

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

Assignment ID: TMI98191

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT		
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST		
<b>CONVEYING PARTY DATA</b>			
<b>Name</b>	<b>Formerly</b>	<b>Execution Date</b>	<b>Entity Type</b>
bluebird bio, Inc.		03/15/2024	Corporation: DELAWARE
<b>RECEIVING PARTY DATA</b>			
<b>Company Name:</b>	Hercules Capital, Inc., as Agent		
<b>Street Address:</b>	1 North B Street		
<b>Internal Address:</b>	Suite 2000		
<b>City:</b>	San Mateo		
<b>State/Country:</b>	CALIFORNIA		
<b>Postal Code:</b>	94401		
<b>Entity Type:</b>	Corporation: MARYLAND		
<b>PROPERTY NUMBERS Total: 15</b>			
<b>Property Type</b>	<b>Number</b>	<b>Word Mark</b>	
<b>Registration Number:</b>	4046532	BLUEBIRD BIO	
<b>Registration Number:</b>	3151461	LENTIGLOBIN	
<b>Registration Number:</b>	6269734	XYNTEGLO	
<b>Registration Number:</b>	6269733	ZYNCEGLO	
<b>Registration Number:</b>	6269732	ZYNTYGLO	
<b>Registration Number:</b>	7219624	ZYNTEGLO	
<b>Registration Number:</b>	7214206	SKYSONA	
<b>Registration Number:</b>	7147981	MY BLUEBIRD SUPPORT	
<b>Serial Number:</b>	97893548	MY BLUEBIRD SUPPORT	
<b>Serial Number:</b>	98405188	ZYNTEGLO	
<b>Serial Number:</b>	98405197	ZYNTEGLO	
<b>Serial Number:</b>	98405200	ZYNTEGLO	
<b>Serial Number:</b>	98301127	SKYSONA	
<b>Serial Number:</b>	98301155	SKYSONA	
<b>Serial Number:</b>	98301147	SKYSONA	
<b>CORRESPONDENCE DATA</b>			
<b>Fax Number:</b>	8586771401		
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent</i>			
<b>TRADEMARK</b>			

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*using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

**Phone:** (619)864-3377  
**Email:** christian.cruz@us.dlapiper.com  
**Correspondent Name:** DLA Piper LLP (US)  
**Address Line 1:** 4365 Executive Drive  
**Address Line 2:** Suite 1100  
**Address Line 4:** San Diego, CALIFORNIA 92121

<b>NAME OF SUBMITTER:</b>	Christian Cruz
<b>SIGNATURE:</b>	Christian Cruz
<b>DATE SIGNED:</b>	03/15/2024

**Total Attachments: 9**

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## INTELLECTUAL PROPERTY SECURITY AGREEMENT

THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT (“Agreement”) dated as of March 15, 2024, is made by BLUEBIRD BIO, INC., a Delaware corporation (“Grantor”), in favor of HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent (together with its successors and assigns in such capacity, “Agent”) for itself and the Lenders (as defined below).

### RECITALS

A. Grantor has entered into a Loan and Security Agreement with certain financial institutions party thereto (the “Lenders”) and Agent, in its capacity as administrative agent and collateral agent for itself and the Lenders, dated as of the date hereof (as amended, restated, supplemented or otherwise modified from time to time, the “Loan Agreement”). All capitalized terms used but not defined herein shall have the respective meanings given to them in the Loan Agreement.

B. Pursuant to the terms of the Loan Agreement, Grantor has granted to Agent for its benefit and the benefit of the Lenders a security interest in all of Grantor’s right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of its obligations under the Loan Agreement, Grantor hereby represents, warrants, covenants and agrees as follows:

### AGREEMENT

1. Grant of Security Interest. To secure its obligations under the Loan Agreement, Grantor grants and pledges to Agent for its benefit and the benefit of the Lenders a security interest in all of Grantor’s right, title and interest in, to and under its Intellectual Property (all of which shall collectively be called the “Intellectual Property Collateral”), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held, including without limitation those set forth on Exhibit A attached hereto (collectively, the “Copyrights”);

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held;

(c) Any and all design rights that may be available to Grantor now or hereafter existing, created, acquired or held;

(d) All patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions, re-examination certificates, utility models, and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached hereto (collectively, the “Patents”);

(e) Any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto (collectively, the “Trademarks”);

(f) All mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired, including, without limitation those set forth on Exhibit D attached hereto (collectively, the “Mask Works”);

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

Notwithstanding the foregoing, the Intellectual Property Collateral does not include any property excluded from the Collateral in accordance with Section 3.2 of the Loan Agreement.

2. Recordation. Grantor authorizes the Commissioner for Patents, the Commissioner for Trademarks and the Register of Copyrights and any other government officials to record and register this Agreement upon request by Agent.

Grantor hereby authorizes Agent to (a) modify this Agreement unilaterally by amending the exhibits to this Agreement to include any Intellectual Property Collateral which Grantor obtains subsequent to the date of this Agreement and (b) file a duplicate original of this Agreement containing amended exhibits reflecting such new Intellectual Property Collateral.

3. Loan Documents. This Agreement has been entered into pursuant to and in conjunction with the Loan Agreement, which is hereby incorporated by reference. The provisions of the Loan Agreement shall supersede and control over any conflicting or inconsistent provision herein. The rights and remedies of Agent with respect to the Intellectual Property Collateral are as provided by the Loan Agreement and related documents, and nothing in this Agreement shall be deemed to limit such rights and remedies.

4. Execution in Counterparts. This Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts, and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument. Delivery of an executed counterpart of a signature page of this Agreement by facsimile, portable document format (.pdf) or other electronic transmission will be as effective as delivery of a manually executed counterpart hereof.

5. Successors and Assigns. The provisions of this Agreement shall inure to the benefit of the parties hereto and their respective successors and assigns. Grantor shall not assign its obligations under this Agreement without Agent's express prior written consent, and any such attempted assignment shall be void and of no effect. Agent may assign, transfer, or endorse its rights hereunder pursuant to the terms of the Loan Agreement without prior notice to Grantor, and all of such rights shall inure to the benefit of Agent's successors and assigns.

6. Governing Law. This Agreement has been negotiated and delivered to Agent in the State of California, and shall have been accepted by Agent in the State of California. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

7. Electronic Execution of Certain Other Documents. The words "execution," "execute," "signed," "signature," and words of like import in or related to any document to be signed in connection with this Agreement and the transactions contemplated hereby (including without limitation assignments, assumptions, amendments, waivers and consents) shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by the Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law,

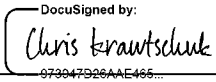
including the Federal Electronic Signatures in Global and National Commerce Act, the California Uniform Electronic Transactions Act, or any other similar state laws based on the Uniform Electronic Transactions Act.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

**GRANTOR:**

**BLUEBIRD BIO, INC.**, a Delaware corporation

By:   
Name: Christopher Krawtschuk  
Title: Chief Financial Officer

**AGENT:**

**HERCULES CAPITAL, INC.,** a Maryland corporation

By: Seth H Meyer

Name: Seth Meyer CR3YWX1 15JBY2ZZ

Title: Chief Financial Officer

EXHIBIT A

Copyrights

None.



EXHIBIT B

Patents

Title	Application No. Pub No./Patent No.	Filing Date Pub/Grant Date
GENE THERAPY VECTORS FOR ADRENOLEUKODYSTROPY AND ADRENOMYELONEUROPATHY	13/492,553 8,858,928	2012-06-08 2014-10-14
GENE THERAPY VECTORS FOR ADRENOLEUKODYSTROPY AND ADRENOMYELONEUROPATHY	14/125,220 9,789,139	2014-10-03 2017-10-17
GENE THERAPY VECTORS FOR ADRENOLEUKODYSTROPY AND ADRENOMYELONEUROPATHY	14/488,058 9,061,031	2014-09-16 2015-06-23
IMPROVED GENE THERAPY METHODS	14/346,647 9,783,822	2011-09-23 2017-10-10
IMPROVED GENE THERAPY METHODS	15/728,381 10,280,435	2017-10-09 2019-05-07
COMPOUNDS FOR IMPROVED VIRAL TRANSFECTION	14/348,572 9,988,644	2014-03-28 2018-06-05
COMPOUNDS FOR IMPROVED VIRAL TRANSFECTION	15/997,643 10,501,759	2018-06-04 2019-12-10
COMPOUNDS FOR IMPROVED VIRAL TRANSFECTION	16/665,892 10,907,177	2019-10-28 2021-02-02
COMPOUNDS FOR IMPROVED VIRAL TRANSFECTION	17/125,930 11,834,668	2020-12-17 2023-12-05
COMPOUNDS FOR IMPROVED VIRAL TRANSFECTION	18/525,721	2023-11-30
VCN ENHANCER COMPOSITIONS AND METHODS OF USING THE SAME	16/076,946 20190284533	2018-08-09
VCN ENHANCER COMPOSITIONS AND METHODS OF USING THE SAME	16/076,950 11,326,183	2018-08-09 2022-05-10
SICKLED BETA GLOBIN ANTIBODIES	16/771,411 11,535,681	2020-06-10 2022-12-27
SICKLED BETA GLOBIN ANTIBODIES	18/087,393	2022-12-22
SICKLE CELL POTENCY ASSAY	17/440,543 20220154145	2021-09-17
BETA-THALASSEMIA POTENCY ASSAY	17/598,637 20220163512	2021-09-27
TRANSDUCTION EFFICIENCY ASSAY	17/641,059 20220325336	2022-03-07
METHODS	18/035,683	2023-05-05
METHODS	18/576,073	2024-01-02

EXHIBIT C

Trademarks

Trademark	Status	Application #	Date Filed	Registration #	Registration Date
BLUEBIRD BIO	Registered	85/100,061	Aug 4, 2010	4046532	Oct 25, 2011
LENTIGLOBIN	Registered	78/130,500	May 22, 2002	3151461	Oct 3, 2006
XYNTEGLO	Registered	88/791,997	Feb 10, 2020	6269734	Feb 16, 2021
ZYNCEGLO	Registered	88/791,995	Feb 10, 2020	6269733	Feb 16, 2021
ZYNTYGLO	Registered	88/791,992	Feb 10, 2020	6269732	Feb 16, 2021
zynteglo & Device (red and purple wavy lines below zynteglo)	Registered	97/132,197	Nov 18, 2021	7219624	Nov 14, 2023
skysona & device (orange and blue wavy lines below skysona)	Registered	97/132,256	Nov 18, 2021	7214206	Nov 7, 2023
my bluebird support & design (blue on white background)	Registered	97/148,982	Nov 30, 2021	7147981	Aug 29, 2023
my bluebird support & design (without color claim)	Pending	97/893,548	Apr 18, 2023		
ZYNTYGLO	Pending	98/405,188	Feb 14, 2024		
zynteglo & device (wavy lines above zynteglo)	Pending	98/405,197	Feb 14, 2024		
zynteglo & device (red and purple wavy lines above zynteglo)	Pending	98/405,200	Feb 14, 2024		
SKYSONA	Pending	98/301,127	Dec 6, 2023		
skysona & device (wavy lines above skysona)	Pending	98/301,155	Dec 6, 2023		
skysona & device (orange and blue wavy lines above skysona)	Pending	98/301,147	Dec 6, 2023		

EXHIBIT D

Mask Works

None.