## 504150929 12/22/2016

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4197602

SUBMISSION TYPE:		NEW ASSIGNMENT			
NATURE OF CONVEYANCE:		ASSIGNMENT	ASSIGNMENT		
CONVEYING PARTY DA	ΑΤΑ				
		Name	Execution Date		
JEFFREY D. FISCHER			12/19/2016		
LUKE T. DAUM			12/21/2016		
GERALD W. FISCHER			12/19/2016		
RECEIVING PARTY DA	ТА				
Name:		ORN VACCINES AND DIAGNOSTICS,	LLC		
Street Address:		ESDA METRO CENTER			
Internal Address:	SUITE 9	10			
City:	BETHES	SDA			
State/Country:	MARYLA	AND			
Postal Code:	20814				
Property Type		Number			
Property Type Application Number: PCT Number:		Number 5361228 JS2016063767			
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#### ASSIGNMENT

WHEREAS, we, Jeffrey D. Fischer. With a residence address at 3311 Cathedral Ave., NW, Washington, DC 20008; Luke T. Daum, with a residence address at 318 Larkwood Drive, San Antonio, TX 78209; and Gerald W. Fischer, with a residence address at 6417 Lybrook Drive, Bethesda, MD 20817, (the "Assignors") are the inventors and owners of all right, title, and interest in and to the improvements entitled:

### COMPOSITIONS AND METHODS FOR DETECTING AND QUANTIFYING NUCLEIC ACID SEQUENCES IN BLOOD SAMPLES

which is disclosed and described in United States Patent Application No. 15/361,228, filed November 25, 2016, United States Provisional Patent Application No. 62/260,064, filed November 25, 2015, and International Application No. PCT/US2016/63767, filed November 25, 2016 (the "Applications"), and any and all National Stage applications corresponding thereto.

WHEREAS, Longhorn Vaccines and Diagnostics, LLC, a company having a place of business located at 2 Bethesda Metro Center, Suite 910, Bethesda, MD 20814 (the "Assignee"), is desirous of acquiring all rights to the improvements and under the application;

NOW, THEREFORE, in view of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Assignors, Assignors do hereby sell, assign and transfer unto said Assignce, its successors, assigns and legal representatives, Assignors' entire right, title, and interest in the above-referenced Applications, including any nonprovisional applications that claim priority thereto, all right to claim priority and all right of recovery for prior infringement, in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto in and to said improvements. said United States application, any other United States applications, including any other provisional, and any non-provisional, divisional, renewal, substitute, continuation, reexamination and reissue applications, based in whole or in part on said United States provisional application or in whole or in part on said invention, any right of priority based in whole or in part on any of the aforesaid United States provisional applications or in whole or in part on said improvements, any foreign applications, including international and regional applications, based in whole or in part on any of the aforesaid United States applications or in whole or in part on said improvements, and in and to any and all letters patent, including extensions thereof, of any country which have been or may be granted on any of the aforesaid applications or on said improvements or any parts thereof;

AND Assignee hereby authorizes and requests its agents, Remenick PLLC, whose address is 1025 Thomas Jefferson Street, N.W., Suite 175, Washington, D.C. 20007, to insert hereon any identification necessary or desirable for recordation of this document or any information necessary to correct typographical, grammatical or other errors in this document, including the filing date and application number of said application when known;

AND Assignors hereby agree for themselves and their heirs, executors, administrators, successors and assigns to execute without further consideration any further documents and instruments which may be necessary, lawful and proper in the prosecution of said above-referenced application or in the preparation or prosecution of any continuing, substitute,

PATENT REEL: 040744 FRAME: 0882 divisional, renewal, reexamination or reissue application or in any amendments, extensions or interference proceedings, or other applications for patents of any region or country, that may be necessary to secure to Assignee its interest and title in and to said improvements or any parts thereof, and in and to said several patents or any of them;

AND Assignors hereby covenant for themselves and their legal representatives, and agrees with said Assignee, its successors and assigns, that Assignors have granted no right or license to make, use, sell or offer to sell said improvements, to anyone except said Assignee, that prior to the execution of this deed, its right, title, and interest in said improvements had not been otherwise encumbered, and that Assignors have not and will not execute any instrument in conflict therewith;

AND Assignors do hereby authorize and request the United States Commissioner for Patents to issue any and all letters patent which may be granted upon said United States applications, or upon said improvements or any parts thereof when granted, to said Assignee.

IN WITNESS WHEREOF, Assignors hereunto set their hand and seal.

### FOR THE ASSIGNORS (THE INVENTORS):

Name frey D. Fischer County of Montgomery \$\$1 State of Maryland

Date: December 19, 2016

On this 19<sup>th</sup> day of December 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Jeffrey D. Fischer, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.



Susan M. Graham, Notary Public My Commission Expires: 12/9/17

Date: December \_\_\_\_, 2016

Name: Luke T. Daum

County of

State of

On this \_\_\_\_\_\_ day of \_\_\_\_\_\_ 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Luke T. Daum, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.

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SS:

SS:

(SEAL)

Notary Public

My Commission Expires

Date: December 19, 2016

Name: Gerald W. Fischer

County of Montgomery

State of Maryland

On this 19<sup>th</sup> day of December 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Gerald W. Fischer, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.



Susan M. Graham, Notary Public My Commission Expires: 12/9/17

### FOR ASSIGNEE: LONGHORN VACCINES AND DIAGNOSTICS, LLC

By Date: December 19, 2016 Name: Gerald W. Fischer

}

)

SS:

Title: President & CEO

County of Montgomery

State of Maryland

On this 19<sup>th</sup> day of December 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Gerald W. Fischer, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.



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Susan M. Graham, Notary Public My Commission Expires: 12/9/17

### ASSIGNMENT

WHEREAS, we, Jeffrey D. Fischer. With a residence address at 3311 Cathedral Ave., NW, Washington, DC 20008; Luke T. Daum, with a residence address at 318 Larkwood Drive. San Antonio, TX 78209; and Gerald W. Fischer, with a residence address at 6417 Lybrook Drive, Bethesda, MD 20817, (the "Assignors") are the inventors and owners of all right, title, and interest in and to the improvements entitled.

## COMPOSITIONS AND METHODS FOR DETECTING AND QUANTIFYING NUCLEIC ACID SEQUENCES IN BLOOD SAMPLES

which is disclosed and described in United States Patent Application No. 15/361,228, filed November 25, 2016, United States Provisional Patent Application No. 62/260,064, filed November 25, 2015, and International Application No. PCT/US2016/63767, filed November 25, 2016 (the "Applications"), and any and all National Stage applications corresponding thereto.

WHEREAS, Longhorn Vaccines and Diagnostics, LLC, a company having a place of business located at 2 Bethesda Metro Center, Suite 910, Bethesda, MD 20814 (the "Assignee"), is desirous of acquiring all rights to the improvements and under the application:

NOW, THEREFORE, in view of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Assignors, Assignors do hereby sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, Assignors' entire right, title, and interest in the above-referenced Applications, including any nonprovisional applications that claim priority thereto, all right to claim priority and all right of recovery for prior infringement, in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto in and to said improvements, said United States application, any other United States applications, including any other provisional, and any non-provisional, divisional, renewal, substitute, continuation, reexamination and reissue applications, based in whole or in part on said United States provisional application or in whole or in part on said invention, any right of priority based in whole or in part on any of the aforesaid United States provisional applications or in whole or in part on said improvements, any foreign applications, including international and regional applications, based in whole or in part on any of the aforesaid United States applications or in whole or in part on said improvements, and in and to any and all letters patent, including extensions thereof, of any country which have been or may be granted on any of the aforesaid applications or on said improvements or any parts thereof,

AND Assignce hereby authorizes and requests its agents, Remenick PLLC, whose address is 1025 Thomas Jefferson Street, N.W., Suite 175, Washington, D.C. 20007, to insert hereon any identification necessary or desirable for recordation of this document or any information necessary to correct typographical, grammatical or other errors in this document, including the filing date and application number of said application when known;

AND Assignors hereby agree for themselves and their heirs, executors, administrators, successors and assigns to execute without further consideration any further documents and instruments which may be necessary, lawful and proper in the prosecution of said above-referenced application or in the preparation or prosecution of any continuing, substitute,

divisional, renewal, reexamination or reissue application or in any amendments, extensions or interference proceedings, or other applications for patents of any region or country, that may be necessary to secure to Assignee its interest and title in and to said improvements or any parts thereof, and in and to said several patents or any of them;

AND Assignors hereby covenant for themselves and their legal representatives, and agrees with said Assignee, its successors and assigns, that Assignors have granted no right or license to make, use, sell or offer to sell said improvements, to anyone except said Assignee, that prior to the execution of this deed, its right, title, and interest in said improvements had not been otherwise encumbered, and that Assignors have not and will not execute any instrument in conflict therewith;

AND Assignors do hereby authorize and request the United States Commissioner for Patents to issue any and all letters patent which may be granted upon said United States applications, or upon said improvements or any parts thereof when granted, to said Assignee.

IN WITNESS WHEREOF, Assignors hereunto set their hand and seal.

## FOR THE ASSIGNORS (THE INVENTORS):

Name: Jeffrey D. Fischer		Date:	
County of	)		
State of	) ss:		

On this \_\_\_\_\_\_ day of \_\_\_\_\_\_ 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Jeffrey D. Fischer, to me known and known to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.

(SEAL)

Notary Public

My Commission Expires

Luke T. Daum Name

Date:	<u>DEC 21</u>	、	2016
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County of	Berar	)	
State of T	2XAS	)	\$\$)

On this <u>A</u> day of <u>December</u> 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Luke T. Daum, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and doed.

n de la desta de la companya de la c lige céla C Spattif Notary Public (SEAL) My Commission Expires 2-11-207 Date: \_\_\_\_\_, 2016 Name: Gerald W. Fischer County of S\$. State of

On this \_\_\_\_\_\_day of \_\_\_\_\_\_2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Gerald W. Fischer, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.

(SEAL)

Notary Public

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

PATENT REEL: 040744 FRAME: 0888

# FOR ASSIGNEE: LONGHORN VACCINES AND DIAGNOSTICS, LLC

By: \_\_\_\_\_\_ Name: Gerald W. Fischer Title: President & CEO

Date: \_\_\_\_\_, 2016

County of ) State of 55:

On this \_\_\_\_\_ day of \_\_\_\_\_ 2016, before me a Notary Public in and for the County and State aforesaid, personally appeared Gerald W. Fischer, to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be of his free act and deed.

(SEAL)

Notary Public

My Commission Expires