

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5837532

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| JORDAN JARJOUR | 08/02/2016 |
| ALEXANDER ASTRAKHAN | 08/02/2016 |
| MICHAEL CERTO | 08/01/2016 |
| RECEIVING PARTY DATA | |
| Name: | BLUEBIRD BIO, INC. |
| Street Address: | 150 SECOND STREET, THIRD FLOOR |
| City: | CAMBRIDGE |
| State/Country: | MASSACHUSETTS |
| Postal Code: | 02141 |
| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| Application Number: | 16573254 |
| CORRESPONDENCE DATA | |
| Fax Number: | (202)842-7899 |
| <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> | |
| Phone: | 2064528700 |
| Email: | sclingerman@cooley.com, zPatDCDocketing@cooley.com |
| Correspondent Name: | COOLEY LLP |
| Address Line 1: | 1299 PENNSYLVANIA AVE, NW, SUITE 700 |
| Address Line 2: | ATTN: PATENT DEPT/MARK E. ROGEL |
| Address Line 4: | WASHINGTON, D.C. 20004 |
| ATTORNEY DOCKET NUMBER: | BLBD-036/06US 315698-2996 |
| NAME OF SUBMITTER: | MARK E. ROGEL |
| SIGNATURE: | /Mark E. Rogel/ |
| DATE SIGNED: | 11/25/2019 |
| This document serves as an Oath/Declaration (37 CFR 1.63). | |
| Total Attachments: 5 | |
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PATENT

REEL: 051105 FRAME: 0224

COMBINED DECLARATION AND ASSIGNMENT

As below named inventors, **Jordan JARJOUR**, **Alexander ASTRAKHAN**, and **Michael T. CERTO**, (each referred to as "Assignor") having made an invention(s) (the "Invention(s)") set forth in an application for patent of the United States, entitled **MULTIPARTITE SIGNALING PROTEINS AND USES THEREOF**, and which is a:

- (1) ☐ provisional application
 - (a) ☐ to be filed herewith; or
 - (b) ☐ bearing Application No. , and filed on ;
- (2) ☒ non-provisional application
 - (a) ☐ to be filed herewith; or
 - (b) ☒ bearing Application No. **14/908,734**, and filed on **January 29, 2016**; or
- (3) ☐ PCT application
 - (a) ☐ bearing Application No. , and filed on .

WHEREAS, bluebird bio, Inc., a corporation duly organized under and pursuant to the laws of Delaware, and having its principal place of business at 150 Second Street, Third Floor, Cambridge, MA 02141, its successors, legal representatives and assigns, (the "Assignee") is desirous of acquiring the entire right, title, and interest in and to said Invention; the application for patent identified above; the right to file applications for patent of the United States or other countries on the Invention; any application for patent of the United States or other countries claiming priority to these applications; any provisional or other right to recover damages, including royalties, for prior infringements of these applications; and any patent of the United States or other countries that may be granted therefor or thereon.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if the Assignor has already done so via a prior agreement with the Assignee then in confirmation of any obligation to do so in said prior agreement, the Assignor has sold, assigned, transferred, and set over, and by these presents does sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns, the Assignor's entire right, title, and interest in:

- (a) the Invention(s);
- (b) the application for patent identified in paragraph (1), (2) and/or (3);
- (c) the right to file applications for patent of the United States or other countries on the Invention(s), including all rights under the Hague Convention, the Paris Convention for the Protection of Industrial Property and under the Patent Cooperation Treaty;

(d) any application(s) for patent of the United States or other countries claiming the Invention(s);

(e) any application(s) for patent of the United States or other countries claiming priority to the application for patent identified in paragraph (1), (2) and/or (3) or any application(s) for patent claiming the Invention(s), including any division(s), continuation(s), and continuation(s)-in-part; and

(f) any provisional or other right to recover damages, including royalties, for prior infringements of any application for patent identified in the preceding paragraphs (b)-(e); and

(g) any patent(s) of the United States or other countries that may be granted for or on any application for patent identified in the preceding paragraphs (b) – (e), including any reissue(s) and extension(s) of said patent(s).

The above-granted rights, titles, and interests are to be held and enjoyed by the Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale and assignment not been made.

The Assignor hereby represents to the Assignee, its successors, legal representatives, and assigns, that, at the time of execution and delivery of these presents, or if applicable, at such time said prior agreement was executed, the Assignor is a lawful owner of an undivided interest in the entire right, title, and interest in and to the Invention(s), that the Invention(s) are unencumbered, except, if applicable, by obligation to assign in accordance with said prior agreement, and that the Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth herein.

The Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that the Assignor will sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done in connection with any and all proceedings for the procurement, maintenance, enforcement and defense of the Invention(s), said applications, and said patents, including interference proceedings, without charge to the Assignee, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal representatives, and assigns.

The Assignor hereby authorizes and requests the attorneys of COOLEY LLP to insert in the spaces provided above the filing date, the application number, and the attorney docket number of the application identified in paragraph (1), (2) and/or (3) when known.

The Assignor hereby requests the Commissioner of Patents to issue said patents of the United States to the Assignee for the sole use and behalf of the Assignee, its successors, legal representatives, and assigns.

Attorney Docket No.: BLBD-036/02US 315698-2414

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Date: 8-02-2016

BY

Name: Jordan JARJOUR
Mailing Address:
11014 37th Ave SW
Seattle, WA 98146

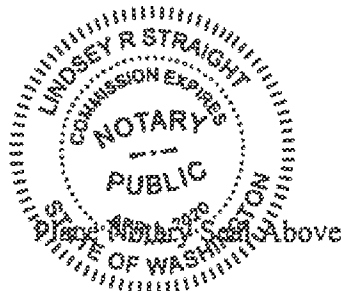
State of Washington)
) ss.
County of King)

On August 2, 2016, before me, Lindsey Straight,
Notary Public, personally appeared Jordan Jorgar,
who proved to me on the basis of satisfactory evidence, to be the person(s) whose
name(s) is/are subscribed to the within instrument and acknowledged to me that
he/she/they executed the same in his/her/their authorized capacity(ies), and that by
his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of
which the person(s) acted, executed the instrument. REQUIRED SENTENCE IF
NOTARIZED IN CALIFORNIA: I certify under PENALTY OF PERJURY under the
laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

My Commission Expires: April 1, 2020



I hereby declare that the above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

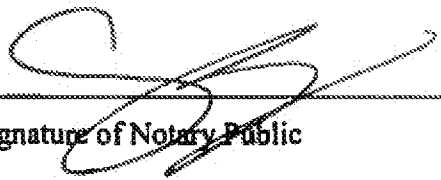
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Date: 08/02/2016

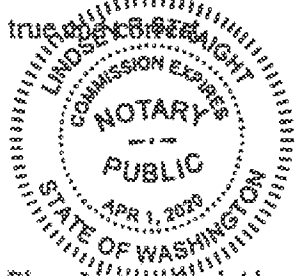
By: 
Name: Alexander ASTRAKHAN
Mailing Address:
8626 31st Ave SW
Seattle, WA 98126

State of Washington)
County of King) ss.
On August 2, 2016, before me, Lindsey Straight
Notary Public, personally appeared Alexander Astrakhan,
who proved to me on the basis of satisfactory evidence, to be the person(s) whose
name(s) is/are subscribed to the within instrument and acknowledged to me that
he/she/they executed the same in his/her/their authorized capacity(ies), and that by
his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of
which the person(s) acted, executed the instrument. REQUIRED SENTENCE IF
NOTARIZED IN CALIFORNIA: I certify under PENALTY OF PERJURY under the
laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature of Notary Public


Place Notary Seal Above

My Commission Expires: April 1, 2020

I hereby declare that the above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Date: 8/1/2016

By: 

Name: **Michael CERTO**

Mailing Address:

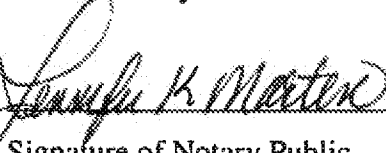
120A Westbourne Terrace

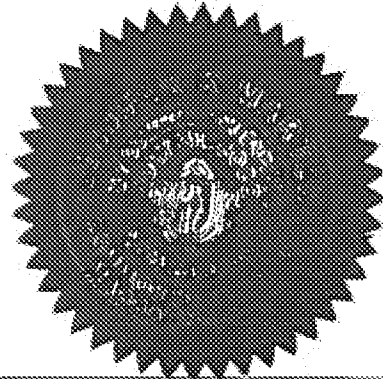
Brookline, MA 02446

State of Massachusetts)
) ss.
County of Suffolk)

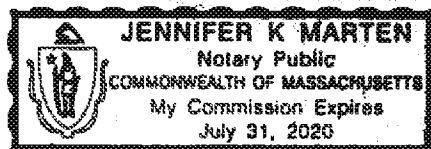
On August 1, 2016, before me, Jennifer K. Marten, Notary Public, personally appeared Michael Certo, who proved to me on the basis of satisfactory evidence, to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.


Signature of Notary Public



My Commission Expires: July 31, 2020



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