

## 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>
HOWARD HUGHES MEDICAL INSTITUTE	09/19/2019
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<b>PROPERTY NUMBERS Total: 2</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16510463
<b>PCT Number:</b>	US2019041580
<b>CORRESPONDENCE DATA</b>	
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<b>NAME OF SUBMITTER:</b>	HEATHER BIFFLE
<b>SIGNATURE:</b>	/Heather Biffle/
<b>DATE SIGNED:</b>	10/26/2020
<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 the entire interest in (1) a certain invention(s) and/or improvement(s) in "*NANOPARTICLE VACCINE ADJUVANT AND METHODS OF USE THEREOF*" described in U.S. Application No. 16/510,463 filed in the United States Patent and Trademark Office on July 12, 2019 and International Application No. PCT/US2019/041580 filed in the United States Receiving Office for the Patent Cooperation Treaty on July 12, 2019, by Darrell J. Irvine, Murillo Silva, Shane Crotty, and Yu Kato, and in the provisional application(s) to which priority is claimed, being U.S. Provisional Application No. 62/731,214 filed in the United States Patent and Trademark Office on September 14, 2018, (2) U.S. Application No. 16/510,463 filed July 12, 2019, International Application No. PCT/US2019/041580 filed July 12, 2019, and U.S. Provisional Application No. 62/731,214 filed September 14, 2018, and (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, Darrell Irvine 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 "*NANOPARTICLE VACCINE ADJUVANT AND METHODS OF USE THEREOF*" described in U.S. Application No. 16/510,463 filed in the United States Patent and

Trademark Office on July 12, 2019 and International Application No. PCT/US2019/041580 filed in the United States Receiving Office for the Patent Cooperation Treaty on July 12, 2019, by Darrell J. Irvine, Murillo Silva, Shane Crotty, and Yu Kato, and in the provisional application(s) to which priority is claimed, being U.S. Provisional Application No. 62/731,214 filed in the United States Patent and Trademark Office on September 14, 2018, (2) U.S. Application No. 16/510,463 filed July 12, 2019, International Application No. PCT/US2019/041580 filed July 12, 2019, and U.S. Provisional Application No. 62/731,214 filed September 14, 2018, and (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, Darrell Irvine**, 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 "*NANOPARTICLE VACCINE ADJUVANT AND METHODS OF USE*"

*THEREOF*" described in U.S. Application No. 16/510,463 filed in the United States Patent and Trademark Office on July 12, 2019 and International Application No. PCT/US2019/041580 filed in the United States Receiving Office for the Patent Cooperation Treaty on July 12, 2019, by Darrell J. Irvine, Murillo Silva, Shane Crotty, and Yu Kato, and in the provisional application(s) to which priority is claimed, being U.S. Provisional Application No. 62/731,214 filed in the United States Patent and Trademark Office on September 14, 2018, (2) U.S. Application No. 16/510,463 filed July 12, 2019, International Application No. PCT/US2019/041580 filed July 12, 2019, and U.S. Provisional Application No. 62/731,214 filed September 14, 2018, and (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.

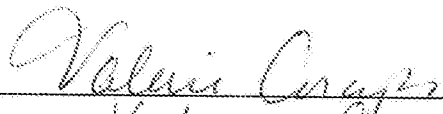
IN WITNESS WHEREOF, I have executed this Assignment this 19<sup>th</sup> day  
of September, 2019.

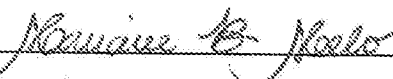
HOWARD HUGHES MEDICAL INSTITUTE

By:   
Darrell Irvine, for himself and as agent for the  
Howard Hughes Medical Institute

Title: Agent for Howard Hughes Medical Institute

Witnesses:

1. Signed:   
Printed Name: Valerie Corapi  
Address: 264 Beal Rd  
Waltham, MA 02453

2. Signed:   
Printed Name: MARIANE B. MELO  
Address: 37 EDWARD RD  
STONEHAM, MA 02180