Knott	
s ta	Notary Public	
	State of Marylan	
	Baltimore Count	У

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RECORDED: 02/08/2019