

## PATENT ASSIGNMENT COVER SHEET

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<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT	
<b>CONVEYING PARTY DATA</b>		
	<b>Name</b>	<b>Execution Date</b>
	HOWARD HUGHES MEDICAL INSTITUTE	07/30/2019
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<b>PROPERTY NUMBERS Total: 1</b>		
	<b>Property Type</b>	<b>Number</b>
	Application Number:	16449100
<b>CORRESPONDENCE DATA</b>		
<b>Fax Number:</b>		
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<b>SIGNATURE:</b>	/Heather Biffle/	
<b>DATE SIGNED:</b>	06/16/2020	
<b>Total Attachments: 4</b>		
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## ASSIGNMENT

**WHEREAS, HOWARD HUGHES MEDICAL INSTITUTE** of 4000 Jones Bridge Road, Chevy Chase, Maryland 20815-6789 (hereinafter said "Assignor") is owner of a joint and undivided interest in (1) a certain invention(s) and/or improvement(s) in "*METHODS AND COMPOSITIONS TARGETING LUNG MICROBIOTA AND ITS RESPONDING IMMUNE PATHWAYS FOR LUNG CANCER TREATMENT*" described in U.S. Application No. 16/449,100 filed in the United States Patent and Trademark Office on June 21, 2019, by Chengcheng Jin, Georgia Lagoudas, Paul Blainey, and Tyler Jacks, and in U.S. Provisional Application No. 62/769,215 filed in the United States Patent and Trademark Office on November 19, 2018, and in U.S. Provisional Application No. 62/727,955 filed in the United States Patent and Trademark Office on September 6, 2018, by Chengcheng Jin, Georgia Lagoudas, and Tyler Jacks, (2) U.S. Application No. 16/449,100 filed on June 21, 2019, U.S. Provisional Application No. 62/769,215 filed November 19, 2018, and U.S. Provisional Application No. 62/727,955 filed September 6, 2018, (3) all Letters Patent of the United States and its possessions and territories and of all foreign countries and jurisdictions which may or shall be granted on said invention(s), on said improvement(s), or on said application(s), (4) all provisional, divisional, continuation, reissue, PCT, national phase, or other applications based thereon, and (5) all rights of priority, including the right to claim priority to said application(s), under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and any other treaty relating thereto;

**WHEREAS, Tyler Jacks** has been appointed to act as **ASSIGNOR's** agent for the purpose of assigning the rights **ASSIGNOR** has in (1) a certain invention(s) and/or improvement(s) in "*METHODS AND COMPOSITIONS TARGETING LUNG MICROBIOTA AND ITS RESPONDING IMMUNE PATHWAYS FOR LUNG CANCER TREATMENT*"

described in U.S. Application No. 16/449,100 filed in the United States Patent and Trademark Office on June 21, 2019, by Chengcheng Jin, Georgia Lagoudas, Paul Blainey, and Tyler Jacks, and in U.S. Provisional Application No. 62/769,215 filed in the United States Patent and Trademark Office on November 19, 2018, and in U.S. Provisional Application No. 62/727,955 filed in the United States Patent and Trademark Office on September 6, 2018, by Chengcheng Jin, Georgia Lagoudas, and Tyler Jacks, (2) U.S. Application No. 16/449,100 filed June 21, 2019, U.S. Provisional Application No. 62/769,215 filed November 19, 2018, and U.S. Provisional Application No. 62/727,955 filed September 6, 2018, (3) all Letters Patent of the United States and its possessions and territories and of all foreign countries and jurisdictions which may or shall be granted on said invention(s), on said improvement(s), or on said application(s), (4) all provisional, divisional, continuation, reissue, PCT, national phase, or other applications based thereon, and (5) all rights of priority, including the right to claim priority to said application(s), under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and any other treaty relating thereto;

**WHEREAS, Tyler Jacks**, for myself and acting as agent for **ASSIGNOR**, for good and valuable consideration from **Massachusetts Institute of Technology** having its principal place of business at 77 Massachusetts Avenue, Cambridge, Massachusetts 02319 (hereinafter said "Assignee"), the receipt of which is hereby acknowledged, does sell, assign and transfer, for myself and as agent for the Howard Hughes Medical Institute, unto said Assignee, its successors and assigns, its entire right, title and interest for the United States of America, and its territories and all foreign countries and jurisdictions, including all rights of priority under the International Convention for the Protection of Industrial Property, in (1) a certain invention(s) and/or improvement(s) in "*METHODS AND COMPOSITIONS TARGETING LUNG MICROBIOTA*

***AND ITS RESPONDING IMMUNE PATHWAYS FOR LUNG CANCER TREATMENT"***

described in U.S. Application No. 16/449,100 filed in the United States Patent and Trademark Office on June 21, 2019, by Chengcheng Jin, Georgia Lagoudas, Paul Blainey, and Tyler Jacks, and in U.S. Provisional Application No. 62/769,215 filed in the United States Patent and Trademark Office on November 19, 2018, and in U.S. Provisional Application No. 62/727,955 filed in the United States Patent and Trademark Office on September 6, 2018, by Chengcheng Jin, Georgia Lagoudas, and Tyler Jacks, (2) U.S. Application No. 16/449,100 filed June 21, 2019, U.S. Provisional Application No. 62/769,215 filed November 19, 2018, and U.S. Provisional Application No. 62/727,955 filed September 6, 2018, (3) all Letters Patent of the United States and its possessions and territories and of all foreign countries and jurisdictions which may or shall be granted on said invention(s), on said improvement(s), or on said application(s), (4) all provisional, divisional, continuation, reissue, PCT, national phase, or other applications based thereon, and (5) all rights of priority, including the right to claim priority to said application(s), under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and any other treaty relating thereto;

**AND**, said Assignor hereby binds itself, its legal representatives and assigns properly to execute without further consideration any and all applications, petitions, oaths and assignments or other papers and instruments which may be necessary in order to carry into full force and effect, the sale, assignment, transfer and conveyance hereby made or intended to be made and to do all acts necessary or proper to secure the grant of Letters Patent in the United States and its territories and in all other foreign countries and jurisdictions to said Assignee, with specifications and claims in such form as shall be approved by the counsel of said Assignee, and to vest and confirm in said Assignee, their successors and assigns, the legal title to all such patents.

**[Signatures on following page]**

IN WITNESS WHEREOF, I have executed this Assignment this 30 day  
of July, 2019.

HOWARD HUGHES MEDICAL INSTITUTE

By: \_\_\_\_\_

Tyler Jacks, for himself and as agent for the  
Howard Hughes Medical Institute

Title: Agent for Howard Hughes Medical Institute

Witnesses:

1. Signed: Judy A. Teixeira  
Printed Name: Judy A. Teixeira  
Address: 70 Briarwood Rd  
Tewksbury, MA 01876
2. Signed: Karen Yee  
Printed Name: Karen Yee  
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Boston, MA 02118