
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 OR 15(d)
of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): December 31, 2019

KALEIDO BIOSCIENCES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

001-38822
(Commission
File Number)

47-3048279
(IRS Employer
Identification No.)

65 Hayden Avenue
Lexington, MA
(Address of principal executive offices)

02421
(Zip Code)

Registrant's telephone number, including area code: (617) 674-9000

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.001 Par Value	KLDO	NASDAQ Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 1.01 Entry into a Material Definitive Agreement.

On December 31, 2019, Kaleido Biosciences, Inc. (the “Company”) and Cadena Bio, Inc. (“Cadena”, and together with the Company, the “Borrowers”) entered into a Credit Agreement (the “Credit Agreement”) with Hercules Capital, Inc. (the “Lender”). Under the Credit Agreement, the Lenders will extend an initial \$22.5 million to the Borrowers, with the option to draw down an additional \$12.5 million if certain milestones and conditions are met.

The Credit Agreement replaced the Company’s previous \$15 million credit facility (the “Former Loan and Security Agreement”) by and between the Company and JPMorgan Chase Bank, N.A., dated October 25, 2019. The Former Loan and Security Agreement was repaid in connection with this refinancing.

The Credit Agreement contains customary representations and warranties, events of default and affirmative and negative covenants, including, among others, covenants that limit or restrict the Borrower’s ability to, among other things, incur additional indebtedness, merge or consolidate, make acquisitions, pay dividends or other distributions or repurchase equity, make investments, dispose of assets and enter into certain transactions with affiliates, in each case subject to certain exceptions. As security for its obligations under the Credit Agreement, the Borrowers granted the Lender a first priority security interest on substantially all of the Borrowers’ assets (other than intellectual property), and subject to certain exceptions.

The facility carries a 48-month term with interest only payments on the term loan for the first 15 months, which period can be extended to up to 24 months, depending on the achievement of certain performance milestones. The Term Loan will mature in January 2024 and bears an interest rate of equal to the greater of (i) 8.95% plus the prime rate last quoted in The Wall Street Journal (or a comparable replacement rate if The Wall Street Journal ceases to quote such rate) minus 4.75% and (ii) 8.95%. The Term Loan is subject to mandatory prepayment provisions that require prepayment upon the occurrence of a Change in Control event (as defined in the Credit Agreement).

The above description of the Credit Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Credit Agreement, a copy of which is filed as Exhibit 10.1 hereto and is incorporated by reference herein.

Item 1.02 Termination of a Material Definitive Agreement.

The information in Item 1.01 above with respect to the Former Loan and Security Agreement is incorporated by reference into this Item 1.02.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.

The information contained in Item 1.01 is hereby incorporated by reference in this Item 2.03.

Item 9.01 Exhibits

10.1 [Credit Agreement, dated December 31, 2019, by and among Kaleido Biosciences, Inc., Cadena Bio, Inc. and Hercules Capital, Inc.](#) †

† Portions of this exhibit (indicated by asterisks) have been omitted in accordance with the rules of the Securities and Exchange Commission.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Kaleido Biosciences, Inc.

Date: January 3, 2020

By: /s/ Alison Lawton

Alison Lawton

Chief Executive Officer and President

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT is made and dated as of December 31, 2019 and is entered into by and among KALEIDO BIOSCIENCES, INC., a Delaware corporation, and each of its Qualified Subsidiaries (including Cadena Bio, Inc., a Delaware corporation) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to this Agreement (collectively, referred to as the "Lenders") and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

RECITALS

A. Borrower has requested the Lenders make available to Borrower a loan in an aggregate principal amount of up to Thirty-Five Million Dollars (\$35,000,000.00) (the "Term Loan"); and

B. The Lenders are willing to make the Term Loan on the terms and conditions set forth in this Agreement.

AGREEMENT

NOW, THEREFORE, Borrower, Agent and the Lenders agree as follows:

SECTION 1. DEFINITIONS AND RULES OF CONSTRUCTION

1.1 Unless otherwise defined herein, the following capitalized terms shall have the following meanings:

"Account Control Agreement(s)" means any agreement entered into by and among the Agent, Borrower and a third party bank or other institution (including a Securities Intermediary) in which Borrower maintains a Deposit Account or an account holding Investment Property and which perfects Agent's first priority security interest in the subject account or accounts.

"ACH Authorization" means the ACH Debit Authorization Agreement in substantially the form of Exhibit G, which account numbers shall be redacted for security purposes if and when filed publicly by the Borrower.

"Advance(s)" means a Term Loan Advance.

"Advance Date" means the funding date of any Advance.

"Advance Request" means a request for an Advance submitted by Borrower to Agent in substantially the form of Exhibit A, which account numbers shall be redacted for security purposes if and when filed publicly by the Borrower.

“Affiliate” means (a) any Person that directly or indirectly controls, is controlled by, or is under common control with the Person in question, (b) any Person directly or indirectly owning, controlling or holding with power to vote ten percent (10%) or more of the outstanding voting securities of another Person, (c) any Person ten percent (10%) or more of whose outstanding voting securities are directly or indirectly owned, controlled or held by another Person with power to vote such securities, or (d) any Person related by blood or marriage to any Person described in subsection (a), (b) or (c) of this paragraph. As used in the definition of “Affiliate,” the term “control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through ownership of voting securities, by contract or otherwise.

“Agreement” means this Loan and Security Agreement, as amended from time to time.

“Amortization Date” means May 1, 2021; provided however, if the First Interest Only Extension Conditions are satisfied, then August 1, 2021; provided further, if the Second Interest Only Extension Conditions are satisfied, then February 1, 2022.

“Anti-Corruption Laws” means all laws, rules, and regulations of any jurisdiction applicable to Borrower or any of its Affiliates from time to time concerning or relating to bribery or corruption, including without limitation the United States Foreign Corrupt Practices Act of 1977, as amended, the UK Bribery Act 2010 and other similar legislation in any other jurisdictions.

“Anti-Terrorism Laws” means any laws, rules, regulations or orders relating to terrorism or money laundering, including without limitation Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

“Blocked Person” means any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law, (d) a Person that commits, threatens or conspires to commit or supports “terrorism” as defined in Executive Order No. 13224, or (e) a Person that is named a “specially designated national” or “blocked person” on the most current list published by OFAC or other similar list.

“Borrower Products” means all products, software, service offerings, technical data or technology currently being designed, manufactured or sold by Borrower or which Borrower intends to sell, license, or distribute in the future including any products or service offerings under development, collectively, together with all products, software, service offerings, technical data or technology that have been sold, licensed or distributed by Borrower since its incorporation.

“Borrower’s Books” means Borrower’s or any of its Subsidiaries’ books and records including ledgers, federal, state, local and foreign tax returns, records regarding Borrower’s or its Subsidiaries’ assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

“Borrower’s Market Capitalization” means, for any given date of determination, an amount equal to (a) the average of the daily volume weighted average price of common stock as reported for each of the three (3) trading days preceding such date of determination (it being understood that a “trading day” shall mean a day on which shares of common stock trade on the NASDAQ in an ordinary trading session) multiplied by (b) the total number of issued and outstanding shares of common stock that are issued and outstanding on the date of the determination and listed on the NASDAQ (or, if the primary listing of such common stock is on another exchange, on such other exchange). Such determination shall be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

“Business Day” means any day other than Saturday, Sunday and any other day on which banking institutions in the State of California are closed for business.

“Cash” means all cash, cash equivalents and liquid funds.

“CFC” means a “controlled foreign corporation” as defined in Section 957 of the Code.

“CFC Holdco” means a direct or indirect Subsidiary of the Borrower substantially all of the assets of which are Equity Interests (or Equity Interests and debt interests) in one or more CFCs.

“Change in Control” means any reorganization, recapitalization, consolidation or merger (or similar transaction or series of related transactions) of Borrower, sale or exchange of outstanding shares (or similar transaction or series of related transactions) of Borrower in which the holders of Borrower’s outstanding shares immediately before consummation of such transaction or series of related transactions do not, immediately after consummation of such transaction or series of related transactions, retain shares representing more than fifty percent (50%) of the voting power of the surviving entity of such transaction or series of related transactions (or the parent of such surviving entity if such surviving entity is wholly owned by such parent), in each case without regard to whether Borrower is the surviving entity; provided, however, that an initial public offering shall not constitute a Change in Control.

“Closing Date” means the date of this Agreement.

“Code” means the Internal Revenue Code of 1986, as amended.

“Contingent Obligation” means, as applied to any Person, any direct or indirect liability, contingent or otherwise, of that Person with respect to (i) any Indebtedness, lease, dividend, letter of credit or other obligation of another, including any such obligation directly or indirectly guaranteed, endorsed, co-made or discounted or sold with recourse by that Person, or in respect of which that Person is otherwise directly or indirectly liable; (ii) any obligations with respect to undrawn letters of credit, corporate credit cards or merchant services issued for the account of that Person; and (iii) all obligations arising under any interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; provided, however, that the term “Contingent Obligation” shall not include endorsements for collection or deposit in the ordinary course of business. The amount of any Contingent Obligation shall be deemed to be an amount equal to the stated or determined amount of the primary obligation in respect of which such Contingent Obligation is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by such Person in good faith; provided, however, that such amount shall not in any event exceed the maximum amount of the obligations under the guarantee or other support arrangement.

“Copyright License” means any written agreement granting any right to use any Copyright or Copyright registration, now owned or hereafter acquired by Borrower or in which Borrower now holds or hereafter acquires any interest.

“Copyrights” means all copyrights, whether registered or unregistered, held pursuant to the laws of the United States of America, any State thereof, or of any other country.

“Deposit Accounts” means any “deposit accounts,” as such term is defined in the UCC, and includes any checking account, savings account, or certificate of deposit that is not evidenced by an instrument.

“Designated Account” means the account number ending 759 (last three digits), maintained by Borrower with JPMorgan Chase Bank, N.A., or any other account that Borrower designates from time to time to Agent in writing with reasonable notice.

“Domestic Subsidiary” means any Subsidiary organized under the laws of the United States of America, any State thereof, the District of Columbia, or any other jurisdiction within the United States of America.

“Due Diligence Fee” means \$20,000, which fee has been paid to the Lenders prior to the Closing Date, and shall be deemed fully earned on such date regardless of the early termination of this Agreement.

“Eligible Foreign Subsidiary” means each Foreign Subsidiary other than an Excluded Subsidiary.

“Equity Interests” means, with respect to any Person, the capital stock, partnership or limited liability company interest, or other equity securities or equity ownership interests of such Person.

“ERISA” means the Employee Retirement Income Security Act of 1974, as amended, and the regulations promulgated thereunder.

“Excluded Subsidiary” means (x) each direct and indirect Subsidiary of the Borrower (a) that is a CFC, (b) that is a direct or indirect Subsidiary of a CFC, or (c) that is a CFC Holdco; in each case, provided that (i) the pledge of all or substantially all of the Equity Interests of such Subsidiary as Collateral, (ii) the guarantee by such Subsidiary of the Secured Obligations, or (iii) the execution of a Joinder Agreement by such Subsidiary, would result in material adverse tax consequences to the Borrower (as reasonably determined by the Borrower and Agent) and (y) the MSC Subsidiary.

“First Interest Only Extension Conditions” shall mean satisfaction of each of the following events: (a) no default or Event of Default shall have occurred; and (b) on or before June 30, 2020, Borrower achieves Performance Milestone I, subject to verification by Agent (including supporting documentation requested by Agent).

“Foreign Subsidiary” means any Subsidiary other than a Domestic Subsidiary.

“GAAP” means generally accepted accounting principles in the United States of America, as in effect from time to time.

“Indebtedness” means indebtedness of any kind, including (a) all indebtedness for borrowed money or the deferred purchase price of property or services (excluding trade credit entered into in the ordinary course of business due within ninety (90) days), including reimbursement and other obligations with respect to surety bonds and letters of credit, (b) all obligations evidenced by notes, bonds, debentures or similar instruments, (c) all capital lease obligations, (d) non-contingent obligations to reimburse any bank or Person in respect of amounts paid under a letter of credit, banker’s acceptance or similar instrument, (e) equity securities of any Person subject to repurchase or redemption other than at the sole option of such Person, other than any such equity securities that are subject to repurchase or redemption solely after the 91st day after the Term Loan Maturity Date, (f) earn outs, purchase price adjustments, deferred purchase amounts and similar payment obligations or any nature arising out of purchase and sale contracts, and (g) all Contingent Obligations.

“Initial Facility Charge” means One Hundred Thirty-Seven Thousand Five Hundred Dollars (\$137,500), which is payable to the Lenders in accordance with Section 4.1(f).

“Insolvency Proceeding” means any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other similar relief.

“Intellectual Property” means all of Borrower’s Copyrights; Trademarks; Patents; Licenses; trade secrets and inventions; mask works; Borrower’s applications therefor and reissues, extensions, or renewals thereof; and Borrower’s goodwill associated with any of the foregoing, together with Borrower’s rights to sue for past, present and future infringement of Intellectual Property and the goodwill associated therewith.

“Investment” means any beneficial ownership (including stock, partnership, limited liability company interests, or other securities) of or in any Person, or any loan, advance or capital contribution to any Person or the acquisition of any material asset or property of another Person.

“IRS” means the United States Internal Revenue Service.

“Joinder Agreements” means for each Subsidiary (other than an Excluded Subsidiary), a completed and executed Joinder Agreement in substantially the form attached hereto as Exhibit F.

“License” means any Copyright License, Patent License, Trademark License or other license of rights or interests.

“Lien” means any mortgage, deed of trust, pledge, hypothecation, assignment for security, security interest, encumbrance, levy, lien or charge of any kind, whether voluntarily incurred or arising by operation of law or otherwise, against any property, any conditional sale or other title retention agreement, and any lease in the nature of a security interest.

“Loan” means the Advances made under this Agreement.

“Loan Documents” means this Agreement, the promissory notes (if any), the ACH Authorization, the Account Control Agreements, the Joinder Agreements, all UCC Financing Statements, the Pledge Agreement, and any other documents executed in connection with the Secured Obligations or the transactions contemplated hereby, as the same may from time to time be amended, modified, supplemented or restated.

“Material Adverse Effect” means a material adverse effect upon: (i) the business, operations, properties, assets or financial condition of Borrower and its Subsidiaries taken as a whole; or (ii) the ability of Borrower to perform or pay the Secured Obligations in accordance with the terms of the Loan Documents, or the ability of Agent or the Lenders to enforce any of its rights or remedies with respect to the Secured Obligations; or (iii) the Collateral or Agent’s Liens on the Collateral or the priority of such Liens (other than as a result of a failure by the Agent to make any necessary filings or maintain possession of any possessory collateral).

“Maximum Term Loan Amount” means Thirty-Five Million and No/100 Dollars (\$35,000,000.00).

“MSC Investment Conditions” means that Borrower maintains Qualified Cash in an amount equal to or greater than the lesser of (i) 110% of the aggregate outstanding Secured Obligations (inclusive of any Prepayment Charge and End of Term Charge that would be due and owing if the outstanding Loans were prepaid at the time of measurement) *plus* the Qualified Cash A/P Amount or (ii) 100% of the consolidated Cash of Borrower and its Subsidiaries, unless compliance with the foregoing conditions are waived in writing from time to time by Agent with respect to specified periods, in Agent’s sole discretion.

“MSC Subsidiary” means Kaleido Biosciences Securities Corporation, a wholly-owned Subsidiary incorporated in the Commonwealth of Massachusetts or the State of Delaware for the purpose of holding Investments as a Massachusetts security corporation under 830 CMR 63.38B.1 of the Massachusetts tax code and applicable regulations (as the same may be amended, modified or replaced from time to time).

“Non-Core Intellectual Property” means microbiome metabolic therapy candidates that do not target, directly, indirectly, entirely or partially, any of the following indications: urea cycle disorders, hepatic encephalopathy, multi drug resistant infection, chronic kidney disease, atherosclerotic cardiovascular disease, cardio-metabolic syndrome, immuno-oncology or any indication related to the existing KB195, KB174 or KB109 programs, and in each case any related programs or related Intellectual Property in connection with such indications.

“Non-Consenting Lender” means any Lender that does not approve any consent, waiver or amendment that (a) requires the approval of all or all affected Lenders in accordance with the terms of Section 11.3 and (b) has been approved by the Required Lenders.

“Non-Disclosure Agreement” means that certain Non-Disclosure Agreement by and between Kaleido Biosciences, Inc. and Hercules Capital, Inc. dated as of October 2, 2019.

“OFAC” is the U.S. Department of Treasury Office of Foreign Assets Control.

“OFAC Lists” are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

“Patent License” means any written agreement granting any right with respect to any invention on which a Patent is in existence or a Patent application is pending, in which agreement Borrower now holds or hereafter acquires any interest.

“Patents” means all letters patent of, or rights corresponding thereto, in the United States of America or in any other country, all registrations and recordings thereof, and all applications for letters patent of, or rights corresponding thereto, in the United States of America or any other country.

“Performance Milestone I” means satisfaction of each of the following events:

- (a) [***]
- (b) [***]
 - (i) [***]

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- (ii) [***]
 - (x) [***]
 - (y) [***]
 - (iii) [***]

“Performance Milestone II” means satisfaction of each of the following events:

- (a) [***]
- (b) [***]
- (c) [***]

“Permitted In-Licenses” means (a) any License with respect to which Borrower is the licensee, in which: (i) Borrower and its Subsidiaries are not reasonably likely to be required to transfer cash or other consideration, prior to the Term Loan Maturity Date, assets or property valued (book or market) at more than \$1,000,000 in the aggregate for all such Licenses and (ii) is not a Restricted License.

“Permitted Indebtedness” means:

- (i) Indebtedness of Borrower in favor of the Lenders or Agent arising under this Agreement or any other Loan Document;
- (ii) Indebtedness existing on the Closing Date which is disclosed in Schedule 1A;
- (iii) Indebtedness of up to \$250,000 outstanding at any time secured by a Lien described in clause (vii) of the defined term “Permitted Liens,” provided such Indebtedness does not exceed the cost of the Equipment financed with such Indebtedness;
- (iv) without duplication of any other item of Permitted Indebtedness, Indebtedness to trade creditors incurred in the ordinary course of business (due within 90 days), including such Indebtedness incurred in the ordinary course of business with corporate credit cards in an amount to not exceed \$500,000 outstanding at any time;
- (v) Indebtedness that also constitutes a Permitted Investment;
- (vi) Subordinated Indebtedness;
- (vii) without duplication of any other item of Permitted Indebtedness, reimbursement obligations in connection with letters of credit that are secured by Cash and issued on behalf of the Borrower or a Subsidiary thereof in an amount not to exceed \$2,500,000 at any time outstanding,
- (viii) other unsecured Indebtedness in an amount not to exceed \$250,000 at any time outstanding,
- (ix) intercompany Indebtedness as long as either (A) each of the Subsidiary obligor and the Subsidiary obligee under such Indebtedness is a Borrower or Domestic Subsidiary that has executed a Joinder Agreement or (B) each of the obligor and obligee are Foreign Subsidiaries;

(x) Indebtedness consisting of interest rate, currency, or commodity swap agreements, interest rate cap or collar agreements or arrangements entered into in the ordinary course of business and designated to protect Borrower or its Subsidiaries against fluctuations in interest rates, currency exchange rates, or commodity prices as long as the aggregate outstanding nominal value outstanding of such Indebtedness does not exceed \$500,000;

(xi) Indebtedness consisting of financing of insurance premiums in the ordinary course of business;

(xii) to the extent constituting Indebtedness obligations, Indebtedness in respect of netting services or overdraft protection or otherwise in connection with deposit or securities accounts in the ordinary course of business; and

(xiii) extensions, refinancings and renewals of any items of Permitted Indebtedness, provided that the principal amount is not increased or the terms modified to impose materially more burdensome terms upon Borrower or its Subsidiary, as the case may be.

“Permitted Investment” means:

(i) Investments existing on the Closing Date which are disclosed in Schedule 1B;

(ii) short-term, customary, non-speculative money market securities pursuant to Borrower’s investment policy provided to Agent on the Closing Date;

(iii) (a) marketable direct obligations issued or unconditionally guaranteed by the United States of America or any agency or any State thereof maturing within one year from the date of acquisition thereof currently having a rating of at least A-2 or P-2 from either Standard & Poor’s Corporation or Moody’s Investors Services, (b) commercial paper maturing no more than one year from the date of creation thereof and currently having a rating of at least A-2 or P-2 from either Standard & Poor’s Corporation or Moody’s Investors Service, (c) certificates of deposit issued by any bank with assets of at least \$500,000,000 maturing no more than one year from the date of investment therein, and (d) money market accounts;

(iv) repurchases of stock from former or existing employees, directors, or consultants of Borrower under the terms of applicable repurchase agreements in an aggregate amount not to exceed \$250,000 in any fiscal year, provided that no Event of Default has occurred, is continuing or would exist after giving effect to the repurchases;

(v) Investments accepted in connection with Permitted Transfers;

(vi) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of Borrower’s business;

(vii) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business, provided that this subparagraph (vii) shall not apply to Investments of Borrower in any Subsidiary;

(viii) Investments consisting of loans not involving the net transfer on a substantially contemporaneous basis of cash proceeds to employees, officers or directors relating to the purchase of capital stock of Borrower pursuant to employee stock purchase plans or other similar agreements approved by Borrower's Board of Directors;

(ix) Investments consisting of (a) travel advances, employee relocation loans and other employee loans in the ordinary course of business and (b) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements;

(x) Investments in newly-formed Domestic Subsidiaries, provided that each such Domestic Subsidiary has entered into or enters into a Joinder Agreement promptly after its formation by Borrower and execute such other documents as shall be reasonably requested by Agent;

(xi) Investments in Foreign Subsidiaries approved in advance in writing by Agent;

(xii) joint ventures, research collaborations or strategic alliances in the ordinary course of Borrower's business including any licensing of Non-Core Intellectual Property permitted hereunder, nonexclusive licensing of technology, the development of technology or the providing of technical support, provided that any cash Investments by Borrower do not exceed \$1,000,000 in the aggregate in any fiscal year and \$2,000,000 in the aggregate during the term of this Agreement;

(xiii) subject to Section 7.12, Investments in Deposit Accounts;

(xiv) Investments in the MSC Subsidiary, so long as an Event of Default does not exist at the time of such Investment and would not exist after giving effect to such Investment and provided that Borrower is, at all times, in compliance with the MSC Investment Conditions; and

(xv) additional Investments that do not exceed \$250,000 in the aggregate.

"Permitted Liens" means:

(i) Liens in favor of Agent or the Lenders;

(ii) Liens existing on the Closing Date which are disclosed in Schedule 1C;

(iii) Liens for taxes, fees, assessments or other governmental charges or levies, either not delinquent or being contested in good faith by appropriate proceedings diligently conducted; provided, that Borrower maintains adequate reserves therefor on Borrower's Books in accordance with GAAP;

(iv) Liens securing claims or demands of materialmen, artisans, mechanics, carriers, warehousemen, landlords and other like Persons arising in the ordinary course of Borrower's business and imposed without action of such parties; provided, that the payment thereof is not yet required;

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- (v) Liens arising from judgments, decrees or attachments in circumstances which do not constitute an Event of Default hereunder;
- (vi) the following deposits, to the extent made in the ordinary course of business: deposits under worker's compensation, unemployment insurance, social security and other similar laws, or to secure the performance of bids, tenders or contracts (other than for the repayment of borrowed money) or to secure indemnity, performance or other similar bonds for the performance of bids, tenders or contracts (other than for the repayment of borrowed money) or to secure statutory obligations (other than Liens arising under ERISA or environmental Liens) or surety or appeal bonds, or to secure indemnity, performance or other similar bonds;
- (vii) Liens on Equipment or software or other intellectual property constituting purchase money Liens and Liens in connection with capital leases securing Indebtedness permitted in clause (iii) of "Permitted Indebtedness";
- (viii) Liens incurred in connection with Subordinated Indebtedness;
- (ix) leasehold interests in leases or subleases and licenses granted in the ordinary course of business and not interfering in any material respect with the business of the licensor;
- (x) Liens in favor of customs and revenue authorities arising as a matter of law to secure payment of custom duties that are promptly paid on or before the date they become due;
- (xi) Liens on insurance proceeds securing the payment of financed insurance premiums that are promptly paid on or before the date they become due (provided that such Liens extend only to such insurance proceeds and not to any other property or assets);
- (xii) statutory and common law rights of set-off and other similar rights as to deposits of cash and securities in favor of banks, other depository institutions and brokerage firms;
- (xiii) easements, zoning restrictions, rights-of-way and similar encumbrances on real property imposed by law or arising in the ordinary course of business so long as they do not materially impair the value or marketability of the related property;
- (xiv) (A) Liens on Cash securing obligations permitted under clause (vii) of the definition of Permitted Indebtedness and (B) security deposits in connection with real property leases, the combination of (A) and (B) in an aggregate amount not to exceed \$250,000 at any time; and
- (xv) licenses permitted hereunder;
- (xvi) Liens in favor of other financial institutions arising in connection with Deposit Accounts and/or securities accounts held at such institutions in the ordinary course of business;
- (xvii) Liens consisting of pledges of cash, cash equivalents or government securities to secure swap or foreign exchange contracts or letters of credit, in a combined aggregate amount outstanding not to exceed \$500,000;
- (xviii) the filing of UCC financing statements solely as a precautionary measure in connection with operating leases or consignment of goods;

(xix) Liens not otherwise permitted hereunder securing Indebtedness with specific assets in an aggregate outstanding amount not to exceed \$250,000; and

(xx) Liens incurred in connection with the extension, renewal or refinancing of the Indebtedness secured by Liens of the type described in clauses (i) through (xix) above; provided, that any extension, renewal or replacement Lien shall be limited to the property encumbered by the existing Lien and the principal amount of the Indebtedness being extended, renewed or refinanced (as may have been reduced by any payment thereon) does not increase.

“Permitted Out-Licenses” mean the following licenses entered into in the ordinary course of business:

- (i) non-exclusive licenses and non-exclusive arrangements for the use of Intellectual Property;
- (ii) licenses that could not result in a legal transfer of title of the licensed property that may be exclusive in respects other than territory; and
- (iii) licenses that could not result in a legal transfer of title of the licensed property that may be exclusive as to territory:
 - (x) but only as to discreet geographical areas outside of the United States of America, or
 - (y) solely for Non-Core Intellectual Property.

“Permitted Transfers” means:

- (i) sales of Inventory in the ordinary course of business,
 - (ii) Permitted Out-Licenses,
 - (iii) dispositions of worn-out, obsolete or surplus Equipment at fair market value in the ordinary course of business,
 - (iv) (iv) the sale or issuance of any stock of Borrower not prohibited under this Agreement,
 - (v) Borrower’s use or transfer of cash in a manner that is not prohibited by the terms of this Agreement or the other Loan Documents;
- and
- (vi) other transfers of assets having a fair market value of not more than \$250,000 in the aggregate in any fiscal year.

“Person” means any individual, sole proprietorship, partnership, joint venture, trust, unincorporated organization, association, corporation, limited liability company, institution, other entity or government.

“Pledge Agreement” means the Pledge Agreement dated as of the Closing Date between Borrower and Agent, as the same may from time to time be amended, restated, modified or otherwise supplemented.

“Qualified Cash” means the amount of Borrower’s Cash held in accounts in the United States subject to an Account Control Agreement in favor of Agent.

“Qualified Cash A/P Amount” means the amount of Borrower’s and its Subsidiaries’ accounts payable that have not been paid within ninety (90) days from the invoice date of the relevant account payable.

“Qualified Subsidiary” means any direct or indirect Subsidiary other than an Excluded Subsidiary.

“Receivables” means (i) all of Borrower’s Accounts, Instruments, Documents, Chattel Paper, Supporting Obligations, letters of credit, proceeds of any letter of credit, and Letter of Credit Rights, and (ii) all customer lists, software, and business records related thereto.

“Required Lenders” means at any time, the holders of more than 50% of the sum of the aggregate unpaid principal amount of the Term Loans then outstanding.

“Restricted License” means any material License or other agreement with respect to which Borrower is the licensee (a) that prohibits or otherwise restricts Borrower from granting a security interest in Borrower’s interest in such License or agreement or any other property, or (b) for which a default under or termination of could interfere with the Agent’s right to sell any Collateral.

“Sanctioned Country” means, at any time, a country or territory which is the subject or target of any Sanctions.

“Sanctioned Person” means, at any time, (a) any Person listed in any Sanctions-related list of designated Persons maintained by the Office of Foreign Assets Control of the U.S. Department of the Treasury or the U.S. Department of State, or by the United Nations Security Council, the European Union or any EU member state, (b) any Person operating, organized or resident in a Sanctioned Country or (c) any Person controlled by any such Person.

“Sanctions” means economic or financial sanctions or trade embargoes imposed, administered or enforced from time to time by (a) the U.S. government, including those administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury or the U.S. Department of State, or (b) the United Nations Security Council, the European Union or Her Majesty’s Treasury of the United Kingdom.

“Second Interest Only Extension Conditions” shall mean satisfaction of each of the following events: (a) no default or Event of Default shall have occurred, (b) Borrower shall have achieved the First Interest Only Extension Conditions and (c) on or before November 15, 2020, Borrower achieves Performance Milestone II, subject to verification by Agent (including supporting documentation requested by Agent).

“Secured Obligations” means Borrower’s obligations under this Agreement and any Loan Document, including any obligation to pay any amount now owing or later arising.

“Subordinated Indebtedness” means Indebtedness subordinated to the Secured Obligations in amounts and on terms and conditions satisfactory to Agent in its sole discretion and subject to a subordination agreement in form and substance satisfactory to Agent in its sole discretion.

“Subsequent Financing” means the closing of any Borrower financing which becomes effective after the Closing Date.

“Subsidiary” means an entity, whether a corporation, partnership, limited liability company, joint venture or otherwise, in which Borrower owns or controls 50% or more of the outstanding voting securities, including each entity listed on Schedule 1 hereto.

“Taxes” means all present or future taxes, levies, imposts, duties, deductions, withholdings (including backup withholding), assessments, fees or other charges imposed by any governmental authority, including any interest, additions to tax or penalties applicable thereto.

“Term Commitment” means as to any Lender, the obligation of such Lender, if any, to make a Term Loan Advance to the Borrower in a principal amount not to exceed the amount set forth under the heading “Term Commitment” opposite such Lender’s name on Schedule 1.1.

“Term Loan Advance” means each Tranche 1 Advance, Tranche 2 Advance, Tranche 3 Advance, and any other Term Loan funds advanced under this Agreement.

“Term Loan Interest Rate” means, for any day a per annum rate of interest equal to the greater of either (i) 8.95% plus the prime rate as reported in The Wall Street Journal minus 4.75%, and (ii) 8.95%.

“Term Loan Maturity Date” means January 1, 2024; provided that if such day is not a Business Day, the Term Loan Maturity Date shall be the immediately preceding Business Day.

“Trademark License” means any written agreement granting any right to use any Trademark or Trademark registration, now owned or hereafter acquired by Borrower or in which Borrower now holds or hereafter acquires any interest.

“Trademarks” means all trademarks (registered, common law or otherwise) and any applications in connection therewith, including registrations, recordings and applications in the United States Patent and Trademark Office or in any similar office or agency of the United States of America, any State thereof or any other country or any political subdivision thereof.

“Tranche 2 Availability Conditions” shall mean satisfaction of each of the following events: (a) no default or Event of Default shall have occurred and (b) on or before November 15, 2020, Borrower achieves both Performance Milestone I and Performance Milestone II, in each case subject to verification by Agent (including supporting documentation requested by Agent).

“Tranche 3 Facility Charge” means half of one percent (0.50%) of the Tranche 3 Advance, which is payable to Lender in accordance with Section 4.2(d).

“UCC” means the Uniform Commercial Code as the same is, from time to time, in effect in the State of California; provided, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection or priority of, or remedies with respect to, Agent’s Lien on any Collateral is governed by the Uniform Commercial Code as the same is, from time to time, in effect in a jurisdiction other than the State of California, then the term “UCC” shall mean the Uniform Commercial Code as in effect, from time to time, in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority or remedies and for purposes of definitions related to such provisions.

“U.S. Person” means any Person that is a “United States person” as defined in Section 7701(a)(30) of the Code.

1.2 The following terms are defined in the Sections or subsections referenced opposite such terms:

Defined Term	Section
Agent	Preamble
Assignee	11.14
Borrower	Preamble
Claims	11.11
Collateral	3.1
Confidential Information	11.13
End of Term Charge	2.6
Event of Default	9
Financial Statements	7.1
Indemnified Person	6.3
Lenders	Preamble
Liabilities	6.3
Maximum Rate	2.3
Open Source License	5.10
Participant Register	11.8
Prepayment Charge	2.5
Publicity Materials	11.19
Register	11.7
Rights to Payment	3.1
Tranche 1 Advance	2.2(a)
Tranche 2 Advance	2.2(a)
Tranche 3 Advance	2.2(a)

1.3 Unless otherwise specified, all references in this Agreement or any Annex or Schedule hereto to a “Section,” “subsection,” “Exhibit,” “Annex,” or “Schedule” shall refer to the corresponding Section, subsection, Exhibit, Annex, or Schedule in or to this Agreement. Unless otherwise specifically provided herein, any accounting term used in this Agreement or the other Loan Documents shall have the meaning customarily given such term in accordance with GAAP, and all financial computations hereunder shall be computed in accordance with GAAP, consistently applied. Unless otherwise defined herein or in the other Loan Documents, terms that are used herein or in the other Loan Documents and defined in the UCC shall have the meanings given to them in the UCC. For all purposes under the Loan Documents, in connection with any division or plan of division under Delaware law (or any comparable event under a different jurisdiction’s laws): (a) if any asset, right, obligation or liability of any Person becomes the asset, right, obligation or liability of a different Person, then it shall be deemed to have been transferred from the original Person to the subsequent Person and (b) if any new Person comes into existence, such new Person shall be deemed to have been organized on the first date of its existence by the holders of its Equity Interests at such time.

SECTION 2. THE LOAN

2.1 [Reserved.]

2.2 Term Loan.

(a) Advances. Subject to the terms and conditions of this Agreement, the Lenders will severally (and not jointly) make in an amount not to exceed its respective Term Commitment, and Borrower agrees to draw, a Term Loan Advance of Twenty-Two Million Five Hundred Thousand Dollars (\$22,500,000) on the Closing Date (the “Tranche 1 Advance”). Subject to the terms and conditions of this Agreement, beginning on the date Borrower achieves the Tranche 2 Availability Conditions and continuing through March 31, 2021, Borrower may request and the Lenders shall severally (and not jointly) make an additional Term Loan Advance in a principal amount of Five Million Dollars (\$5,000,000) (the “Tranche 2 Advance”). Subject to the terms and conditions of this Agreement, and conditioned on approval by the Lenders’ investment committee in its sole and unfettered discretion, on or before March 31, 2021, Borrower may request an additional Term Loan Advance in a principal amount up to Seven Million Five Hundred Thousand Dollars (\$7,500,000) (the “Tranche 3 Advance”). The aggregate outstanding Term Loan Advances may be up to the Maximum Term Loan Amount.

(b) Advance Request. To obtain a Term Loan Advance, Borrower shall complete, sign and deliver an Advance Request (at least three (3) Business Days before the Advance Date other than the Closing Date, which shall be at least one (1) Business Day) to Agent. The Lenders shall fund the Term Loan Advance in the manner requested by the Advance Request provided that each of the conditions precedent set forth in Section 4 and applicable to such Term Loan Advance is satisfied as of the requested Advance Date.

(c) Interest. Term Loan Interest Rate. The principal balance shall bear interest thereon from such Advance Date at the Term Loan Interest Rate based on a year consisting of 360 days, with interest computed daily based on the actual number of days elapsed. The Term Loan Interest Rate will float and change on the day the prime rate changes from time to time.

(d) Payment. Borrower will pay interest on each Term Loan Advance in arrears on the first Business Day of each month, beginning the month after the Advance Date. Borrower shall repay the aggregate Term Loan principal balance that is outstanding on the day immediately preceding the Amortization Date, in equal monthly installments of principal and interest (mortgage style) beginning on the Amortization Date and continuing on the first Business Day of each month thereafter until the Secured Obligations (other than inchoate indemnity obligations) are repaid. The entire Term Loan principal balance and all accrued but unpaid interest hereunder, shall be due and payable on the Term Loan Maturity Date. Borrower shall make all payments under this Agreement without setoff, recoupment or deduction and regardless of any counterclaim or defense. If a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately following Business Day. The Lenders will initiate debit entries to the Borrower’s Designated Account or any other account as authorized on the ACH Authorization (i) on each payment date of all periodic obligations payable to the Lenders under each Term Loan Advance and (ii) reasonable and documented out-of-pocket legal fees and costs incurred by Agent or the Lenders in connection with Section 11.12 of this Agreement; provided that, with respect to clause (i) above, in the event that the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry to Borrower’s account for a certain amount of the periodic obligations due on a specific payment date, Borrower shall pay to the

Lenders such amount of periodic obligations in full in immediately available funds on such payment date; provided, further, that, with respect to clause (i) above, if the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry as described above later than the date that is three (3) Business Days prior to such payment date, Borrower shall pay to the Lenders such amount of periodic obligations in full in immediately available funds on the date that is three (3) Business Days after the date on which the Lenders or Agent notifies Borrower of such; provided, further, that, with respect to clause (ii) above, in the event that the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry to Borrower's account for certain amount of such out-of-pocket legal fees and costs incurred by Agent or the Lenders, Borrower shall pay to the Lenders such amount in full in immediately available funds within three (3) Business Days.

2.3 Maximum Interest. Notwithstanding any provision in this Agreement or any other Loan Document, it is the parties' intent not to contract for, charge or receive interest at a rate that is greater than the maximum rate permissible by law that a court of competent jurisdiction shall deem applicable hereto (which under the laws of the State of California shall be deemed to be the laws relating to permissible rates of interest on commercial loans) (the "Maximum Rate"). If a court of competent jurisdiction shall finally determine that Borrower has actually paid to the Lenders an amount of interest in excess of the amount that would have been payable if all of the Secured Obligations had at all times borne interest at the Maximum Rate, then such excess interest actually paid by Borrower shall be applied as follows: first, to the payment of the Secured Obligations consisting of the outstanding principal; second, after all principal is repaid, to the payment of the Lenders' accrued interest, reasonable and documented out-of-pocket costs, expenses, professional fees and any other Secured Obligations; and third, after all Secured Obligations are repaid, the excess (if any) shall be refunded to Borrower.

2.4 Default Interest. In the event any payment is not paid on the scheduled payment date, an amount equal to five percent (5%) of the past due amount shall be payable on demand. In addition, upon the occurrence and during the continuation of an Event of Default hereunder, all outstanding Secured Obligations, including principal, interest, compounded interest, and professional fees, shall bear interest at a rate per annum equal to the rate set forth in Section 2.2(c), plus five percent (5%) per annum. In the event any interest is not paid when due hereunder, delinquent interest shall be added to principal and shall bear interest on interest, compounded at the rate set forth in Section 2.2(c) or Section 2.4, as applicable.

2.5 Prepayment. At its option upon at least five (5) Business Days prior written notice to Agent, Borrower may prepay all, but not less than all, of the outstanding Advances by paying the entire principal balance, all accrued and unpaid interest thereon, together with a prepayment charge equal to the following percentage of the Advance amount being prepaid: with respect to each Advance, if such Advance amounts are prepaid in any of the first twelve (12) months following the Closing Date, 2.00%; after twelve (12) months but on or prior to twenty four (24) months, 1.50%; after twenty four (24) months but on or prior to thirty six (36) months, 1.00%; and thereafter, 0.00% (each, a "Prepayment Charge"). Borrower agrees that the Prepayment Charge is a reasonable calculation of the Lenders' lost profits in view of the difficulties and impracticality of determining actual damages resulting from an early repayment of the Advances. Borrower shall prepay the outstanding amount of all principal and accrued interest through the prepayment date and the applicable Prepayment Charge upon the occurrence of a Change in Control or any other prepayment hereunder. Notwithstanding the foregoing, Agent and the Lenders agree to waive the Prepayment Charge if Agent and the Lenders (in their sole and absolute discretion) agree in writing to refinance the Advances prior to the Term Loan Maturity Date. Any amounts paid under this Section shall be applied by Agent to the then unpaid amount of any Secured Obligations (including principal and interest) in such order and priority as Agent may choose in its sole discretion. For the avoidance of doubt, if a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately following Business Day.

2.6 End of Term Charge. On the earliest to occur of (i) the Term Loan Maturity Date, (ii) the date that Borrower prepays the outstanding Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) in full, or (iii) the date that the Secured Obligations become due and payable, Borrower shall pay the Lenders a charge equal to 7.55% of the aggregate principal amount of the Term Loan Advances (the "End of Term Charge"). Notwithstanding the required payment date of such End of Term Charge, the applicable pro rata portion of the End of Term Charge shall be deemed earned by the Lenders as of each date a Term Loan Advance is made. For the avoidance of doubt, if a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately following Business Day.

2.7 Pro Rata Treatment. Each payment (including prepayment) on account of any fee and any reduction of the Term Loan Advances shall be made pro rata according to the Term Commitments of the relevant Lender.

2.8 Taxes; Increased Costs. The Borrower, the Agent and the Lenders each hereby agree to the terms and conditions set forth on Addendum 1 attached hereto.

2.9 Treatment of Prepayment Charge and End of Term Charge. Borrower agrees that any Prepayment Charge and any End of Term Charge payable shall be presumed to be the liquidated damages sustained by each Lender as the result of the early termination, and Borrower agrees that it is reasonable under the circumstances currently existing and existing as of the Closing Date. The Prepayment Charge and the End of Term Charge shall also be payable in the event the Secured Obligations (and/or this Agreement) are satisfied or released by foreclosure (whether by power of judicial proceeding), deed in lieu of foreclosure, or by any other means. Borrower expressly waives (to the fullest extent it may lawfully do so) the provisions of any present or future statute or law that prohibits or may prohibit the collection of the foregoing Prepayment Charge and End of Term Charge in connection with any such acceleration. Borrower agrees (to the fullest extent that each may lawfully do so): (a) each of the Prepayment Charge and the End of Term Charge is reasonable and is the product of an arm's length transaction between sophisticated business people, ably represented by counsel; (b) each of the Prepayment Charge and the End of Term Charge shall be payable notwithstanding the then prevailing market rates at the time payment is made; (c) there has been a course of conduct between the Lenders and Borrower giving specific consideration in this transaction for such agreement to pay the Prepayment Charge and the End of Term Charge as a charge (and not interest) in the event of prepayment or acceleration; (d) Borrower shall be estopped from claiming differently than as agreed to in this Section 2.9. Borrower expressly acknowledges that their agreement to pay each of the Prepayment Charge and the End of Term Charge to the Lenders as herein described was on the Closing Date and continues to be a material inducement to the Lenders to provide the Term Loans.

SECTION 3. SECURITY INTEREST

3.1 As security for the prompt and complete payment when due (whether on the payment dates or otherwise) of all the Secured Obligations, subject to Section 3.2, Borrower grants to Agent a security interest in all of Borrower's right, title, and interest in and to the following Borrower's personal property whether now owned or hereafter acquired (collectively, the "Collateral"): (a) Receivables; (b) Equipment; (c) Fixtures; (d) General Intangibles (other than Intellectual Property); (e) Inventory; (f) Investment Property; (g) Deposit Accounts; (h) Cash; (i) Goods; and all other tangible and intangible personal property of Borrower whether now or hereafter owned or existing, leased, consigned by or to, or acquired by, Borrower and wherever located, and any of Borrower's property in the possession or under the control of Agent; and, to the extent not otherwise included, all Proceeds of each of the foregoing and all accessions to, substitutions and replacements for, and rents, profits and products of each of the foregoing; provided, however, that the Collateral shall include all Accounts and General Intangibles that consist of rights to payment and proceeds from the sale, licensing or disposition of all or any part, or rights in, the Intellectual Property (the "Rights to Payment"). Notwithstanding the foregoing, if a judicial authority (including a U.S. Bankruptcy Court) holds that a security interest in the underlying Intellectual Property is necessary to have a security interest in the Rights to Payment, then the Collateral shall automatically, and effective as of the date of this Agreement, include the Intellectual Property to the extent necessary to permit perfection of Agent's security interest in the Rights to Payment.

3.2 Notwithstanding the broad grant of the security interest set forth in Section 3.1, above, the Collateral shall not include (a) nonassignable licenses or contracts, which by their terms require the consent of the licensor thereof or another party (but only to the extent such prohibition on transfer is enforceable under applicable law, including, without limitation, Sections 9406, 9407 and 9408 of the UCC), (b) any Intellectual Property, (c) assets as to which a security interest in such assets is prohibited by applicable law, rule or regulation (but only to the extent and during such times such prohibition exists), (d) more than 65% of the presently existing and hereafter arising issued and outstanding Equity Interests owned by Borrower of any Excluded Subsidiary that is a CFC or CFC Holdco which Equity Interests entitle the holder thereof to vote for directors or any other matter (provided, however, that in the case of this clause (d), immediately upon any change in the U.S. tax laws that would allow the pledge of a greater percentage of such Equity Interests without material adverse tax consequences to the Borrower, the Collateral shall automatically and without further action required by, and without notice to, any Person include such greater percentage of Equity Interests of such Subsidiary from that time forward) and (e) the assets of any (i) Excluded Subsidiary or (ii) MSC Subsidiary, in each case, including the Equity Interests of any Subsidiary thereof.

3.3 The security interest granted in Section 3.1 of this Agreement shall continue until the Secured Obligations (other than contingent indemnification or reimbursement obligations that are not yet due and payable) have been paid in full and Lender has no further commitment or obligation hereunder or under the other Loan Documents to make any further Advances, and shall thereupon terminate, and Lender shall, at Borrower's expense, take all actions reasonably requested by Borrower to evidence such termination.

SECTION 4. CONDITIONS PRECEDENT TO LOAN

The obligations of the Lenders to make the Loan hereunder are subject to the satisfaction by Borrower of the following conditions:

4.1 Initial Advance. On or prior to the Closing Date, Borrower shall have delivered to Agent the following:

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- (a) executed copies of the Loan Documents, Account Control Agreements, and all other documents and instruments reasonably required by Agent to effectuate the transactions contemplated hereby or to create and perfect the Liens of Agent with respect to all Collateral, in all cases in form and substance reasonably acceptable to Agent;
 - (b) a legal opinion of Borrower's counsel, in form and substance reasonably acceptable to Agent;
 - (c) certified copy of resolutions of Borrower's board of directors evidencing approval of the Loan and other transactions evidenced by the Loan Documents;
 - (d) certified copies of the Certificate of Incorporation and the Bylaws, as amended through the Closing Date, of Borrower;
 - (e) a certificate of good standing for Borrower from its state of incorporation and similar certificates from all other jurisdictions in which it does business and where the failure to be qualified would have a Material Adverse Effect;
 - (f) payment of the Initial Facility Charge and reimbursement of Agent's and Lenders' current expenses reimbursable pursuant to this Agreement and which have been invoiced to Borrower prior to the date hereof, which amounts may be deducted from the initial Advance;
 - (g) all certificates of insurance and copies of each insurance policy required hereunder; and
 - (h) such other documents as Agent may reasonably request.

4.2 All Advances. On each Advance Date:

- (a) Agent shall have received (i) an Advance Request for the relevant Advance as required by Section 2.2(b), each duly executed by Borrower's Chief Executive Officer or Chief Financial Officer, and (ii) any other documents Agent may reasonably request.
- (b) The representations and warranties set forth in this Agreement shall be true and correct in all material respects on and as of the Advance Date with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall have been true and correct in all material respects as of such date.
- (c) Borrower shall be in compliance with all the terms and provisions set forth herein and in each other Loan Document on its part to be observed or performed, and at the time of and immediately after such Advance no Event of Default shall have occurred and be continuing.
- (d) With respect to the Tranche 3 Advance, Borrower shall have paid the Tranche 3 Facility Charge;
- (e) Each Advance Request shall be deemed to constitute a representation and warranty by Borrower on the relevant Advance Date as to the matters specified in paragraphs (b) and (c) of this Section 4.2 and as to the matters set forth in the Advance Request.

4.3 No Default. As of the Closing Date and each Advance Date, (i) no fact or condition exists that would (or would, with the passage of time, the giving of notice, or both) constitute an Event of Default and (ii) no event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing.

SECTION 5. REPRESENTATIONS AND WARRANTIES OF BORROWER

Borrower represents and warrants that:

5.1 Corporate Status. Borrower is a corporation duly organized, legally existing and in good standing under the laws of the State of Delaware, and is duly qualified as a foreign corporation in all jurisdictions in which the nature of its business or location of its properties require such qualifications and where the failure to be qualified could reasonably be expected to have a Material Adverse Effect. Borrower's present name, former names (if any), locations, place of formation, tax identification number, organizational identification number and other information are correctly set forth in Exhibit B, as may be updated by Borrower in a written notice (including any Compliance Certificate) provided to Agent after the Closing Date.

5.2 Collateral. Borrower owns the Collateral and the Intellectual Property, free of all Liens, except for Permitted Liens. Borrower has the power and authority to grant to Agent a Lien in the Collateral as security for the Secured Obligations.

5.3 Consents. Borrower's execution, delivery and performance of this Agreement and all other Loan Documents (i) have been duly authorized by all necessary corporate action of Borrower, (ii) will not result in the creation or imposition of any Lien upon the Collateral, other than Permitted Liens and the Liens created by this Agreement and the other Loan Documents, (iii) do not violate any provisions of Borrower's Certificate or Articles of Incorporation (as applicable), bylaws, or any material law, regulation, order, injunction, judgment, decree or writ to which Borrower is subject and (iv) except as described on Schedule 5.3, do not violate in any material respect any material contract or agreement or require the consent or approval of any other Person which has not already been obtained. The individual or individuals executing the Loan Documents are duly authorized to do so.

5.4 Material Adverse Effect. No event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing. Borrower is not aware of any event likely to occur that is reasonably expected to result in a Material Adverse Effect.

5.5 Actions Before Governmental Authorities. There are no actions, suits or proceedings at law or in equity or by or before any governmental authority now pending or, to the knowledge of Borrower, threatened in writing against or affecting Borrower or its property, that is reasonably expected to result in a Material Adverse Effect.

5.6 Laws. Neither Borrower nor any of its Subsidiaries is in violation of any law, rule or regulation, or in default with respect to any judgment, writ, injunction or decree of any governmental authority, where such violation or default is reasonably expected to result in a Material Adverse Effect. Borrower is not in default in any manner under any provision of any agreement or instrument evidencing material Indebtedness, or any other material agreement to which it is a party or by which it is bound and for which such default would reasonably be expected to result in a Material Adverse Effect.

Neither Borrower nor any of its Subsidiaries is an “investment company” or a company “controlled” by an “investment company” under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a “holding company” or an “affiliate” of a “holding company” or a “subsidiary company” of a “holding company” as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower’s nor any of its Subsidiaries’ properties or assets has been used by Borrower or such Subsidiary or, to Borrower’s knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all governmental authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or any of Borrower’s or its Subsidiaries’ Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the knowledge of Borrower and any of its Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law. None of the funds to be provided under this Agreement will be used, directly or indirectly, (a) for any activities in violation of any applicable anti-money laundering, economic sanctions and anti-bribery laws and regulations laws and regulations or (b) for any payment to any governmental official or employee, political party, official of a political party, candidate for political office, or anyone else acting in an official capacity, in order to obtain, retain or direct business or obtain any improper advantage, in violation of the United States Foreign Corrupt Practices Act of 1977, as amended.

5.7 Information Correct and Current. No information, report, Advance Request, financial statement, exhibit or schedule furnished, by or on behalf of Borrower to Agent in connection with any Loan Document or included therein or delivered pursuant thereto (other than the projections) contained, or, when taken as a whole, contains or will contain any material misstatement of fact or, when taken together with all other such information or documents, omitted, omits or will omit to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were, are or will be made, not materially misleading at the time such statement was made or deemed made. Additionally, any and all financial or business projections provided by Borrower to Agent, whether prior to or after the Closing Date, shall be (i) provided in good faith and based on the most current data and information available to Borrower, and (ii) the most current of such projections provided to Borrower’s Board of Directors (it being understood that such projections are subject to significant uncertainties and contingencies, many of which are beyond the control of Borrower, that no assurance is given that any particular projections will be realized and that actual results may differ materially).

5.8 Tax Matters. Except as described on Schedule 5.8, (a) Borrower and its Subsidiaries have filed all federal and state income Tax returns and other material Tax returns that they are required to file, (b) Borrower and its Subsidiaries have duly paid all federal and state income Taxes and other material Taxes or installments thereof (including any interest or penalties) as and when due, except those being contested in good faith with adequate reserves taken in connection thereto in accordance with GAAP, (c) Borrower has paid or fully reserved for any tax assessment received by Borrower for the three (3) years preceding the Closing Date, if any, and (d) to Borrower's knowledge, no proposed or pending Tax assessments, deficiencies, audits or other proceedings with respect to Borrower or any Subsidiary have had, or could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

5.9 Intellectual Property Claims. Borrower is the sole owner of, or otherwise has the right to use, the Intellectual Property material to Borrower's business. Except as described on Schedule 5.9, (i) each of the material Copyrights, Trademarks and Patents is valid and enforceable, (ii) no material part of the Intellectual Property has been judged invalid or unenforceable, in whole or in part, and (iii) to the best of Borrower's knowledge, no claim has been made in writing alleging to Borrower that any material part of the Intellectual Property violates the rights of any third party. Exhibit C is a true, correct and complete list of each of Borrower's Patents, registered Trademarks, registered Copyrights, and material agreements under which Borrower licenses Intellectual Property from third parties (other than shrink-wrap software licenses or other licenses which, if terminated, would not reasonably be expected to result in a Material Adverse Effect), together with application or registration numbers, as applicable, owned by Borrower or any Subsidiary, in each case as of the Closing Date. Borrower is not in material breach of, nor has Borrower failed to perform any material obligations under, any of the foregoing contracts, licenses or agreements and, to Borrower's knowledge, no third party to any such contract, license or agreement is in material breach thereof or has failed to perform any material obligations thereunder, except as would not reasonably be expected to result in a Material Adverse Effect.

5.10 Intellectual Property. To the best of Borrower's knowledge, except as described on Schedule 5.10, Borrower has all material rights with respect to Intellectual Property necessary or material in the operation or conduct of Borrower's business as currently conducted and proposed to be conducted by Borrower. Without limiting the generality of the foregoing, and in the case of Licenses, except for restrictions that are unenforceable under Division 9 of the UCC, Borrower has the right, to the extent required to operate Borrower's business, to freely transfer, license or assign Intellectual Property necessary or material in the operation or conduct of Borrower's business as currently conducted and proposed to be conducted by Borrower, without condition, restriction or payment of any kind (other than license payments in the ordinary course of business) to any third party, and Borrower owns or has the right to use, pursuant to valid licenses, all software development tools, library functions, compilers and all other third-party software and other items that are material to Borrower's business and used in the design, development, promotion, sale, license, manufacture, import, export, use or distribution of Borrower Products except customary covenants in inbound license agreements and equipment leases where Borrower is the licensee or lessee. Borrower is not a party to, nor is it bound by, any Restricted License.

No material software or other materials used by Borrower or any of its Subsidiaries (or used in any Borrower Products or any Subsidiaries' products) are subject to an open-source or similar license (including but not limited to the General Public License, Lesser General Public License, Mozilla Public License, or Affero License) (collectively, "Open Source Licenses") in a manner that would cause such software or other materials to have to be (i) distributed to third parties at no charge or a minimal charge (royalty-free basis); (ii) licensed to third parties to modify, make derivative works based on, decompile, disassemble, or reverse engineer; or (iii) used in a manner that does could require disclosure or distribution in source code form.

5.11 Borrower Products. Except as described on Schedule 5.11, no material Intellectual Property owned by Borrower or Borrower Product has been or is subject to any actual or, to the knowledge of Borrower, threatened in writing litigation, proceeding (including any proceeding in the United States Patent and Trademark Office or any corresponding foreign office or agency) or outstanding decree, order, judgment, settlement agreement or stipulation that restricts in any manner Borrower's use, transfer or licensing thereof or that would reasonably be expected to adversely affect the validity, use or enforceability thereof. There is no decree, order, judgment, agreement, stipulation, arbitral award or other provision entered into in connection with any litigation or proceeding before a governmental authority that obligates Borrower to grant licenses or ownership interest in any future Intellectual Property material to the operation or conduct of the business of Borrower or Borrower Products. Borrower has not received any written notice or claim, or, to the knowledge of Borrower, oral notice or claim, challenging or questioning Borrower's ownership in any material Intellectual Property (or written notice of any claim challenging or questioning the ownership in any material licensed Intellectual Property of the owner thereof) or suggesting that any third party has any claim of legal or beneficial ownership with respect thereto nor, to Borrower's knowledge, is there a reasonable basis for any such claim. To the Borrower's knowledge, neither Borrower's use of its material Intellectual Property nor the production and sale of Borrower Products infringes the material Intellectual Property or other rights of others.

5.12 Financial Accounts. Exhibit D, as may be updated by the Borrower in a written notice provided to Agent after the Closing Date, is a true, correct and complete list of (a) all banks and other financial institutions at which Borrower or any Subsidiary maintains Deposit Accounts and (b) all institutions at which Borrower or any Subsidiary maintains an account holding Investment Property, and such exhibit correctly identifies the name, address and telephone number of each bank or other institution, the name in which the account is held, a description of the purpose of the account, and the complete account number therefor.

5.13 Employee Loans. Borrower has no outstanding loans to any employee, officer or director of the Borrower nor has Borrower guaranteed the payment of any loan made to an employee, officer or director of the Borrower by a third party.

5.14 Capitalization and Subsidiaries. Borrower's capitalization as of the Closing Date is set forth on Schedule 5.14 annexed hereto. Borrower does not own any stock, partnership interest or other securities of any Person, except for Permitted Investments. Attached as Schedule 5.14, as may be updated by Borrower in a written notice provided after the Closing Date, is a true, correct and complete list of each Subsidiary.

5.15 Certain Subsidiary Voting Rights. No decision or action in any governing document of any Excluded Subsidiary that is a CFC or CFC Holdco requires a vote of greater than 50.1% of the Equity Interests or voting rights of such Subsidiary, other than with Agent's written consent.

SECTION 6. INSURANCE; INDEMNIFICATION

6.1 Coverage. Borrower shall cause to be carried and maintained commercial general liability insurance, on an occurrence form, against risks customarily insured against by businesses of Borrower's size in Borrower's line of business in similar locations. Such risks shall include the risks of bodily injury, including death, property damage, personal injury, advertising injury, and contractual liability per the terms of the indemnification agreement found in Section 6.3. Borrower must maintain a minimum of \$2,000,000 of commercial general liability insurance for each occurrence. Borrower has and agrees to maintain a minimum of \$2,000,000 of directors' and officers' insurance for each occurrence and \$5,000,000 in the aggregate. So long as there are any Secured Obligations (other than inchoate indemnification or reimbursement obligations or other obligations which, by their terms, survive termination of this Agreement) outstanding, Borrower shall also cause to be carried and maintained insurance upon the Collateral, insuring against all risks of physical loss or damage howsoever caused, in an amount not less than the full replacement cost of the Collateral, provided that such insurance may be subject to standard exceptions and deductibles. If Borrower fails to obtain the insurance called for by this Section 6.1 or fails to pay any premium thereon or fails to pay any other amount which Borrower is obligated to pay under this Agreement or any other Loan Document or which may be required to preserve the Collateral, Agent may obtain such insurance or make such payment, and all amounts so paid by Agent are immediately due and payable, bearing interest at the then highest rate applicable to the Secured Obligations, and secured by the Collateral. Agent will make reasonable efforts to provide Borrower with notice of Agent obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Agent are deemed an agreement to make similar payments in the future or Agent's waiver of any Event of Default.

6.2 Certificates. Borrower shall deliver to Agent certificates of insurance that evidence Borrower's compliance with its insurance obligations in Section 6.1 and the obligations contained in this Section 6.2. Borrower's insurance certificate shall state Agent (shown as "Hercules Capital, Inc., as Agent") is an additional insured for commercial general liability, a lenders loss payable for all risk property damage insurance, subject to the insurer's approval, and a lenders loss payable for property insurance and additional insured for liability insurance for any future insurance that Borrower may acquire from such insurer. Notwithstanding the foregoing, (i) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy up to \$250,000 in the aggregate for all losses under all casualty policies in any one (1) year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (A) shall be of equal or like value as the replaced or repaired Collateral and (B) shall be deemed Collateral in which Agent has been granted a first priority security interest (subject only to Permitted Liens that are permitted pursuant to the terms of this Agreement to have superior priority to Agent's Lien), and (ii) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Agent, be payable to Agent on account of the Secured Obligations. Borrower shall deliver additional insured endorsements for liability and lender's loss payable endorsements for all risk property damage insurance pursuant to Section 7.16(b). All certificates of insurance will provide for a minimum of thirty (30) days advance written notice to Agent of cancellation (other than cancellation for non-payment of premiums, for which ten (10) days' advance written notice shall be sufficient). Any failure of Agent to scrutinize such insurance certificates for compliance is not a waiver of any of Agent's rights, all of which are reserved. Upon request by Agent, Borrower shall provide Agent with copies of each insurance policy, and upon entering or amending any insurance policy required hereunder, Borrower shall provide Agent with copies of such policies and shall promptly deliver to Agent updated insurance certificates with respect to such policies.

6.3 Indemnity. Borrower agrees to indemnify and hold Agent, the Lenders and their officers, directors, employees, agents, in-house attorneys, representatives and shareholders (each, an "Indemnified Person") harmless from and against any and all claims, reasonable and documented out-of-pocket costs, expenses, damages and liabilities (including such claims, costs, expenses, damages and liabilities based on liability in tort, including strict liability in tort), including reasonable and documented out-of-pocket attorneys' fees and disbursements and other costs of investigation or defense (including those incurred upon any appeal) (collectively, "Liabilities"), that may be instituted or asserted against or incurred by such Indemnified Person as the result of credit having been extended, suspended or terminated under this Agreement and the other Loan Documents or the administration of such credit, or in connection with or arising out of the transactions contemplated hereunder and thereunder, or any actions or failures to act in connection therewith, or arising out of the disposition or utilization of the Collateral, excluding in all cases Liabilities to the extent resulting solely from any Indemnified Person's gross negligence or willful misconduct. This Section 6.3 shall not apply with respect to Taxes other than any Taxes that represent losses, claims, damages, etc. arising from any non-Tax claim. In no event shall any Indemnified Person be liable on any theory of liability for any special, indirect, consequential or punitive damages (including any loss of profits, business or anticipated savings). This Section 6.3 shall survive the repayment of indebtedness under, and otherwise shall survive the expiration or other termination of, the Loan Agreement.

SECTION 7. COVENANTS OF BORROWER

Borrower agrees as follows:

7.1 Financial Reports. Borrower shall furnish to Agent the financial statements and reports listed hereinafter (the "Financial Statements"):

(a) as soon as practicable (and in any event within 30 days) after the end of each month, unaudited interim and year-to-date financial statements as of the end of such month (prepared on a consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows accompanied by a report detailing any material contingencies (including the commencement of any material litigation by or against Borrower) or any other occurrence that could reasonably be expected to have a Material Adverse Effect, all certified by Borrower's Chief Executive Officer or Chief Financial Officer to the effect that they have been prepared in accordance with GAAP, except (i) for the absence of footnotes, (ii) that they are subject to normal year end adjustments, and (iii) they do not contain certain non-cash items that are customarily included in quarterly and annual financial statements;

(b) as soon as practicable (and in any event within 45 days) after the end of each calendar quarter, unaudited interim and year-to-date financial statements as of the end of such calendar quarter (prepared on a consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows accompanied by a report detailing any material contingencies (including the commencement of any material litigation by or against Borrower) or any other occurrence that would reasonably be expected to have a Material Adverse Effect, certified by Borrower's Chief Executive Officer or Chief Financial Officer to the effect that they have been prepared in accordance with GAAP, except (i) for the absence of footnotes, and (ii) that they are subject to normal year end adjustments.

(c) as soon as practicable (and in any event within ninety (90) days) after the end of each fiscal year, unqualified (other than as to going concern or a qualification resulting solely from the scheduled maturity of the Advances occurring within one year from the date such opinion is delivered) audited financial statements as of the end of such year (prepared on a

consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows, and setting forth in comparative form the corresponding figures for the preceding fiscal year, certified by a firm of independent certified public accountants selected by Borrower and reasonably acceptable to Agent, accompanied by any management report from such accountants;

(d) as soon as practicable (and in any event within 30 days) after the end of each month, a Compliance Certificate in the form of Exhibit E;

(e) as soon as practicable (and in any event within 30 days) after the end of each month, a report showing agings of accounts receivable and accounts payable;

(f) promptly after the sending or filing thereof, as the case may be, (i) copies of any proxy statements, financial statements or reports that Borrower has made generally available to holders of its preferred stock and (ii) copies of any regular, periodic and special reports or registration statements that Borrower files with the Securities and Exchange Commission or any governmental authority that may be substituted therefor, or any national securities exchange;

(g) within ten (10) Business Days after a Board meeting, an executive summary of the materials that Borrower provides to its directors in connection with meetings of the Board of Directors, provided that in all cases Borrower may exclude highly confidential information, information that would present a conflict of interest and information subject to attorney-client privilege;

(h) financial and business projections promptly following their approval by Borrower's Board of Directors, and in any event, within 60 days after the end of Borrower's fiscal year, as well as budgets, operating plans and other financial information reasonably requested by Agent; and

(i) immediate notice if Borrower or any Subsidiary has knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or (a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering.

Borrower shall not make any change in its (a) accounting policies or reporting practices, except as required by GAAP or (b) fiscal years or fiscal quarters. The fiscal year of Borrower shall end on December 31.

The executed Compliance Certificate and all Financial Statements required to be delivered pursuant to clauses (a), (b), (c) and (d) shall be sent via e-mail to Agent at financialstatements@htgc.com with a copy to legal@htgc.com and jbourque@htgc.com; provided, that if e-mail is not available or sending such Financial Statements via e-mail is not possible, they shall be faxed to Agent at: (650)473-9194, attention Account Manager: Kaleido Biosciences, Inc.

Notwithstanding the foregoing, documents required to be delivered under Sections 7.1(a), (b), (c) or (f) (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the Internet at Borrower's website address; provided that Borrower shall directly provide Agent all Financial Statements required to be delivered pursuant to Section 7.1(b) and (c) hereunder.

7.2 Management Rights. Borrower shall permit any representative that Agent or the Lenders authorizes, including its attorneys and accountants, to inspect the Collateral and examine and make copies and abstracts of the books of account and records of Borrower at reasonable times and upon reasonable notice during normal business hours; provided, however, that so long as no Event of Default has occurred and is continuing, such examinations shall be limited to no more often than once per fiscal year. In addition, in connection with any such examination, any such representative shall have the right to meet with management and officers of Borrower to discuss such books of account and records. In addition, Agent or the Lenders shall be entitled at reasonable times and intervals and upon reasonable prior written notice to consult with and advise the management and officers of Borrower concerning significant business issues affecting Borrower. Such consultations shall not unreasonably interfere with Borrower's business operations. The parties intend that the rights granted Agent and the Lenders shall constitute "management rights" within the meaning of 29 C.F.R. Section 2510.3-101(d)(3)(ii), but that any advice, recommendations or participation by Agent or the Lenders with respect to any business issues shall not be deemed to give Agent or the Lenders, nor be deemed an exercise by Agent or the Lenders of, control over Borrower's management or policies.

7.3 Further Assurances. Borrower shall from time to time execute, deliver and file, alone or with Agent, any financing statements, security agreements, collateral assignments, notices, control agreements, promissory notes or other documents to perfect, give the highest priority to Agent's Lien on the Collateral (subject to Permitted Liens) as Agent may reasonably request from time to time or as otherwise specifically required under the Loan Documents. Borrower shall from time to time procure any instruments or documents as may be reasonably requested by Agent, and take all further action that may be necessary, or that Agent may reasonably request, to perfect and protect the Liens granted hereby and thereby in accordance with the Loan Documents. In addition, and for such purposes only, Borrower hereby authorizes Agent to execute and deliver on behalf of Borrower and to file such financing statements (including an indication that the financing statement covers "all assets or all personal property" of Borrower in accordance with Section 9-504 of the UCC), collateral assignments, notices, control agreements, security agreements and other documents without the signature of Borrower either in Agent's name or in the name of Agent as agent and attorney-in-fact for Borrower. Borrower shall protect and defend Borrower's title to the Collateral and Agent's Lien thereon against all Persons claiming any interest adverse to Borrower or Agent other than Permitted Liens.

7.4 Indebtedness. Borrower shall not create, incur, assume, guarantee or be or remain liable with respect to any Indebtedness, or permit any Subsidiary so to do, other than Permitted Indebtedness, or prepay any Subordinated Indebtedness or take any actions which impose on Borrower an obligation to prepay any Subordinated Indebtedness, except for (a) the conversion of Indebtedness into equity securities and the payment of cash in lieu of fractional shares in connection with such conversion, (b) purchase money Indebtedness pursuant to its then applicable payment schedule, (c) prepayment by any Subsidiary of (i) inter-company Indebtedness owed by such Subsidiary to any Borrower, or (ii) if such Subsidiary is not a Borrower, intercompany Indebtedness owed by such Subsidiary to another Subsidiary that is not a Borrower, (d) as otherwise permitted hereunder or approved in writing by Agent, or (e) the Indebtedness under the Loan Documents pursuant to Section 2.5.

7.5 Collateral. Borrower shall at all times keep the Collateral, the Intellectual Property and all other property and assets used in Borrower's business or in which Borrower now or hereafter holds any interest free and clear from any Lien whatsoever (except for Permitted Liens), and shall give Agent prompt written notice of any known legal process affecting the Collateral, the

Intellectual Property, such other property and assets, in each case, with a value in excess of \$250,000, or any Liens thereon, provided however, that the Collateral and such other property and assets may be subject to Permitted Liens except that there shall be no Liens whatsoever on Intellectual Property. Borrower shall not agree with any Person other than Agent or the Lenders not to encumber its property (other than holders of Permitted Liens). Borrower shall not enter into or suffer to exist or become effective any agreement that prohibits or limits the ability of any Borrower to create, incur, assume or suffer to exist any Lien upon any of its property (including Intellectual Property), whether now owned or hereafter acquired, to secure its obligations under the Loan Documents to which it is a party other than (a) this Agreement and the other Loan Documents, (b) any agreements governing any purchase money Liens or capital lease obligations otherwise permitted hereby (in which case, any prohibition or limitation shall only be effective against the assets financed thereby) and (c) customary restrictions on the assignment of leases, licenses and other agreements. Borrower shall cause its Subsidiaries to protect and defend such Subsidiary's title to its assets from and against all Persons claiming any interest adverse to such Subsidiary, and Borrower shall cause its Subsidiaries at all times to keep such Subsidiary's property and assets free and clear from any known legal process or Liens whatsoever (except for Permitted Liens, provided however, that there shall be no Liens whatsoever on Intellectual Property), and shall give Agent prompt written notice of any legal process affecting such Subsidiary's assets with a value in excess of \$250,000.

7.6 Investments. Borrower shall not directly or indirectly acquire or own, or make any Investment in or to any Person, or permit any of its Subsidiaries so to do, other than Permitted Investments.

7.7 Distributions. Borrower shall not, and shall not allow any Subsidiary to, (a) repurchase or redeem any class of stock or other Equity Interest other than pursuant to employee, director or consultant repurchase plans, stock option plans or agreements, restricted stock agreements, or other similar agreements, provided, however, in each case the repurchase or redemption price does not exceed the original consideration paid for such stock or Equity Interest, or (b) declare or pay any cash dividend or make any other cash distribution on any class of stock or other Equity Interest, except that a Subsidiary may pay dividends or make other distributions to Borrower or any Subsidiary of Borrower, or (c) lend money to any employees, officers or directors or guarantee the payment of any such loans granted by a third party in excess of \$250,000 in the aggregate outstanding other than Permitted Investments or (d) waive, release or forgive any Indebtedness owed by any employees, officers or directors in excess of \$250,000 in the aggregate per fiscal year.

7.8 Transfers. Except for Permitted Transfers, Borrower shall not, and shall not allow any Subsidiary to, voluntarily or involuntarily transfer, sell, lease, license, lend or in any other manner convey any equitable, beneficial or legal interest in any material portion of its assets.

7.9 Mergers or Acquisitions. Other than Permitted In-Licenses, Borrower shall not merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with or into any other business organization (other than mergers or consolidations of (a) a Subsidiary which is not a Borrower into another Subsidiary or into Borrower or (b) a Borrower into another Borrower), or acquire, or permit any of its Subsidiaries to acquire, in each case including for the avoidance of doubt through a merger, purchase, in-licensing arrangement or any similar transaction, all or substantially all of the capital stock or any property of another Person.

7.10 Taxes. Borrower shall, and shall cause each of its Subsidiaries to, pay when due all material Taxes of any nature whatsoever now or hereafter imposed or assessed against Borrower or the Collateral or upon Borrower's ownership, possession, use, operation or disposition thereof or upon Borrower's rents, receipts or earnings arising therefrom, unless the same are being contested in good faith and by appropriate proceedings diligently conducted and for which adequate reserves are being maintained in accordance with GAAP. Borrower shall, and shall cause each of its Subsidiaries to, file on or before the due date therefor (taking into account proper extensions) all federal and state income Tax returns and other material Tax returns required to be filed.

7.11 Corporate Changes. Neither Borrower nor any Subsidiary shall change its corporate name, legal form or jurisdiction of formation without ten (10) days' prior written notice to Agent. Neither Borrower nor any Subsidiary shall suffer a Change in Control unless, as part of the transaction(s) resulting in such a Change in Control, the Secured Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Neither Borrower nor any Subsidiary shall relocate its chief executive office or its principal place of business unless: (i) it has provided prior written notice to Agent; and (ii) such relocation shall be within the continental United States of America. Neither Borrower nor any Domestic Subsidiary or Eligible Foreign Subsidiary shall relocate any tangible item of Collateral with an aggregate value in excess of \$250,000 (other than (x) sales of Inventory in the ordinary course of business, (y) relocations of mobile Equipment in the possession of its employees or agents, and (z) relocations of Collateral from a location described on Exhibit B to another location described on Exhibit B) unless (i) it has provided prompt written notice to Agent, (ii) such relocation is within the continental United States of America and, (iii) if such relocation is to a third party bailee, it has delivered a bailee agreement in form and substance reasonably acceptable to Agent.

7.12 Deposit Accounts. Neither Borrower nor any Qualified Subsidiary shall maintain any Deposit Accounts, or accounts holding Investment Property, except, in each case, with respect to which Agent has an Account Control Agreement; provided that no Account Control Agreement is required for any of the existing restricted accounts listed in Schedule 7.12. Notwithstanding the foregoing, on and prior to December 31, 2019, Borrower may maintain up to \$1,000,000 in its account with Pacific Western Bank, account number ending in 643.

7.13 Borrower shall notify Agent of each Subsidiary formed subsequent to the Closing Date and, within 20 days of formation, shall cause any such Subsidiary (except for an Excluded Subsidiary) to execute and deliver to Agent a Joinder Agreement, provided that, with respect to any Subsidiary that is an Excluded Subsidiary at such time, immediately upon any change in applicable tax laws that would result in such Subsidiary ceasing to be an Excluded Subsidiary, Borrower shall cause such Subsidiary to execute and deliver to Agent a Joinder Agreement.

7.14 MSC Investment Conditions. At any time that the MSC Subsidiary has any assets or liabilities, Borrower shall satisfy the MSC Investment Conditions at all times.

7.15 Notification of Event of Default. Borrower shall notify Agent promptly and in any case within three (3) Business Days of Borrower obtaining knowledge of the occurrence of any Event of Default.

7.16 Post-Close Obligations. Notwithstanding any provision herein or in any other Loan Document to the contrary, to the extent not actually delivered on or prior to the Closing Date, Borrower shall deliver to Agent (or its designated agent):

(a) On or before December 31, 2019, evidence satisfactory to Agent that Borrower has less than \$15,000 in deposit in its account held at Pacific Western Bank, account number ending in 643, for outstanding checks. Borrower shall not deposit any additional funds or issue additional checks related to such account. Borrower shall close such account when all currently outstanding checks are paid.

(b) Within thirty (30) days after the Closing Date, Borrower shall deliver to Agent appropriate endorsements evidencing lender loss payable, additional insured, and notice of cancellation endorsements in favor of Agent with respect to all insurance policies required by Section 6.2 hereof.

7.17 Use of Proceeds. Borrower agrees that the proceeds of the Loans shall be used solely to refinance existing indebtedness, to pay related fees and expenses in connection with this Agreement and for working capital and general corporate purposes. The proceeds of the Loans Credit will not be used in violation of Anti-Corruption Laws or applicable Sanctions.

7.18 Certain Subsidiary Voting Rights. Borrower shall not, and shall not permit any Subsidiary, to amend or modify any governing document of any Excluded Subsidiary of that is a CFC or CFC Holdco the effect of which is to require a vote of greater than 50.1% of the Equity Interests or voting rights of such Subsidiary for any decision or action of such Subsidiary, other than with Agent's written consent.

7.19 Compliance with Laws.

Borrower shall maintain, and shall cause its Subsidiaries to maintain, compliance in all material respects with all applicable laws, rules or regulations (including any law, rule or regulation with respect to the making or brokering of loans or financial accommodations), and shall, or cause its Subsidiaries to, obtain and maintain all required governmental authorizations, approvals, licenses, franchises, permits or registrations reasonably necessary in connection with the conduct of Borrower's business.

Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries, permit any Affiliate to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executive order or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

Borrower has implemented and maintains in effect policies and procedures designed to ensure compliance by the Borrower, its Subsidiaries and their respective directors, officers, employees and agents with Anti-Corruption Laws and applicable Sanctions, and Borrower, its Subsidiaries and their respective officers and employees and to the knowledge of Borrower its directors and agents, are in compliance with Anti-Corruption Laws and applicable Sanctions in all material respects.

None of Borrower, any of its Subsidiaries or any of their respective directors, officers or employees, or to the knowledge of Borrower, any agent for Borrower or its Subsidiaries that will act in any capacity in connection with or benefit from the credit facility established hereby, is a Sanctioned Person. No Loan, use of proceeds or other transaction contemplated by this Agreement will violate Anti-Corruption Laws or applicable Sanctions.

7.20 Financial Covenant (Minimum Cash).

(a) In the event Borrower fails to achieve Performance Milestone I on or before June 30, 2020, beginning on July 1, 2020, Borrower shall, at all times, maintain Qualified Cash in an amount greater than or equal to the greater of (i) Fifteen Million Dollars (\$15,000,000) *plus* the Qualified Cash A/P Amount and (ii) the amount of Qualified Cash required to be maintained pursuant to Section 7.20(b) or (c), as applicable.

(b) In the event (x) Borrower fails to achieve Performance Milestone II on or before November 15, 2020, (y) [***] or (z) [***], effective immediately on the earliest such date, Borrower shall, at all times maintain Qualified Cash in an amount greater than or equal to the greater of (i) the then-outstanding Secured Obligations *plus* the Qualified Cash A/P Amount and (ii) the amount of Qualified Cash required to be maintained pursuant to Section 7.20(a) or (c), as applicable.

(c) In the event Borrower achieves both Performance Milestone I and Performance Milestone II on or before June 30, 2020 and November 15, 2020, respectively, and has drawn both the Tranche 1 Advance and the Tranche 2 Advance, beginning on July 1, 2021, Borrower shall at all times maintain Qualified Cash in an amount greater than or equal to the sum of Seven Million Five Hundred Thousand Dollars (\$7,500,000) *plus* the Qualified Cash A/P Amount.

Notwithstanding the foregoing, Borrower shall not be subject to requirements set forth in this Section 7.20 during any time (i) [***] and (ii) [***].

Borrower shall provide Agent evidence of compliance with this Section 7.20 in each Compliance Certificate and upon request in form and substance reasonably acceptable to Agent, along with supporting documentation reasonably requested by Agent.

7.21 Transactions with Affiliates. Borrower shall not and shall not permit any Subsidiary to, directly or indirectly, enter into or permit to exist any transaction of any kind with any Affiliate of Borrower or such Subsidiary on terms that are less favorable to Borrower or such Subsidiary, as the case may be, than those that might be obtained in an arm's length transaction from a Person who is not an Affiliate of Borrower or such Subsidiary.

SECTION 8. RIGHT TO INVEST

8.1 The Lenders or their assignee or nominee shall have the right, in its discretion, to participate in any Subsequent Financing in an amount of up to \$2,000,000 on the same terms, conditions and pricing afforded to other investors participating in such Subsequent Financing.

SECTION 9. EVENTS OF DEFAULT

The occurrence of any one or more of the following events shall be an Event of Default:

9.1 Payments. Borrower fails to pay (i) any scheduled payment of principal or interest due under this Agreement or any of the other Loan Documents on the due date or (ii) any other payment due on the Secured Obligations hereunder within three (3) Business Days; provided, however, that an Event of Default shall not occur on account of a failure to pay due solely to an administrative or operational error of Agent or the Lenders or Borrower's bank if Borrower had the funds to make the payment when due and makes the payment within three (3) Business Days following Borrower's knowledge of such failure to pay; or

9.2 Covenants. Borrower breaches or defaults in the performance of any covenant or Secured Obligation under this Agreement, or any of the other Loan Documents or any other agreement among Borrower, Agent and the Lenders, and (a) with respect to a default under any covenant under this Agreement (other than under Sections 6, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.14, 7.15, 7.16, 7.17, 7.18, 7.19, 7.20 and 7.21), any other Loan Document, or any other agreement among Borrower, Agent and the Lenders, such default continues for more than ten (10) days after the earlier of the date on which (i) Agent or the Lenders has given notice of such default to Borrower and (ii) Borrower has actual knowledge of such default or (b) with respect to a default under any of Sections 6, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.14, 7.15, 7.16, 7.17, 7.18, 7.19, 7.20 and 7.21, the occurrence of such default; or

9.3 Material Adverse Effect. A circumstance has occurred that could reasonably be expected to have a Material Adverse Effect, provided that solely for purposes of this Section 9.3, the occurrence of any of the following, in and of itself, shall not constitute a Material Adverse Effect: (a) adverse results or delays in any nonclinical or clinical trial or (b) the denial, delay or limitation of approval of, or taking of any other regulatory action by, the FDA; provided that, in determining whether a Material Adverse Effect has occurred, Agent's primary, though not sole, consideration will be whether Borrower has or will have sufficient cash resources to repay the Secured Obligations as and when due and the clear intention of Borrower's investors to continue to fund Borrower in the amounts and timeframe necessary, in Agent's good faith judgment, to enable Borrower to satisfy the Secured Obligations as they become due and payable is the most significant criterion Agent shall consider in making any such determination.

9.4 Representations. Any representation or warranty made by Borrower in any Loan Document shall have been false or misleading in any material respect when made or when deemed made; or

9.5 Insolvency. Borrower (A) (i) shall make an assignment for the benefit of creditors; or (ii) shall be unable to pay its debts as they become due in the ordinary course of business, or be unable to pay or perform under the Loan Documents, or shall become insolvent; or (iii) shall file a voluntary petition in bankruptcy; or (iv) shall file any petition, answer, or document seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation pertinent to such circumstances except as permitted under Section 7.10 of this Agreement; or (v) shall seek or consent to or acquiesce in the appointment of any trustee, receiver, or liquidator of

Borrower or of all or any substantial part (i.e., 33-1/3% or more) of the assets or property of Borrower; or (vi) shall cease operations of its business as its business has normally been conducted, or terminate substantially all of its employees; or (vii) Borrower or its directors or majority shareholders shall take any action initiating any of the foregoing actions described in clauses (i) through (vi); or (B) either (i) forty-five (45) days shall have expired after the commencement of an involuntary action against Borrower seeking reorganization, arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation, without such action being dismissed or all orders or proceedings thereunder affecting the operations or the business of Borrower being stayed; or (ii) a stay of any such order or proceedings shall thereafter be set aside and the action setting it aside shall not be timely appealed; or (iii) Borrower shall file any answer admitting or not contesting the material allegations of a petition filed against Borrower in any such proceedings; or (iv) the court in which such proceedings are pending shall enter a decree or order granting the relief sought in any such proceedings; or (v) forty-five (45) days shall have expired after the appointment, without the consent or acquiescence of Borrower, of any trustee, receiver or liquidator of Borrower or of all or any substantial part of the properties of Borrower without such appointment being vacated; or

9.6 Attachments; Judgments. Any portion of Borrower's assets in an amount greater than \$250,000 is attached or seized, or a levy is filed against any such assets that is not removed, rescinded or dismissed within thirty (30) days, or a judgment or judgments is/are entered for the payment of money (not covered by independent third party insurance as to which liability has not been rejected by such insurance carrier), individually or in the aggregate, of at least \$250,000, or Borrower is enjoined or in any way prevented by court order from conducting any part of its business; or

9.7 Other Obligations. The occurrence of any default (beyond any applicable grace or cure periods) under any agreement or obligation of Borrower giving rise to the ability by the counterparty to accelerate any Indebtedness in excess of \$250,000.

9.8 Stop Trade. At any time, an SEC stop trade order or NASDAQ market trading suspension of the Common Stock shall be in effect for five (5) consecutive days or five (5) days during a period of ten (10) consecutive days, excluding in all cases a suspension of all trading on a public market, provided that Borrower shall not have been able to cure such trading suspension within thirty (30) days of the notice thereof or list the Common Stock on another public market within sixty (60) days of such notice.

SECTION 10. REMEDIES

10.1 General. Upon and during the continuance of any one or more Events of Default, (i) Agent may, and at the direction of the Required Lenders shall, accelerate and demand payment of all or any part of the outstanding Secured Obligations together with the applicable Prepayment Charge and declare them to be immediately due and payable (provided, that upon the occurrence and during the continuance of an Event of Default of the type described in Section 9.5, all of the outstanding Secured Obligations (including, without limitation, the Prepayment Charge and the End of Term Charge) shall automatically be accelerated and made due and payable, in each case without any further notice or act). Borrower hereby irrevocably appoints Agent as its lawful attorney-in-fact exercisable following the occurrence and during the continuance of an Event of Default, (a) sign Borrower's name on any invoice or bill of lading for any account or drafts against account debtors; (b) demand, collect, sue, and give releases to any account debtor for monies due, settle and adjust disputes and claims about the accounts directly with account debtors, and

compromise, prosecute, or defend any action, claim, case, or proceeding about any Collateral (including filing a claim or voting a claim in any bankruptcy case in Agent's or Borrower's name, as Agent may elect); (c) make, settle, and adjust all claims under Borrower's insurance policies; (d) pay, contest or settle any Lien, charge, encumbrance, security interest, or other claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; (e) transfer the Collateral into the name of Agent or a third party as the UCC permits; (f) receive, open and dispose of mail addressed to Borrower; (g) endorse Borrower's name on any checks, payment instruments, or other forms of payment or security; and (h) notify all account debtors to pay Agent directly. Borrower hereby appoints Agent as its lawful attorney-in-fact to sign Borrower's name on any documents necessary to perfect or continue the perfection of Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all outstanding Secured Obligations have been satisfied in full and the Loan Documents have been terminated. Agent's foregoing appointment as Borrower's attorney in fact, and all of Agent's rights and powers, coupled with an interest, are irrevocable until all Secured Obligations have been fully repaid and performed and the Loan Documents have been terminated. Agent may, and at the direction of the Required Lenders shall, exercise all rights and remedies with respect to the Collateral under the Loan Documents or otherwise available to it under the UCC and other applicable law, including the right to release, hold, sell, lease, liquidate, collect, realize upon, or otherwise dispose of all or any part of the Collateral and the right to occupy, utilize, process and commingle the Collateral. All Agent's rights and remedies shall be cumulative and not exclusive.

10.2 Collection; Foreclosure. Upon the occurrence and during the continuance of any Event of Default, Agent may, and at the direction of the Required Lenders shall, at any time or from time to time, apply, collect, liquidate, sell in one or more sales, lease or otherwise dispose of, any or all of the Collateral, in its then condition or following any commercially reasonable preparation or processing, in such order as Agent may elect. Any such sale may be made either at public or private sale at its place of business or elsewhere. Borrower agrees that any such public or private sale may occur upon ten (10) calendar days' prior written notice to Borrower. Agent may require Borrower to assemble the Collateral and make it available to Agent at a place designated by Agent that is reasonably convenient to Agent and Borrower. The proceeds of any sale, disposition or other realization upon all or any part of the Collateral shall be applied by Agent in the following order of priorities:

First, to Agent and the Lenders in an amount sufficient to pay in full Agent's and the Lenders' reasonable and documented out-of-pocket costs and professionals' and advisors' fees and expenses as described in Section 11.12;

Second, to the Lenders in an amount equal to the then unpaid amount of the Secured Obligations (including principal, interest, and the default rate interest pursuant to Section 2.4), in such order and priority as Agent may choose in its sole discretion; and

Finally, after the full and final payment in Cash of all of the Secured Obligations (other than inchoate obligations), to any creditor holding a junior Lien on the Collateral, or to Borrower or its representatives or as a court of competent jurisdiction may direct.

Agent shall be deemed to have acted reasonably in the custody, preservation and disposition of any of the Collateral if it complies with the obligations of a secured party under the UCC.

10.3 No Waiver. Agent shall be under no obligation to marshal any of the Collateral for the benefit of Borrower or any other Person, and Borrower expressly waives all rights, if any, to require Agent to marshal any Collateral.

10.4 Cumulative Remedies. The rights, powers and remedies of Agent hereunder shall be in addition to all rights, powers and remedies given by statute or rule of law and are cumulative. The exercise of any one or more of the rights, powers and remedies provided herein shall not be construed as a waiver of or election of remedies with respect to any other rights, powers and remedies of Agent.

SECTION 11. MISCELLANEOUS

11.1 Severability. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited by or invalid under such law, such provision shall be ineffective only to the extent and duration of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

11.2 Notice. Except as otherwise provided herein, any notice, demand, request, consent, approval, declaration, service of process or other communication (including the delivery of Financial Statements) that is required, contemplated, or permitted under the Loan Documents or with respect to the subject matter hereof shall be in writing, and shall be deemed to have been validly served, given, delivered, and received upon the earlier of: (i) the day of transmission by electronic mail or hand delivery or delivery by an overnight express service or overnight mail delivery service; or (ii) the third calendar day after deposit in the United States of America mails, with proper first class postage prepaid, in each case addressed to the party to be notified as follows:

(a) If to Agent:

HERCULES CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer and Janice Bourque
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com and jbourque@htgc.com
Telephone: 650-289-3060

(b) If to the Lenders:

HERCULES CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer and Janice Bourque
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com and jbourque@htgc.com
Telephone: 650-289-3060

(c) If to Borrower:

KALEIDO BIOSCIENCES, INC.
Attention: Jerald Korn, General Counsel
65 Hayden Avenue

Lexington, MA 02421
email: jerald.korn@kaleido.com
Telephone: 617-890-5735

with a copy (which shall not constitute notice) to:

GOODWIN PROCTER LLP
100 Northern Avenue
Boston, MA 02210
Attention: Mark D. Smith
Telephone: 617-570-1750
email: marksmith@goodwinprocter.com

or to such other address as each party may designate for itself by like notice.

11.3 Entire Agreement; Amendments.

(a) This Agreement and the other Loan Documents constitute the entire agreement and understanding of the parties hereto in respect of the subject matter hereof and thereof, and supersede and replace in their entirety any prior proposals, term sheets, non-disclosure or confidentiality agreements, letters, negotiations or other documents or agreements, whether written or oral, with respect to the subject matter hereof or thereof (including Agent's revised proposal letter dated November 22, 2019 and the Non-Disclosure Agreement).

(b) Neither this Agreement, any other Loan Document, nor any terms hereof or thereof may be amended, supplemented or modified except in accordance with the provisions of this Section 11.3(b). The Required Lenders and Borrower party to the relevant Loan Document may, or, with the written consent of the Required Lenders, the Agent and the Borrower party to the relevant Loan Document may, from time to time, (i) enter into written amendments, supplements or modifications hereto and to the other Loan Documents for the purpose of adding any provisions to this Agreement or the other Loan Documents or changing in any manner the rights of the Lenders or of the Borrower hereunder or thereunder or (ii) waive, on such terms and conditions as the Required Lenders or the Agent, as the case may be, may specify in such instrument, any of the requirements of this Agreement or the other Loan Documents or any default or Event of Default and its consequences; provided, however, that no such waiver and no such amendment, supplement or modification shall (A) forgive the principal amount or extend the final scheduled date of maturity of any Loan, extend the scheduled date of any amortization payment in respect of any Term Loan, reduce the stated rate of any interest or fee payable hereunder or extend the scheduled date of any payment thereof, in each case without the written consent of each Lender directly affected thereby; (B) eliminate or reduce the voting rights of any Lender under this Section 11.3(b) without the written consent of such Lender; (C) reduce any percentage specified in the definition of Required Lenders, consent to the assignment or transfer by the Borrower of any of its rights and obligations under this Agreement and the other Loan Documents, release all or substantially all of the Collateral or release a Borrower from its obligations under the Loan Documents, in each case without the written consent of all Lenders; or (D) amend, modify or waive any provision of Section 11.18 or Addendum 3 without the written consent of the Agent. Any such waiver and any such amendment, supplement or modification shall apply equally to each Lender and shall be binding upon Borrower, the Lender, the Agent and all future holders of the Loans.

11.4 No Strict Construction. The parties hereto have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any provisions of this Agreement.

11.5 No Waiver. The powers conferred upon Agent and the Lenders by this Agreement are solely to protect its rights hereunder and under the other Loan Documents and its interest in the Collateral and shall not impose any duty upon Agent or the Lenders to exercise any such powers. No omission or delay by Agent or the Lenders at any time to enforce any right or remedy reserved to it, or to require performance of any of the terms, covenants or provisions hereof by Borrower at any time designated, shall be a waiver of any such right or remedy to which Agent or the Lenders is entitled, nor shall it in any way affect the right of Agent or the Lenders to enforce such provisions thereafter.

11.6 Survival. All agreements, representations and warranties contained in this Agreement and the other Loan Documents or in any document delivered pursuant hereto or thereto shall be for the benefit of Agent and the Lenders and shall survive the execution and delivery of this Agreement for so long as any Secured Obligations (other than contingent obligations for which no claim has been asserted) remain outstanding. Sections 6.3, 11.14, 11.15 and 11.17 shall survive the termination of this Agreement.

11.7 Successors and Assigns. The provisions of this Agreement and the other Loan Documents shall inure to the benefit of and be binding on Borrower and its permitted assigns (if any). Borrower shall not assign its obligations under this Agreement or any of the other Loan Documents without Agent's express prior written consent, and any such attempted assignment shall be void and of no effect. Agent and the Lenders may assign, transfer, or endorse its rights hereunder and under the other Loan Documents without prior notice to Borrower, and all of such rights shall inure to the benefit of Agent's and the Lenders' successors and assigns; provided that as long as no Event of Default has occurred and is continuing, neither Agent nor any Lender may assign, transfer or endorse its rights hereunder or under the Loan Documents to any party that is a direct competitor of Borrower (as reasonably determined by Borrower), a vulture hedge fund or any other party designated by Borrower in writing on or prior to the Closing Date, it being acknowledged that in all cases, any transfer to an Affiliate of any Lender or Agent shall be allowed. Agent will make reasonable efforts to provide Borrower with notice of any assignment, transfer or endorsement at the time it is made or within a reasonable time thereafter other than any transfers to an Affiliate of any Lender or Agent. Notwithstanding the foregoing, (x) in connection with any assignment by a Lender as a result of a forced divestiture at the request of any regulatory agency, the restrictions set forth herein shall not apply and Agent and the Lenders may assign, transfer or indorse its rights hereunder and under the other Loan Documents to any Person or party and (y) in connection with a Lender's own financing or securitization transactions, the restrictions set forth herein shall not apply and Agent and the Lenders may assign, transfer or indorse its rights hereunder and under the other Loan Documents to any Person or party providing such financing or formed to undertake such securitization transaction and any transferee of such Person or party upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction; provided that no such sale, transfer, pledge or assignment under this clause (y) shall release such Lender from any of its obligations hereunder or substitute any such Person or party for such Lender as a party hereto until Agent shall have received and accepted an effective assignment agreement from such Person or party in form satisfactory to Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such assignee as Agent reasonably shall require. The Agent, acting solely for this purpose as an agent of the Borrower, shall maintain at one of its

offices in the United States a register for the recordation of the names and addresses of the Lender(s), and the Term Commitments of, and principal amounts (and stated interest) of the Loans owing to, each Lender pursuant to the terms hereof from time to time (the "Register"). The entries in the Register shall be conclusive absent manifest error, and the Borrower, the Agent and the Lender(s) shall treat each Person whose name is recorded in the Register pursuant to the terms hereof as a Lender hereunder for all purposes of this Agreement. The Register shall be available for inspection by the Borrower and any Lender, at any reasonable time and from time to time upon reasonable prior notice.

11.8 Participations. Each Lender that sells a participation shall, acting solely for this purpose as anon-fiduciary agent of the Borrower, maintain a register on which it enters the name and address of each participant and the principal amounts (and stated interest) of each participant's interest in the Loans or other obligations under the Loan Documents (the "Participant Register"); provided that no Lender shall have any obligation to disclose all or any portion of the Participant Register (including the identity of any participant or any information relating to a participant's interest in any commitments, loans, its other obligations under any Loan Document) to any Person except to the extent that such disclosure is necessary to establish that such commitment, loan, letter of credit or other obligation is in registered form under Section 5f.103-1(c) of the United States Treasury Regulations. The entries in the Participant Register shall be conclusive absent manifest error, and such Lender shall treat each Person whose name is recorded in the Participant Register as the owner of such participation for all purposes of this Agreement notwithstanding any notice to the contrary. For the avoidance of doubt, the Agent (in its capacity as Agent) shall have no responsibility for maintaining a Participant Register. Borrower agrees that each participant shall be entitled to the benefits of the provisions in Addendum 1 attached hereto (subject to the requirements and limitations therein, including the requirements under Section 7 of Addendum 1 attached hereto (it being understood that the documentation required under Section 7 of Addendum 1 attached hereto shall be delivered to the participating Lender)) to the same extent as if it were a Lender and had acquired its interest by assignment pursuant to Section 11.7; provided that such participant shall not be entitled to receive any greater payment under Addendum 1 attached hereto, with respect to any participation, than its participating Lender would have been entitled to receive, except to the extent such entitlement to receive a greater payment results from a change in law that occurs after the participant acquired the applicable participation.

11.9 Governing Law. This Agreement and the other Loan Documents have been negotiated and delivered to Agent and the Lenders in the State of California, and shall have been accepted by Agent and the Lenders in the State of California. Payment to Agent and the Lenders by Borrower of the Secured Obligations is due in the State of California. This Agreement and the other Loan Documents 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.

11.10 Consent to Jurisdiction and Venue. All judicial proceedings (to the extent that the reference requirement of Section 11.11 is not applicable) arising in or under or related to this Agreement or any of the other Loan Documents may be brought in any state or federal court located in the State of California. By execution and delivery of this Agreement, each party hereto generally and unconditionally: (a) consents to nonexclusive personal jurisdiction in Santa Clara County, State of California; (b) waives any objection as to jurisdiction or venue in Santa Clara County, State of California; (c) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts; and (d) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Agreement or the other Loan Documents. Service of process on

any party hereto in any action arising out of or relating to this Agreement shall be effective if given in accordance with the requirements for notice set forth in Section 11.2, and shall be deemed effective and received as set forth in Section 11.2. Nothing herein shall affect the right to serve process in any other manner permitted by law or shall limit the right of either party to bring proceedings in the courts of any other jurisdiction.

11.11 Mutual Waiver of Jury Trial / Judicial Reference.

(a) Because disputes arising in connection with complex financial transactions are most quickly and economically resolved by an experienced and expert Person and the parties wish applicable state and federal laws to apply (rather than arbitration rules), the parties desire that their disputes be resolved by a judge applying such applicable laws. EACH OF BORROWER, AGENT AND THE LENDERS SPECIFICALLY WAIVES ANY RIGHT IT MAY HAVE TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, CROSS-CLAIM, COUNTERCLAIM, THIRD PARTY CLAIM OR ANY OTHER CLAIM (COLLECTIVELY, "CLAIMS") ASSERTED BY BORROWER AGAINST AGENT, THE LENDERS OR THEIR RESPECTIVE ASSIGNEE OR BY AGENT, THE LENDERS OR THEIR RESPECTIVE ASSIGNEE AGAINST BORROWER. This waiver extends to all such Claims without limitation and any Claims for damages, breach of contract, tort, specific performance, or any equitable or legal relief of any kind, arising out of this Agreement, or any other Loan Document (other than to the extent arising from Agent or any Lender's gross negligence or willful misconduct).

(b) If the waiver of jury trial set forth in Section 11.11(a) is ineffective or unenforceable, the parties agree that all Claims shall be resolved by reference to a private judge sitting without a jury, pursuant to Code of Civil Procedure Section 638, before a mutually acceptable referee or, if the parties cannot agree, a referee selected by the Presiding Judge of the Santa Clara County, California. Such proceeding shall be conducted in Santa Clara County, California, with California rules of evidence and discovery applicable to such proceeding.

(c) In the event Claims are to be resolved by judicial reference, either party may seek from a court identified in Section 11.10, any prejudgment order, writ or other relief and have such prejudgment order, writ or other relief enforced to the fullest extent permitted by law notwithstanding that all Claims are otherwise subject to resolution by judicial reference.

11.12 Professional Fees. Borrower promises to pay Agent's and the Lenders' fees and reasonable and documented out-of-pocket expenses necessary to finalize the loan documentation, including but not limited to reasonable and documented out-of-pocket attorneys' fees, UCC searches, filing costs, and other miscellaneous expenses. In addition, Borrower promises to pay any and all reasonable and documented out-of-pocket attorneys' and other professionals' fees and expenses incurred by Agent and the Lenders after the Closing Date in connection with or related to: (a) the Loan; (b) the administration, collection, or enforcement of the Loan; (c) the amendment or modification of the Loan Documents; (d) any waiver, consent, release, or termination under the Loan Documents; (e) the protection, preservation, audit, field exam, sale, lease, liquidation, or disposition of Collateral or the exercise of remedies with respect to the Collateral; (f) any legal, litigation, administrative, arbitration, or out of court proceeding in connection with or related to Borrower or the Collateral, and any appeal or review thereof; and (g) any bankruptcy, restructuring, reorganization, assignment for the benefit of creditors, workout, foreclosure, or other action related to Borrower, the Collateral, the Loan Documents, including representing Agent or the Lenders in any adversary proceeding or contested matter commenced or continued by or on behalf of Borrower's estate, and any appeal or review thereof.

11.13 Confidentiality. Agent and the Lenders acknowledge that certain items of Collateral and information provided to Agent and the Lenders by Borrower are confidential and proprietary information of Borrower, if and to the extent such information either (x) is marked as confidential by Borrower at the time of disclosure, or (y) should reasonably be understood to be confidential (the "Confidential Information"). Accordingly, Agent and the Lenders agree that any Confidential Information it may obtain in the course of acquiring, administering, or perfecting Agent's security interest in the Collateral shall not be disclosed to any other Person or entity in any manner whatsoever, in whole or in part, without the prior written consent of Borrower, except that Agent and the Lenders may disclose any such information: (a) to its Affiliates and its partners, investors, lenders, directors, officers, employees, agents, advisors, counsel, accountants, counsel, representative and other professional advisors if Agent or the Lenders in their reasonable good-faith discretion determines that any such party should have access to such information in connection with such party's responsibilities in connection with the Loan or this Agreement and, provided that such recipient of such Confidential Information either (i) agrees to be bound by the confidentiality provisions of this paragraph or (ii) is otherwise subject to confidentiality restrictions that reasonably protect against the disclosure of Confidential Information which are no less restrictive than the terms of this Section 11.13; (b) if such information is generally available to the public or to the extent such information becomes publicly available other than as a result of a breach of this Section or becomes available to Agent or any Lender, or any of their respective Affiliates on a non-confidential basis from a source other than the Borrower; (c) if required in any report, statement or testimony to be submitted to any governmental authority having or claiming to have jurisdiction over Agent or the Lenders and any rating agency; (d) if required or appropriate in response to any summons or subpoena or in connection with any litigation, to the extent permitted or deemed advisable by Agent's or the Lenders' counsel; (e) to comply with any legal requirement or law applicable to Agent or the Lenders or demanded by any governmental authority; (f) to the extent reasonably necessary in connection with the exercise of, or preparing to exercise, or the enforcement of, or preparing to enforce, any right or remedy under any Loan Document (including Agent's sale, lease, or other disposition of Collateral during the continuance of an Event of Default), or any action or proceeding relating to any Loan Document; (g) to any participant or assignee of Agent or the Lenders or any prospective participant or assignee, provided, that such participant or assignee or prospective participant or assignee agrees in writing to be bound by confidentiality restrictions similar to those under this Section 11.13; (h) otherwise to the extent consisting of general portfolio information that does not identify Borrower; or (i) otherwise with the prior written consent of Borrower; provided, that any disclosure made in violation of this Agreement shall not affect the obligations of Borrower or any of its Affiliates or any guarantor under this Agreement or the other Loan Documents. Agent's and the Lenders' obligations under this Section 11.13 shall supersede all of their respective obligations under the Non-Disclosure Agreement.

11.14 Assignment of Rights. Borrower acknowledges and understands that Agent or the Lenders may, subject to Section 11.7, sell and assign all or part of its interest hereunder and under the Loan Documents to any Person or entity (an "Assignee"). After such assignment the term "Agent" or "Lender" as used in the Loan Documents shall mean and include such Assignee, and such Assignee shall be vested with all rights, powers and remedies of Agent and the Lenders hereunder with respect to the interest so assigned; but with respect to any such interest not so transferred, Agent and the Lenders shall retain all rights, powers and remedies hereby given. No such assignment by Agent or the Lenders shall relieve Borrower of any of its obligations hereunder. the Lenders agrees that in the event of any transfer by it of the promissory note(s) (if any), it will endorse thereon a notation as to the portion of the principal of the promissory note(s), which shall have been paid at the time of such transfer and as to the date to which interest shall have been last paid thereon.

11.15 Revival of Secured Obligations. This Agreement and the Loan Documents shall remain in full force and effect and continue to be effective if any petition is filed by or against Borrower for liquidation or reorganization, if Borrower becomes insolvent or makes an assignment for the benefit of creditors, if a receiver or trustee is appointed for all or any significant part of Borrower's assets, or if any payment or transfer of Collateral is recovered from Agent or the Lenders. The Loan Documents and the Secured Obligations and Collateral security shall continue to be effective, or shall be revived or reinstated, as the case may be, if at any time payment and performance of the Secured Obligations or any transfer of Collateral to Agent, or any part thereof is rescinded, avoided or avoidable, reduced in amount, or must otherwise be restored or returned by, or is recovered from, Agent, the Lenders or by any obligee of the Secured Obligations, whether as a "voidable preference," "fraudulent conveyance," or otherwise, all as though such payment, performance, or transfer of Collateral had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, avoided, avoidable, restored, returned, or recovered, the Loan Documents and the Secured Obligations shall be deemed, without any further action or documentation, to have been revived and reinstated until the Secured Obligations (other than contingent obligations for which no claim has been asserted) are fully satisfied.

11.16 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 signature page of this Agreement by telecopier or other electronic means shall be effective as delivery of a manually executed counterpart of this Agreement.

11.17 No Third Party Beneficiaries. No provisions of the Loan Documents are intended, nor will be interpreted, to provide or create any third-party beneficiary rights or any other rights of any kind in any Person other than Agent, the Lenders and Borrower unless specifically provided otherwise herein, and, except as otherwise so provided, all provisions of the Loan Documents will be personal and solely among Agent, the Lenders and the Borrower.

11.18 Agency. Agent and each Lender hereby agree to the terms and conditions set forth on Addendum 3 attached hereto. Borrower acknowledges and agrees to the terms and conditions set forth on Addendum 3 attached hereto.

11.19 Publicity. None of the parties hereto nor any of its respective member businesses and Affiliates shall, without the other parties' prior written consent, publicize or use (a) the other party's name (including a brief description of the relationship among the parties hereto), logo or hyperlink to such other parties' web site, separately or together, in written and oral presentations, advertising, promotional and marketing materials, client lists, public relations materials or on its web site (together, the "Publicity Materials"); (b) the names of officers of such other parties in the Publicity Materials; and (c) such other parties' name, trademarks, service marks in any news or press release concerning such party; provided however, notwithstanding anything to the contrary herein, no such consent shall be required (i) to the extent necessary to comply with the requests of any regulators, legal requirements or laws applicable to such party, pursuant to any listing agreement with any national securities exchange (so long as such party provides prior notice to the other party hereto to the extent reasonably practicable) and (ii) to comply with Section 11.13.

11.20 Multiple Borrowers. Each Borrower hereby agrees to the terms and conditions set forth on Addendum 4 attached hereto.

(SIGNATURES TO FOLLOW)

IN WITNESS WHEREOF, Borrower, Agent and the Lenders have duly executed and delivered this Loan and Security Agreement as of the day and year first above written.

BORROWER:

KALEIDO BIOSCIENCES, INC.

Signature: /s/ Alison Lawton
Print Name: Alison Lawton
Title: President & Chief Executive Officer

CADENA BIO, INC.

Signature: /s/ Alison Lawton
Print Name: Alison Lawton
Title: President

(SIGNATURES CONTINUE ON THE FOLLOWING PAGE)

AGENT:

HERCULES CAPITAL, INC.

Signature: /s/ Jennifer Choe

Print Name: Jennifer Choe

Title: Assistant General Counsel

LENDERS:

HERCULES CAPITAL, INC.

Signature: /s/ Jennifer Choe

Print Name: Jennifer Choe

Title: Assistant General Counsel

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ADDENDUM 1 to LOAN AND SECURITY AGREEMENT

TAXES; INCREASED COSTS

1. **Defined Terms.** For purposes of this Addendum 1:
- a. **“Connection Income Taxes”** means Other Connection Taxes that are imposed on or measured by net income (however denominated) or that are franchise Taxes or branch profits Taxes.
 - b. **“Excluded Taxes”** means any of the following Taxes imposed on or with respect to a Recipient or required to be withheld or deducted from a payment to a Recipient, (i) Taxes imposed on or measured by net income (however denominated), franchise Taxes, and branch profits Taxes, in each case, (A) imposed as a result of such Recipient being organized under the laws of, or having its principal office or, in the case of any Lender, its applicable lending office located in, the jurisdiction imposing such Tax (or any political subdivision thereof) or (B) that are Other Connection Taxes, (ii) in the case of a Lender, U.S. federal withholding Taxes imposed on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Term Commitment pursuant to a law in effect on the date on which (A) such Lender acquires such interest in the Loan or Term Commitment (other than pursuant to an assignment request by the Borrower under Section 10 of this Addendum 1) or (B) such Lender changes its lending office, except in each case to the extent that, pursuant to Section 2 or Section 4 of this Addendum 1, amounts with respect to such Taxes were payable either to such Lender’s assignor immediately before such Lender became a party hereto or to such Lender immediately before it changed its lending office, (iii) Taxes attributable to such Recipient’s failure to comply with Section 7 of this Addendum 1 and (iv) any withholding Taxes imposed under FATCA.
 - c. **“FATCA”** means Sections 1471 through 1474 of the Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not materially more onerous to comply with), any current or future regulations or official interpretations thereof, any agreements entered into pursuant to Section 1471(b)(1) of the Code, and any fiscal or regulatory legislation, rules or practices adopted pursuant to any intergovernmental agreement, treaty or convention among governmental authorities and implementing such Sections of the Code.
 - d. **“Foreign Lender”** means a Lender that is not a U.S. Person.
 - e. **“Indemnified Taxes”** means (i) Taxes, other than Excluded Taxes, imposed on or with respect to any payment made by or on account of any obligation of the Borrower under any Loan Document and (ii) to the extent not otherwise described in clause (i), Other Taxes.
 - f. **“Other Connection Taxes”** means, with respect to any Recipient, Taxes imposed as a result of a present or former connection between such Recipient and the jurisdiction imposing such Tax (other than connections arising from such Recipient having executed, delivered, become a party to, performed its obligations under, received payments under, received or perfected a security interest under, engaged in any other transaction pursuant to or enforced any Loan Document, or sold or assigned an interest in any Loan or Loan Document).

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- g. **“Other Taxes”** means all present or future stamp, court or documentary, intangible, recording, filing or similar Taxes that arise from any payment made under, from the execution, delivery, performance, enforcement or registration of, from the receipt or perfection of a security interest under, or otherwise with respect to, any Loan Document, except any such Taxes that are Other Connection Taxes imposed with respect to an assignment (other than an assignment made pursuant to Section 10(b) of this Addendum 1).
- h. **“Recipient”** means the Agent or any Lender, as applicable.
- i. **“Withholding Agent”** means the Borrower and the Agent.
2. **Payments Free of Taxes.** Any and all payments by or on account of any obligation of the Borrower under any Loan Document shall be made without deduction or withholding for any Taxes, except as required by applicable law. If any applicable law (as determined in the good faith discretion of an applicable Withholding Agent) requires the deduction or withholding of any Tax from any such payment by a Withholding Agent, then the applicable Withholding Agent shall be entitled to make such deduction or withholding and shall timely pay the full amount deducted or withheld to the relevant governmental authority in accordance with applicable law and, if such Tax is an Indemnified Tax, then the sum payable by the Borrower shall be increased as necessary so that after such deduction or withholding has been made (including such deductions and withholdings applicable to additional sums payable under this Section 2 or Section 4 of this Addendum 1) the applicable Recipient receives an amount equal to the sum it would have received had no such deduction or withholding been made.
3. **Payment of Other Taxes by Borrower.** The Borrower shall timely pay to the relevant governmental authority in accordance with applicable law, or at the option of the Agent timely reimburse it for the payment of, any Other Taxes.
4. **Indemnification by Borrower.** The Borrower shall indemnify each Recipient, within 10 days after demand therefor, for the full amount of any Indemnified Taxes (including Indemnified Taxes imposed or asserted on or attributable to amounts payable under Section 2 of this Addendum 1 or this Section 4) payable or paid by such Recipient or required to be withheld or deducted from a payment to such Recipient and any reasonable expenses arising therefrom or with respect thereto, whether or not such Indemnified Taxes were correctly or legally imposed or asserted by the relevant governmental authority. A certificate as to the amount of such payment or liability delivered to the Borrower by a Lender (with a copy to the Agent), or by the Agent on its own behalf or on behalf of a Lender, shall be conclusive absent manifest error. In addition, the Borrower agrees to pay, and to save the Agent and any Lender harmless from, any and all liabilities with respect to, or resulting from any delay in paying, any and all excise, sales or other similar taxes (excluding taxes imposed on or measured by the net income of the Agent or such Lender) that may be payable or determined to be payable with respect to any of the Collateral or this Agreement.
5. **Indemnification by the Lenders.** Each Lender shall severally indemnify the Agent, within 10 days after demand therefor, for (a) any Indemnified Taxes attributable to such Lender (but only to the extent that the Borrower has not already indemnified the Agent for such Indemnified Taxes and without limiting the obligation of the Borrower to do so), (b) any Taxes attributable to such Lender’s failure to comply with the provisions of Section 11.8 of the Agreement relating to the maintenance of a Participant Register and (c) any Excluded Taxes attributable to such Lender, in each case, that are payable or paid by the Agent in connection with any Loan Document, and any reasonable expenses arising therefrom or with respect thereto, whether or not such Taxes were correctly or legally imposed or asserted by the relevant governmental authority. A certificate as to the amount of such payment or liability delivered to any Lender by the Agent shall be conclusive absent manifest error. Each Lender hereby authorizes the Agent to set off and apply any and all amounts at any time owing to such Lender under any Loan Document or otherwise payable by the Agent to the Lender from any other source against any amount due to the Agent under this Section 5.

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6. **Evidence of Payments.** As soon as practicable after any payment of Taxes by the Borrower to a governmental authority pursuant to the provisions of this Addendum 1, the Borrower shall deliver to the Agent the original or a certified copy of a receipt issued by such governmental authority evidencing such payment, a copy of the return reporting such payment or other evidence of such payment reasonably satisfactory to the Agent.
7. **Status of Lenders.**
- a. Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Loan Document shall deliver to the Borrower and the Agent, at the time or times reasonably requested by the Borrower or the Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Agent, shall deliver such other documentation prescribed by applicable law or reasonably requested by the Borrower or the Agent as will enable the Borrower or the Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Sections 7(b)(i), 7(b)(ii) and 7(b)(iv) of this Addendum 1) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender.
 - b. Without limiting the generality of the foregoing,
 - i. any Lender that is a U.S. Person shall deliver to the Borrower and the Agent on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax;
 - ii. any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), whichever of the following is applicable:
 - A. in the case of a Foreign Lender claiming the benefits of an income tax treaty to which the United States is a party (x) with respect to payments of interest under any Loan Document, executed copies of IRS Form W-8BEN or IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the "interest" article of such tax treaty and (y) with respect to any other applicable payments under any Loan Document, IRS Form W-8BEN or IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the "business profits" or "other income" article of such tax treaty;

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- B. executed copies of IRS Form W-8ECI;
- C. in the case of a Foreign Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Code, (x) a certificate substantially in the form of Exhibit H-1 to the effect that such Foreign Lender is not a “bank” within the meaning of Section 881(c)(3)(A) of the Code, a “10 percent shareholder” of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, or a “controlled foreign corporation” related to the Borrower as described in Section 881(c)(3)(C) of the Code (a “**U.S. Tax Compliance Certificate**”) and (y) executed copies of IRS Form W-8BEN or IRS Form W-8BEN-E; or
- D. to the extent a Foreign Lender is not the beneficial owner, executed copies of IRS Form W-8IMY, accompanied by IRS Form W-8ECI, IRS Form W-8BEN, IRS Form W-8BEN-E, a U.S. Tax Compliance Certificate substantially in the form of Exhibit H-2 or Exhibit H-3, IRS Form W-9, and/or other certification documents from each beneficial owner, as applicable; provided that if the Foreign Lender is a partnership and one or more direct or indirect partners of such Foreign Lender are claiming the portfolio interest exemption, such Foreign Lender may provide a U.S. Tax Compliance Certificate substantially in the form of Exhibit H-4 on behalf of each such direct and indirect partner;
- iii. any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), executed copies of any other form prescribed by applicable law as a basis for claiming exemption from or a reduction in U.S. federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by applicable law to permit the Borrower or the Agent to determine the withholding or deduction required to be made; and
- iv. if a payment made to a Lender under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), such Lender shall deliver to the Borrower and the Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Agent such documentation prescribed by applicable law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower or the Agent as may be necessary for the Borrower and the Agent to comply with their obligations under FATCA and to determine that such Lender has complied with such Lender’s obligations under FATCA or to determine the amount, if any, to deduct and withhold from such payment. Solely for purposes of this clause (iv), “FATCA” shall include any amendments made to FATCA after the date of this Agreement.

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- c. Each Lender agrees that if any form or certification it previously delivered expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Agent in writing of its legal inability to do so.
8. **Treatment of Certain Refunds.** If any party determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified pursuant to the provisions of this Addendum 1 (including by the payment of additional amounts pursuant to the provisions of this Addendum 1), it shall pay to the indemnifying party an amount equal to such refund (but only to the extent of indemnity payments made under the provisions of this Addendum 1 with respect to the Taxes giving rise to such refund), net of all reasonable and documented out-of-pocket expenses (including Taxes) of such indemnified party and without interest (other than any interest paid by the relevant governmental authority with respect to such refund). Such indemnifying party, upon the request of such indemnified party, shall repay to such indemnified party the amount paid over pursuant to this Section 8 (plus any penalties, interest or other charges imposed by the relevant governmental authority) in the event that such indemnified party is required to repay such refund to such governmental authority. Notwithstanding anything to the contrary in this Section 8, in no event will the indemnified party be required to pay any amount to an indemnifying party pursuant to this Section 8 the payment of which would place the indemnified party in a less favorable net after-Tax position than the indemnified party would have been in if the Tax subject to indemnification and giving rise to such refund had not been deducted, withheld or otherwise imposed and the indemnification payments or additional amounts with respect to such Tax had never been paid. This Section 8 shall not be construed to require any indemnified party to make available its Tax returns (or any other information relating to its Taxes that it deems confidential) to the indemnifying party or any other Person.
9. **Increased Costs.** If any change in applicable law shall subject any Recipient to any Taxes (other than (A) Indemnified Taxes, (B) Taxes described in clauses (ii) through (iv) of the definition of Excluded Taxes and (C) Connection Income Taxes) on its loans, loan principal, commitments, or other obligations, or its deposits, reserves, other liabilities or capital attributable thereto, and the result shall be to increase the cost to such Recipient of making, converting to, continuing or maintaining any Term Loan or of maintaining its obligation to make any such Loan, or to reduce the amount of any sum received or receivable by such Recipient (whether of principal, interest or any other amount), then, upon the request of such Recipient, the Borrower will pay to such Recipient such additional amount or amounts as will compensate such Recipient for such additional costs incurred or reduction suffered.
10. **Mitigation Obligations; Replacement of Lenders.**
- a. **Designation of a Different Lending Office.** If any Lender requests compensation under Section 9 of this Addendum 1, or requires the Borrower to pay any Indemnified Taxes or additional amounts to any Lender or any Governmental Authority for the account of any Lender pursuant to this Addendum 1, then such Lender shall (at the request of the Borrower) use reasonable efforts to designate a different lending office for funding or booking its Loans hereunder or to assign its rights and obligations hereunder to another of its offices, branches or affiliates, if, in the judgment of such Lender, such designation or assignment (i) would eliminate or reduce amounts payable by Borrower pursuant to this Addendum 1, as the case may be, in the future, and (ii) would not subject such Lender to any unreimbursed cost or expense and would not otherwise be disadvantageous to such Lender. The Borrower hereby agrees to pay all reasonable costs and expenses incurred by any Lender in connection with any such designation or assignment.

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- b. **Replacement of Lenders.** If any Lender requests compensation under Section 9 of this Addendum 1, or if the Borrower is required to pay any Indemnified Taxes or additional amounts to any Lender or any Governmental Authority for the account of any Lender pursuant to this Addendum 1 and, in each case, such Lender has declined or is unable to designate a different lending office in accordance with paragraph (a) of this Section, or if a Lender is a Non-Consenting Lender, then the Borrower may, at its sole expense and effort, upon notice to such Lender and the Administrative Agent, require such Lender to assign and delegate, without recourse (in accordance with and subject to Section 11.7 of the Loan Agreement), all of its interests, rights (other than its existing rights to payments pursuant to this Addendum 1) and obligations under this Loan Agreement and the related Loan Documents to an Assignee that shall assume such obligations; provided that:
- i. such Lender shall have received payment of an amount equal to the outstanding principal of its Loans, accrued interest thereon, accrued fees and all other amounts payable to it hereunder and under the other Loan Documents) from the assignee (to the extent of such outstanding principal and accrued interest and fees) or the Borrower (in the case of all other amounts);
 - ii. in the case of any such assignment resulting from a claim for compensation under Section 9 of this Addendum 1 or payments required to be made pursuant to this Addendum, such assignment will result in a reduction in such compensation or payments thereafter;
 - iii. such assignment does not conflict with applicable law; and
 - iv. in the case of any assignment resulting from a Lender becoming a Non-Consenting Lender, the applicable assignee shall have consented to the applicable amendment, waiver or consent.

A Lender shall not be required to make any such assignment or delegation if, prior thereto, as a result of a waiver by such Lender or otherwise, the circumstances entitling the Borrower to require such assignment and delegation cease to apply.

11. **Survival.** Each party's obligations under the provisions of this Addendum 1 shall survive the resignation or replacement of the Agent or any assignment of rights by, or the replacement of, a Lender, the termination of the Term Commitments and the repayment, satisfaction or discharge of all obligations under any Loan Document.

ADDENDUM 2 to LOAN AND SECURITY AGREEMENT

[Reserved]

ADDENDUM 3 to LOAN AND SECURITY AGREEMENT

Agent and Lender Terms

(a) Each Lender hereby irrevocably appoints Hercules Capital, Inc. to act on its behalf as the Agent hereunder and under the other Loan Documents and authorizes the Agent to take such actions on its behalf and to exercise such powers as are delegated to the Agent by the terms hereof or thereof, together with such actions and powers as are reasonably incidental thereto.

(b) Each Lender agrees to indemnify the Agent in its capacity as such (to the extent not reimbursed by Borrower and without limiting the obligation of Borrower to do so), according to its respective Term Commitment percentages (based upon the total outstanding Term Loan Commitments) in effect on the date on which indemnification is sought under this Addendum 3, from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements of any kind whatsoever that may at any time be imposed on, incurred by or asserted against the Agent in any way relating to or arising out of, this Agreement, any of the other Loan Documents or any documents contemplated by or referred to herein or therein or the transactions contemplated hereby or thereby or any action taken or omitted by the Agent under or in connection with any of the foregoing; The agreements in this Section shall survive the payment of the Loans and all other amounts payable hereunder.

(c) Agent in Its Individual Capacity. The Person serving as the Agent hereunder shall have the same rights and powers in its capacity as a Lender as any other Lender and may exercise the same as though it were not the Agent and the term "Lender" shall, unless otherwise expressly indicated or unless the context otherwise requires, include each such Person serving as Agent hereunder in its individual capacity.

(d) Exculpatory Provisions. The Agent shall have no duties or obligations except those expressly set forth herein and in the other Loan Documents. Without limiting the generality of the foregoing, the Agent shall not:

- (i) be subject to any fiduciary or other implied duties, regardless of whether any default or any Event of Default has occurred and is continuing;
- (ii) have any duty to take any discretionary action or exercise any discretionary powers, except discretionary rights and powers expressly contemplated hereby or by the other Loan Documents that the Agent is required to exercise as directed in writing by the Lenders, provided that the Agent shall not be required to take any action that, in its opinion or the opinion of its counsel, may expose the Agent to liability or that is contrary to any Loan Document or applicable law; and
- (iii) except as expressly set forth herein and in the other Loan Documents, have any duty to disclose, and the Agent shall not be liable for the failure to disclose, any information relating to the Borrower or any of its Affiliates that is communicated to or obtained by any Person serving as the Agent or any of its Affiliates in any capacity.

(e) The Agent shall not be liable for any action taken or not taken by it (i) with the consent or at the request of the Lenders or as the Agent shall believe in good faith shall be necessary, under the circumstances or (ii) in the absence of its own gross negligence or willful misconduct.

(f) The Agent shall not be responsible for or have any duty to ascertain or inquire into (i) any statement, warranty or representation made in or in connection with this Agreement or any other Loan Document, (ii) the contents of any certificate, report or other document delivered hereunder or thereunder or in connection herewith or therewith, (iii) the performance or observance of any of the covenants, agreements or other terms or conditions set forth herein or therein or the occurrence of any default or Event of Default, (iv) the validity, enforceability, effectiveness or genuineness of this Agreement, any other Loan Document or any other agreement, instrument or document or (v) the satisfaction of any condition set forth in Section 4 or elsewhere herein, other than to confirm receipt of items expressly required to be delivered to the Agent. Reliance by Agent. Agent may rely, and shall be fully protected in acting, or refraining to act, upon, any resolution, statement, certificate, instrument, opinion, report, notice, request, consent, order, bond or other paper or document that it has no reason to believe to be other than genuine and to have been signed or presented by the proper party or parties or, in the case of cables, telecopies and telexes, to have been sent by the proper party or parties. In the absence of its gross negligence or willful misconduct, Agent may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to Agent and conforming to the requirements of the Loan Agreement or any of the other Loan Documents. Agent may consult with counsel, and any opinion or legal advice of such counsel shall be full and complete authorization and protection in respect of any action taken, not taken or suffered by Agent hereunder or under any Loan Documents in accordance therewith. Agent shall have the right at any time to seek instructions concerning the administration of the Collateral from any court of competent jurisdiction. Agent shall not be under any obligation to exercise any of the rights or powers granted to Agent by this Agreement, the Loan Agreement and the other Loan Documents at the request or direction of the Lenders unless Agent shall have been provided by the Lenders with adequate security and indemnity against the costs, expenses and liabilities that may be incurred by it in compliance with such request or direction.

ADDENDUM 4 to LOAN AND SECURITY AGREEMENT

Multiple Borrower Terms

(a) Borrower's Agent. Each of the Borrowers hereby irrevocably appoints Kaleido Biosciences, Inc. as its agent/attorney-in-fact and legal representative for all purposes, including requesting disbursement of the Term Loan and receiving account statements and other notices and communications to Borrowers (or any of them) from the Agent or any Lender. The Agent may rely, and shall be fully protected in relying, on any request for the Term Loan, disbursement instruction, report, information or any other notice or communication made or given by Kaleido Biosciences, Inc., whether in its own name or on behalf of one or more of the other Borrowers, and the Agent shall not have any obligation to make any inquiry or request any confirmation from or on behalf of any other Borrower as to the binding effect on it of any such request, instruction, report, information, other notice or communication, nor shall the joint and several character of the Borrowers' obligations hereunder be affected thereby.

(b) Waivers. Each Borrower hereby waives: (i) any right to require the Agent to institute suit against, or to exhaust its rights and remedies against, any other Borrower or any other person, or to proceed against any property of any kind which secures all or any part of the Secured Obligations, or to exercise any right of offset or other right with respect to any reserves, credits or deposit accounts held by or maintained with the Agent or any Indebtedness of the Agent or any Lender to any other Borrower, or to exercise any other right or power, or pursue any other remedy the Agent or any Lender may have; (ii) any defense arising by reason of any disability or other defense of any other Borrower or any guarantor or any endorser, co-maker or other person, or by reason of the cessation from any cause whatsoever of any liability of any other Borrower or any guarantor or any endorser, co-maker or other person, with respect to all or any part of the Secured Obligations, or by reason of any act or omission of the Agent or others which directly or indirectly results in the discharge or release of any other Borrower or any guarantor or any other person or any Secured Obligations or any security therefor, whether by operation of law or otherwise; (iii) any defense arising by reason of any failure of the Agent to obtain, perfect, maintain or keep in force any Lien on, any property of any Borrower or any other person; (iv) any defense based upon or arising out of any bankruptcy, insolvency, reorganization, arrangement, readjustment of debt, liquidation or dissolution proceeding commenced by or against any other Borrower or any guarantor or any endorser, co-maker or other person, including without limitation any discharge of, or bar against collecting, any of the Secured Obligations (including without limitation any interest thereon), in or as a result of any such proceeding. Until all of the Secured Obligations have been paid, performed, and discharged in full, nothing shall discharge or satisfy the liability of any Borrower hereunder except the full performance and payment of all of the Secured Obligations. If any claim is ever made upon the Agent for repayment or recovery of any amount or amounts received by the Agent in payment of or on account of any of the Secured Obligations, because of any claim that any such payment constituted a preferential transfer or fraudulent conveyance, or for any other reason whatsoever, and the Agent repays all or part of said amount by reason of any judgment, decree or order of any court or administrative body having jurisdiction over the Agent or any of its property, or by reason of any settlement or compromise of any such claim effected by the Agent with any such claimant (including without limitation the any other Borrower), then and in any such event, each Borrower agrees that any such judgment, decree, order, settlement and compromise shall be binding upon such Borrower, notwithstanding any revocation or release of this Agreement or the cancellation of any note or other instrument evidencing any of the Secured Obligations, or any release of any of the Secured Obligations, and each Borrower shall be and remain liable to the Agent and the Lenders under

this Agreement for the amount so repaid or recovered, to the same extent as if such amount had never originally been received by the Agent or any Lender, and the provisions of this sentence shall survive, and continue in effect, notwithstanding any revocation or release of this Agreement. Each Borrower hereby expressly and unconditionally waives all rights of subrogation, reimbursement and indemnity of every kind against any other Borrower, and all rights of recourse to any assets or property of any other Borrower, and all rights to any collateral or security held for the payment and performance of any Secured Obligations, including (but not limited to) any of the foregoing rights which Borrower may have under any present or future document or agreement with any other Borrower or other person, and including (but not limited to) any of the foregoing rights which any Borrower may have under any equitable doctrine of subrogation, implied contract, or unjust enrichment, or any other equitable or legal doctrine.

(c) Consents. Each Borrower hereby consents and agrees that, without notice to or by Borrower and without affecting or impairing in any way the obligations or liability of Borrower hereunder, the Agent may, from time to time before or after revocation of this Agreement, do any one or more of the following in its sole and absolute discretion: (i) accept partial payments of, compromise or settle, renew, extend the time for the payment, discharge, or performance of, refuse to enforce, and release all or any parties to, any or all of the Secured Obligations; (ii) grant any other indulgence to any Borrower or any other Person in respect of any or all of the Secured Obligations or any other matter; (iii) accept, release, waive, surrender, enforce, exchange, modify, impair, or extend the time for the performance, discharge, or payment of, any and all property of any kind securing any or all of the Secured Obligations or any guaranty of any or all of the Secured Obligations, or on which the Agent at any time may have a Lien, or refuse to enforce its rights or make any compromise or settlement or agreement therefor in respect of any or all of such property; (iv) substitute or add, or take any action or omit to take any action which results in the release of, any one or more other Borrowers or any endorsers or guarantors of all or any part of the Secured Obligations, including, without limitation one or more parties to this Agreement, regardless of any destruction or impairment of any right of contribution or other right of Borrower; (v) apply any sums received from any other Borrower, any guarantor, endorser, or co-signer, or from the disposition of any Collateral or security, to any Indebtedness whatsoever owing from such person or secured by such Collateral or security, in such manner and order as the Agent determines in its sole discretion, and regardless of whether such Indebtedness is part of the Secured Obligations, is secured, or is due and payable. Each Borrower consents and agrees that the Agent shall be under no obligation to marshal any assets in favor of Borrower, or against or in payment of any or all of the Secured Obligations. Each Borrower further consents and agrees that the Agent shall have no duties or responsibilities whatsoever with respect to any property securing any or all of the Secured Obligations. Without limiting the generality of the foregoing, the Agent shall have no obligation to monitor, verify, audit, examine, or obtain or maintain any insurance with respect to, any property securing any or all of the Secured Obligations.

(d) Independent Liability. Each Borrower hereby agrees that one or more successive or concurrent actions may be brought hereon against such Borrower, in the same action in which any other Borrower may be sued or in separate actions, as often as deemed advisable by Agent. Each Borrower is fully aware of the financial condition of each other Borrower and is executing and delivering this Agreement based solely upon its own independent investigation of all matters pertinent hereto, and such Borrower is not relying in any manner upon any representation or statement of the Agent or any Lender with respect thereto. Each Borrower represents and warrants that it is in a position to obtain, and each Borrower hereby assumes full responsibility for obtaining, any additional information concerning any other Borrower's financial condition and any other matter pertinent hereto as such Borrower may desire, and such Borrower is not relying upon or expecting the Agent to furnish to it any information now or hereafter in the Agent's possession concerning the same or any other matter.

(e) Subordination. All Indebtedness of a Borrower now or hereafter arising held by another Borrower is subordinated to the Secured Obligations and the Borrower holding the Indebtedness shall take all actions reasonably requested by Agent to effect, to enforce and to give notice of such subordination.

EXHIBIT A
ADVANCE REQUEST

To: Agent:

Date: _____, 20[]

Hercules Capital, Inc. (the "Agent")
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com
Attn:

Kaleido Biosciences, Inc., a Delaware corporation, on behalf of itself and each of its Subsidiaries party to the Agreement (collectively, "Borrower") hereby requests from Hercules Capital, Inc. ("Lenders") an Advance in the amount of _____ Dollars (\$ _____) (the "Advance Amount") on _____, _____ (the "Advance Date") pursuant to the Loan and Security Agreement among Borrower, Agent and the Lenders (the "Agreement"). Capitalized words and other terms used but not otherwise defined herein are used with the same meanings as defined in the Agreement.

Please:

- (a) Issue a check payable to Borrower _____
or
- (b) Wire Funds to Borrower's account _____ [LAST 3 DIGITS]
Bank: _____
Address: _____
ABA Number: _____
Account Number: _____
Account Name: _____
Contact Person: _____
Phone Number: _____
To Verify Wire Info: _____
Email address: _____

Borrower represents that the conditions precedent to the Advance set forth in the Agreement are satisfied and shall be satisfied upon the making of such Advance, including but not limited to: (i) that no event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing; (ii) that the representations and warranties set forth in the Agreement are and shall be true and correct in all material respects on and as of the Advance Date with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date; (iii) that Borrower is in compliance with all the terms and provisions set forth in each Loan Document on its part to be observed or performed, which shall have been true and correct in all material respects as of such date; and (iv) that as of the Advance Date, no fact or condition exists that would (or would, with the passage of time, the giving of notice, or both) constitute an Event of Default under the Loan Documents.

Borrower understands and acknowledges that Agent has the right to review the financial information supporting this representation and, based upon such review in its sole discretion, the Lenders may decline to fund the requested Advance.

Borrower hereby represents that Borrower's corporate status and locations have not changed since the date of the Agreement or, if the Attachment to this Advance Request is completed, are as set forth in the Attachment to this Advance Request.

Borrower agrees to notify Agent promptly before the funding of the Loan if any of the matters which have been represented above shall not be true and correct on the Borrowing Date and if Agent has received no such notice before the Advance Date then the statements set forth above shall be deemed to have been made and shall be deemed to be true and correct as of the Advance Date.

Executed as of [], 20[].

BORROWER:

KALEIDO BIOSCIENCES, INC.

SIGNATURE: _____

TITLE: _____

PRINT NAME: _____

ATTACHMENT TO ADVANCE REQUEST

Dated: _____

Borrower hereby represents and warrants to Agent that Borrower's current name and organizational status is as follows:

Name:	Kaleido Biosciences, Inc.
Type of organization:	Corporation
State of organization:	Delaware
Organization file number:	47-3048279

Borrower hereby represents and warrants to Agent that the street addresses, cities, states and postal codes of its current locations are as follows:

[;]

Borrower hereby represents and warrants to Agent that the Advance Amount does not exceed the Maximum Term Loan Amount as follows:

a. Advance Amount: \$ _____

b. [Maximum Term Loan Amount: \$ _____]

[c. Is clause a. less than or equal to clause b.? Yes/Compliant _____ No/Non-Compliant _____]

EXHIBIT B

NAME, LOCATIONS, AND OTHER INFORMATION FOR BORROWER

1. Borrower represents and warrants to Agent that Borrower's current name and organizational status as of the Closing Date is as follows:

Name:	Kaleido Biosciences, Inc.
Type of organization:	Corporation
State of organization:	Delaware
Organization file number:	5681784
Name:	Cadena Bio, Inc.
Type of organization:	Corporation
State of organization:	Delaware
Organization file number:	6000485

2. Borrower represents and warrants to Agent that for five (5) years prior to the Closing Date, Borrower did not do business under any other name or organization or form except the following:

Name: VL32, Inc.
Used during dates of: January, 2015 – November, 2015
Type of Organization: Same as above.
State of organization: Same as above.
Organization file Number: Same as above.
Borrower's fiscal year ends on December 31
Borrower's federal employer tax identification number is: 47-3048279

3. Borrower represents and warrants to Agent that its chief executive office is located at 65 Hayden Avenue Lexington, MA 02421.

EXHIBIT C

BORROWER'S PATENTS, TRADEMARKS, COPYRIGHTS AND LICENSES

1) Kaleido IP Assets

a) **Patents and Patent Applications:**

U.S. 9,492,473, Glycan Therapeutics and Related Methods Thereof

U.S. 9,757,403, Glycan Therapeutics and Related Methods Thereof

U.S. 9,901,595, Glycan Therapeutics and Related Methods Thereof

U.S. 10,314,853, Glycan Therapeutics and Related Methods Thereof

EP 3071235 Glycan Therapeutic Compositions and Related Methods Thereof

HK 1228788 Glycan Therapeutic Compositions and Related Methods Thereof

ZA 2017/04735 Glycan Therapeutic Compositions and Related Methods Thereof

Kaleido Portfolio Listing:

<u>Application No.</u>	<u>Country</u>	<u>Status</u>	<u>Filing Date</u>	<u>Application Title</u>
15/017396	US	Granted	05-Feb-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
15/286382	US	Granted	05-Oct-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
15/385331	US	Granted	20-Dec-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
15/624372	US	Granted	15-Jun-2017	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF

Application No.	Country	Status	Filing Date	Application Title
16/396067	US	Pending	26-Apr-2019	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
16/395929	US	Pending	26-Apr-2019	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
2016212030	AU	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
1120170156148	BR	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
2973617	CA	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
201701901	CL	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
201680017749.4	CN	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
201791702	EA	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
16704085.6	EP	Granted	13-Jan-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
17206409.9	EP	Published	13-Jan-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF

Application No.	Country	Status	Filing Date	Application Title
17102650.8	HK	Granted	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
PID201704900	ID	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
P00201909582	ID	Pending	25-Oct-2019	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
253195	IL	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
201717026559	IN	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
2017-557273	JP	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
10-2017-7023785	KR	Pending	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
MX/a/2017/009589	MX	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
PI2017001075	MY	Pending	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
733270	NZ	Pending	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
1-2017-501342	PH	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF

Application No.	Country	Status	Filing Date	Application Title
2017110006033	SG	Published	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
PCT/US2016/013305	WO	Inactive	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
2017/04735	ZA	Granted	13-Jan-2016	GLYCAN THERAPEUTICS AND RELATED METHODS THEREOF
16/140091	US	Published	24-Sep-2018	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
2016253010	AU	Published	23-Apr-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
2983236	CA	Published	23-Apr-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
201680035931.2	CN	Published	23-Apr-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
16722465.8	EP	Published	23-Apr-2016	GLYCAN THERAPEUTICS AND METHODS OF TREATMENT
18110824.1	HK	Pending	22-Aug-2018	GLYCAN THERAPEUTICS AND METHODS OF TREATMENT
2017-555593	JP	Published	23-Apr-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF

Application No.	Country	Status	Filing Date	Application Title
735895	NZ	Pending	23-Apr-2016	GLYCAN THERAPEUTIC COMPOSITIONS AND RELATED METHODS THEREOF
PCT/US2016/029082	WO	Inactive	23-Apr-2016	GLYCAN THERAPEUTICS AND METHODS OF TREATMENT
16/270051	US	Pending	07-Feb-2019	MICROBIOME REGULATORS AND RELATED USES THEREOF
2016253011	AU	Published	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
2983016	CA	Published	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
201680036013.1	CN	Published	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
16724150.4	EP	Published	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
MX/a/2017/013562	MX	Published	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
735897	NZ	Pending	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
PCT/US2016/029083	WO	Inactive	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF
2017/06675	ZA	Pending	23-Apr-2016	MICROBIOME REGULATORS AND RELATED USES THEREOF

Application No.	Country	Status	Filing Date	Application Title
2016311452	AU	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
2994430	CA	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
201680059550.8	CN	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
16778131.9	EP	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
2018-510084	JP	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
MX/a/2018/002301	MX	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
739502	NZ	Pending	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
15/754850	US	Published	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
PCT/US2016/048794	WO	Inactive	25-Aug-2016	GLYCAN COMPOSITIONS AND USES THEREOF
201780056075.3	CN	Published	13-Jul-2017	GLYCAN COMPOSITIONS AND METHODS OF USE
17746236.3	EP	Published	13-Jul-2017	GLYCAN COMPOSITIONS AND METHODS OF USE




Application No.	Country	Status	Filing Date	Application Title
2019-501469	JP	Published	13-Jul-2017	GLYCAN COMPOSITIONS AND METHODS OF USE
16/316755	US	Pending	10-Jan-2019	GLYCAN COMPOSITIONS AND METHODS OF USE
PCT/US2017/042022	WO	Inactive	13-Jul-2017	GLYCAN COMPOSITIONS AND METHODS OF USE
2017370682	AU	Published	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
3046207	CA	Published	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
201780075847.8	CN	Published	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
17832599.9	EP	Published	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
2019-530061	JP	Pending	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
754185	NZ	Pending	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF
16/466945	US	Published	05-Jun-2019	GLYCAN POLYMERS AND RELATED METHODS THEREOF
PCT/US2017/064974	WO	Inactive	06-Dec-2017	GLYCAN POLYMERS AND RELATED METHODS THEREOF

Application No.	Country	Status	Filing Date	Application Title
PCT/US2018/059100	WO	Published	03-Nov-2018	GLYCAN PREPARATIONS FOR THE TREATMENT OF INFECTION
PCT/US2018/059102	WO	Published	03-Nov-2018	GLYCAN PREPARATIONS AND METHODS OF USE FOR HYPERAMMONEMIA
PCT/US2018/059101	WO	Published	03-Nov-2018	METHODS OF PRODUCING GLYCAN POLYMERS
62/861252	US	Pending	13-Jun-2019	GLYCAN PREPARATIONS AND MICROBES
62/790671	US	Pending	10-Jan-2019	GLYCAN PREPARATIONS AND METHODS OF USE FOR TREATING NON-ALCOHOLIC FATTY LIVER DISEASE
62/790631	US	Pending	10-Jan-2019	GLYCAN PREPARATIONS AND METHODS OF USE IN RENAL DISEASES
62/880369	US	Pending	30-Jul-2019	GLYCAN PREPARATIONS AND METHODS OF USE IN RENAL DISEASES
PCT/US2018/042174	WO	Published	13-Jul-2018	GLYCAN COMPOSITIONS AND METHODS OF USE
62/861268	US	Pending	13-Jun-2019	COMPOSITIONS AND METHODS
62/861256	US	Pending	13-Jun-2019	COMPOSITIONS AND METHODS

<u>Application No.</u>	<u>Country</u>	<u>Status</u>	<u>Filing Date</u>	<u>Application Title</u>
62/861270	US	Pending	13-Jun-2019	COMPOSITIONS AND METHODS
PCT/US2019/047595	WO	Pending	21-Aug-2019	OLIGOSACCHARIDE COMPOSITIONS AND METHODS OF USE THEREOF FOR REDUCING AMMONIA LEVELS
PCT/US2019/060626	WO	Pending	8-Nov-2019	OLIGOSACCHARIDE COMPOSITIONS AND METHODS OF USE THEREOF
62/791006	US	Pending	10-Jan-2019	FORMULATIONS FOR MODULATING MICROBIOME ACTIVITY
62/845305	US	Pending	8-May-2019	OLIGOSACCHARIDE COMPOSITIONS AND METHODS OF USE
62/910179	US	Pending	3-Oct-2019	OLIGOSACCHARIDE COMPOSITIONS AND METHODS OF USE

b) Trademarks and/or service marks:

The following marks have been applied for but not yet granted, unless otherwise noted.

Mark	Country	Status	Serial No.	Filing Date	Reg. No.	Reg. Date	Class
KALEIDO	Canada	Allowed	1776706	11-Apr-16			N/A
KALEIDO	China (People's Republic)	Registered	1314387	8-Apr-16	1314387	8-Apr-16	05 Int.
KALEIDO	European Union	Registered	017224072	20-Sep-17	017224072	17-Jan-18	01 Int.
KALEIDO	European Union	Registered	017941073	10-Aug-18	017941073	25-Dec-18	05 Int.
KALEIDO	Japan	Registered	1314387	8-Apr-16	1314387	8-Apr-16	05 Int.
KALEIDO	Mexico	Registered	1314387	8-Apr-16	1314387	8-Apr-16	05 Int.
KALEIDO	United States of America	Allowed	86/783357	9-Oct-15			05 Int.
KALEIDO	Int'l Registration—Madrid Protocol	Registered	A0057956	8-Apr-16	1314387	8-Apr-16	05 Int.; 42 Int.
 Kaleido	United States of America	Pending*	88/369612	3-Apr-19			05 Int.
	United States of America	Allowed	88/369644	3-Apr-19			05 Int.
	Int'l Registration	Registered		2-Oct-19	1497529	2-Oct-19	05 Int.
MICROBIOME ENHANCER	United States of America	Pending	87/195340	6-Oct-16			05 Int.
MMT	European Union	Published	1482563	19-Jun-19			05 Int.
MMT	Japan	Pending	1482563	19-Jun-19			05 Int.
MMT	United States of America	Published	88/235670	19-Dec-18			05 Int.
MMT	Int'l Registration—Madrid Protocol	Registered	A0086981	19-Jun-19	1482563	19-Jun-19	05 Int.

* international filing for class 5 on October 2, 2019. Appl. # not yet available

c) **Copyright registrations or applications: None**

d) Domain names:

kaleido.com
kaleidobio.com
caleidobio.com
kaleidobiosciences.com
kaleidotherapeutics.com
kaleidotx.com
kaleidotx.net
vl32.com
cadena-bio.com
cadena-bio.net
cadena-bio.org
cadenabio.com
cadenabio.net
cadenahealth.com

2) Cadena IP Assets (as of December 31, 2018):

a) **Patents and Patent Applications:**

U.S. 8,466,242, Polymeric Acid Catalysts and Uses Thereof

U.S. 8,476,388, Polymeric Acid Catalysts and Uses Thereof

U.S. 9,079,171, Polymeric Acid Catalysts and Uses Thereof

U.S. 9,205,418, Polymeric Acid Catalysts and Uses Thereof

U.S. 10,131,721, Polymeric Acid Catalysts and Uses Thereof

U.S. 9,238,845, Methods of Producing Sugars from Biomass Feedstocks

EP 2681547, Polymeric Acid Catalysts and Uses Thereof

AR 085503B1, Polymeric Acid Catalysts and Uses Thereof

AU 2012223494, Polymeric Acid Catalysts and Uses Thereof

CA 2,864,086, Polymeric Acid Catalysts and Uses Thereof

CN ZL201280018901.2, Polymeric Acid Catalysts and Uses Thereof

CO 30876, Polymeric Acid Catalysts and Uses Thereof

ID 465560, Polymeric Acid Catalysts and Uses Thereof

MX 344405, Polymeric Acid Catalysts and Uses Thereof

NZ 616047, Polymeric Acid Catalysts and Uses Thereof

SG 192958, Polymeric Acid Catalysts and Uses Thereof

ZA 2013/06233 Polymeric Acid Catalysts and Uses Thereof

CN ZL201380055050.3, Polymeric and Solid-Supported Catalysts, and Methods of Digesting Cellulosic Materials Using such Catalysts

Cadena Bio Portfolio Listing:

	Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date
1	POLYMERIC ACID CATALYSTS AND USES THEREOF	U.S.S.N. 13/406,490* Filed 2/27/2012	51169-002003	CAD-001 US3	Granted	9,079,171 7/14/2015
	John M. Geremia	U.S.S.N. 13/406,517 Filed 2/27/2012	51169-002004	CAD-001 US4	Granted	8,466,242 6/18/2013
	Brian M. Baynes	U.S.S.N. 13/657,724 Filed 10/22/2012	51169-002005	CAD-001 US5	Granted	8,476,388 7/2/2013
	Ashish Dhawan	U.S.S.N. 13/865,048 Filed 4/17/2013	51169-002006	CAD-001 US6	Granted	9,205,418 12/8/2015
	Corresponding to International Application PCT/US2012/026820 filed 2/27/2012	U.S.S.N. 14/730,143* Filed 6/3/2015	51169-002007	CAD-001 US7	Granted	10,131,721 11/20/2018
	Priority information:	U.S.S.N. 16/175,213 Filed 10/30/2018	51169-002008	CAD-001US8	Published	
	61/447,311 filed 2/28/2011	AR P20120100642 Filed 2/28/2012	51169-002AR3	CAD-001 AR	Granted	AR085503B1 08/30/2018
	61/522,351 filed 8/11/2011	AU 2012223494	51169-002AU3	CAD-001 AU	Granted	2012223494 07/20/2017
		BR1120130220473	51169-002BR3	CAD-001 BR	Pending	
		CA 2,864,086	51169-002CA3	CAD-001 CA	Granted	2,864,086 07/10/2018
		CL 2463-2013	51169-002CL3	CAD-001 CL	Abandoned	
		CN 201280018901.2	51169-002CN3	CAD-001 CN	Granted	ZL201280018901.2 02/27/2018
		CO 13230542	51169-002CO3	CAD-001 CO	Granted	30876 08/18/2015
		EP 12709207.0	51169-002EP3	CAD-001 EP1	Granted	2681247 04/04/2018
		EP 18163838.8	51169-002EP4	CAD-001 EP2	Published	

Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date
	ID W00201304395	51169-002ID3	CAD-001 ID	Granted	IDP0000465560 06/20/2017
	IN 7946/DELNP/2013	51169-002IN3	CAD-001 IN	Pending	
	JM 18/1/5278	51169-002JM3	CAD-001 JM	Pending	
	KR 10-2013-7018658	51169-002KR3	CAD-001 KR	Abandoned	
	MX/a/2013/009920	51169-002MX3	CAD-001 MX	Granted	344405 12/14/2016
	MX/a/2015/016430	51169-002MX4	CAD-001 MX	Pending	
	MY PI 2013003157	51169-002MY3	CAD-001 MY	Abandoned	
	NZ 616047	51169-002NZ3	CAD-001 NZ	Granted	616047 3/30/2016
	PH 1-2013-501775	51169-002PH3	CAD-001 PH	Pending	
	RU 2013143822	51169-002RU3	CAD-001 RU	Abandoned	
	SG 201306465-4	51169-002SG3	CAD-001 SG	Granted	192958 3/9/2016
	TH 1301004754	51169-002TH3	CAD-001 TH	Pending	
	ZA 2013/06233	51169-002ZA3	CAD-001 ZA	Granted	2013/06233 12/20/2017
2 METHODS OF PRODUCING SUGARS FROM BIOMASS FEEDSTOCKS	U.S.S.N. 13/831,495 Filed 3/14/2013	51169-003001	CAD-006 US2	Granted	9,238,845 1/19/2016

Brian M. Baynes

John M. Geremia

Joseph Andoh

Ashish Dhawan

Priority information:

61/693,210 filed 8/24/2012

	Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date	
3	POLYMERIC AND SOLID-SUPPORTED CATALYSTS, AND METHODS OF DIGESTING CELLULOSIC MATERIALS USING SUCH CATALYSTS John M. Geremia Brian M. Baynes Jaouad Fichtali Joseph Andoh Corresponding to International Application No. PCT/US2013/056389 filed 8/23/2013 Priority information: 61/693,200 filed 8/24/2012 61/693,210 filed 8/24/2012 61/693,213 filed 8/24/2012 13/831,495 filed 3/14/2013	U.S.S.N. 14/423,697*	51169-004004	CAD-004 US	Abandoned		
		Filed 2/24/2015					
		CA 2,922,254	51169-004CA4	CAD-004 CA	Abandoned	ZL201380055050.3	
		CN 201380055050.3	51169-004CN4	CAD-004 CN	Granted		
			EP 13831228.5	51169-004EP4	CAD-004 EP	Abandoned	4/12/2017
			KR 10-2015-7007481	51169-004KR4	CAD-004 KR	Abandoned	
4	OLIGOSACCHARIDE COMPOSITIONS AND METHODS FOR PRODUCING THEREOF John M. Geremia Anastasia V. Murphy Scott Han Benjamin A. Seigal Alicia Landry Kyle Sherry Stephan Panos Devin Churchman	U.S.S.N. 14/795,720*	51169-007003	CAD-012 US	Published		
		Filed 7/9/2015					
		2015287703	51169-007AU3	CAD-012AU	Abandoned		
		2019222849	51169-007AU4	CAD-012AU1	Published		
		BR112017000345-7	51169-007BR3	CAD-012 BR	Pending		
		CA 2,954,662	51169-007CA3	CAD-012 CA	Pending		
		201580048065.6	51169-007CN3	CAD-012 CN	Published		
		15819734.3	51169-007EP3	CAD-012 EP	Published		
		17111776.8	51169-007HK3	CAD-012 HK	Pending		
		P00 2017 00913	51169-007ID3	CAD-012 ID	Pending		
		249982	51169-007IL3	CAD-012 IL	Pending		

Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date
Andrew O'Connor	201717004105	51169-007IN3	CAD-012 IN	Pending	
	2017-522455	51169-007JP3	CAD-012 JP	Published	
Corresponding to International Application No. PCT/US2015/039795 filed 7/9/2015	MX/a/2017/000319	51169-007MX3	CAD-012 MX	Pending	
	PI 2017000019	51169-007MY3	CAD-012 MY	Pending	
Priority information: 62/022,579 filed 7/9/2014 62/108,035 filed 1/26/2015					
5 OLIGOSACCHARIDE COMPOSITIONS FOR USE AS FOOD INGREDIENTS AND METHODS OF PRODUCING THEREOF	U.S.S.N. 15/546,438 Filed 7/26/2017	51169-008002	CAD-013US	Abandoned	
	U.S.S.N. 16/440,261 Filed 6/13/2019	51169-008003	CAD-013US2	Published	
John M. Geremia	AU 2016212025	51169-008AU2	CAD-013AU	Published	
Raffi Mardirosian	BR 1120170159465	51169-008BR2	CAD-013BR	Published	
Michael J. Gidding	CA 2,975,091	51169-008CA2	CAD-013CA	Published	
Corresponding to International Application PCT/US2016/013265 filed January 13, 2016	CN 201680016821.1	51169-008CN2	CAD-013CN	Published	
	EP 16743841.5	51169-008EP2	CAD-013EP	Published	
Priority information: 62/108,036 filed 1/26/2015	HK 18106258.4	51169-008HK2	CAD-013HK	Pending	
	ID PID201705111	51169-008ID2	CAD-013ID	Pending	
	IN 201717028052	51169-008IN2	CAD-013IN	Published	
	JP 2017-557270	51169-008JP2	CAD-013JP	Published	
	MX/a/2017/009722	51169-008MX2	CAD-013MX	Published	
	MY PI 2017001086	51169-008MY2	CAD-013MY	Pending	
	PH 1-2017-501341	51169-008PH2	CAD-013PH	Published	
	RU 2017130166	51169-008RU2	CAD-013RU	Pending	
	ZA 2017/05200	51169-008ZA2	CAD-013ZA	Pending	

	Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date
6	OLIGOSACCHARIDE COMPOSITIONS FOR USE IN NUTRITIONAL COMPOSITIONS, AND METHODS OF PRODUCING THEREOF	U.S.S.N 15/546,508 Filed 07/26/2017	51169-010002	CAD-015US	Published	
	John M. Geremia	AU 2016212026	51169-010AU2	CAD-015AU	Published	
		CA 2,975,093	51169-010CA2	CAD-015CA	Published	
		CN 201680016981.6	51169-010CN2	CAD-015CN	Published	
	Corresponding to International Application PCT/US2016/013271 Filed January 13, 2016	EP 16743842.3	51169-010EP2	CAD-015EP	Published	
		HK 18106257.5	51169-010HK2	CAD-015HK	Pending	
		JP 2017-557271	51169-010JP2	CAD-015JP	Published	
	Priority information: 62/108,038 filed 1/26/2015	MX/a/2017/009720	51169-010MX2	CAD-015MX	Published	
7#	OLIGOSACCHARIDE COMPOSITIONS FOR USE AS ANIMAL FEED AND METHODS OF PRODUCING THEREOF	U.S.S.N. 14/995,129* Filed 1/13/2016	51169-017001	CAD-014 US	Pending	
	John M. Geremia	BR 1120170159449	51169-017BR1	CAD-014BR	Published	
	Raffi Mardirosian	CA 2,975,095	51169-017CA1	CAD-014CA	Published	
	Michael J. Gidding	CN 201680016822.6	51169-017CN1	CAD-014CN	Published	
	Anastasia V. Murphy	EP 16743843.1	51169-017EP1	CAD-014EP	Granted	EP 3250048
		EP 19191223.7	51169-017EP2	CAD-014EP1	Pending	08/14/2019
	Corresponding to PCT/US2016/013280	HK 18106256.6	51169-017HK1	CAD-014HK	Pending	
		IN 201717026993	51169-017IN1	CAD-014IN	Published	
		JP 2017-557272	51169-017JP1	CAD-014JP	Published	
		MX/a/2017/009730	51169-017MX1	CAD-014MX	Published	

Title/Inventors	Pub. No. Serial No.	C & E Ref.	Cadena Ref.	Status	Patent No. / Issue date
Filed 1/13/2016					
Priority information:					
62/108,037 filed 1/26/2015					
62/216,945 filed 9/10/2015					
62/216,952 filed 9/10/2015					
62/255,341 filed 11/13/2015					
62/255,343 filed 11/13/2015					
8# ANIMAL THERAPEUTIC AND FEED COMPOSITIONS AND METHODS OF USE	PCT/US2016/061337 Filed 11/10/2016	51169-020WO1	CAD-020 WO	National Stage	
John M. Geremia	U.S.S.N. 15/775,501 Filed 05/11/2018	51169-020001	CAD-020 US	Abandoned	
Anastasia V. Murphy	U.S.S.N. 16/293,140 Filed 03/05/2019	51169-020002	CAD-020 US1	Pending	
Priority information:					
62/255,348 filed 11/13/2015					
62/255,352 filed 11/13/2015					

* US Utility application, not a national phase.

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- b) **Trademarks and/or service marks:** None
- c) **Copyright registrations or applications:** **None**
- d) **Domain names:** **None**

EXHIBIT D**BORROWER'S DEPOSIT ACCOUNTS AND INVESTMENT ACCOUNTS**

<u>Bank Name</u>	<u>Account Number</u>	<u>Company/Subsidiary</u>	<u>Purpose of Account</u>	<u>Avg. Balance</u>
Pacific Western Bank	0007068643	Kaleido Biosciences, Inc.	Operating	\$0.204M ¹
	1001658366	Kaleido Biosciences, Inc.	LC – collateral Bedford facility	\$0.118M
	1001787199	Kaleido Biosciences, Inc.	LC – collateral Lexington facility	\$2.070M
Pacific Western Bank Asset Mgmt.	19-SQ79184	Kaleido Biosciences, Inc.	Former Money Market	\$0.000M
	19-SQ79184A	Kaleido Securities Corp.	Former Money Market	\$0.001M
Morgan Stanley Asset Mgmt.	233-089616-428	Kaleido Biosciences, Inc.	Money Market	\$5.238M
	233-089711-428	Kaleido Securities Corp.	Money Market	\$20.001M
JPMorgan Chase Bank, N.A.	000000518371759	Kaleido Biosciences, Inc.	Operating	\$48.007M

¹ NTD: This balance is as of November 30th. Kaleido will not be making future deposits to this PacWest account. The plan is to transfer the balance (net of any remaining outstanding checks, currently ~\$0.010M) to the JPM operating account by the end of December, 2019.

EXHIBIT E

COMPLIANCE CERTIFICATE

Hercules Capital, Inc. (as "Agent")
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301

Reference is made to that certain Loan and Security Agreement dated as of December 31, 2019 and the Loan Documents (as defined therein) entered into in connection with such Loan and Security Agreement all as may be amended from time to time (hereinafter referred to collectively as the "Loan Agreement") by and among Hercules Capital, Inc. (the "Agent"), the several banks and other financial institutions or entities from time to time party thereto (collectively, the "Lender") and Kaleido Biosciences, Inc. (the "Company") and each of its Qualified Subsidiaries, as Borrower. All capitalized terms not defined herein shall have the same meaning as defined in the Loan Agreement.

The undersigned is an Officer of the Company, knowledgeable of all Company financial matters, and is authorized to provide certification of information regarding the Company; hereby certifies, in such capacity and not in his individual capacity, that in accordance with the terms and conditions of the Loan Agreement, the Company is in compliance for the period ending _____ of all covenants, conditions and terms and hereby reaffirms that all representations and warranties contained therein are true and correct in all material respects (to the extent not already qualified by materiality) on and as of the date of this Compliance Certificate with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date, after giving effect in all cases to any standard(s) of materiality contained in the Loan Agreement as to such representations and warranties. Attached are the required documents supporting the above certification. The undersigned further certifies that the attached financial statements are prepared in accordance with GAAP (except for the absence of footnotes with respect to unaudited financial statement and subject to normal year-end adjustments) and are consistent from one period to the next except as explained below.

REPORTING REQUIREMENT	REQUIRED	CHECK IF ATTACHED
Interim Financial Statements	Monthly within 30 days	
Interim Financial Statements	Quarterly within 45 days	
Audited Financial Statements	FYE within 90 days	

ACCOUNTS OF BORROWER AND ITS SUBSIDIARIES AND AFFILIATES

The undersigned hereby also confirms the below disclosed accounts represent all depository accounts and securities accounts presently open in the name of each Borrower or Borrower's Subsidiary, as applicable.

Each new account that has been opened since delivery of the previous Compliance Certificate is designated below with a “*”.

	<u>Depository AC #</u>	<u>Financial Institution</u>	<u>Account Type (Depository / Securities)</u>	<u>Last Month Ending Account Balance</u>	<u>Purpose of Account</u>
BORROWER Name/Address:	1				
	2				
	3				
	4				
	5				
	6				
	7				
BORROWER'S SUBSIDIARY Name/Address	1				
	2				
	3				
	4				
	5				
	6				
	7				

To the extent applicable, the undersigned hereby confirms that the Borrowers are in compliance with Section 7.20 of the Loan Agreement (as applicable, as applicable, attached as [Schedule A-1][Schedule A-2][Schedule A-3] hereto are the required calculations supporting this certification(s)), as of the date first set forth above.

Very Truly Yours,

KALEIDO BIOSCIENCES, INC.

By: _____

Name: _____

Its: _____

Schedule A-1 to Compliance Certificate

If

A. Performance Milestone I has not been achieved on or before June 30, 2020;*then*

- | | |
|--|---|
| (1) Sum of Cash held by Borrower in accounts in the United States subject to an Account Control Agreement in favor of Agent: | \$ _____ |
| (2) Sum of the Borrower's accounts payable under GAAP not paid after the 90th day following the invoice date for such account payable: | \$ _____ |
| (3) Sum of <i>line (2)</i> plus \$15,000,000 | \$ _____ |
| (4) Is the amount <i>line (1)</i> greater than or equal to the amount <i>inline (3)</i> ? | YES – In compliance
NO – Not in compliance |

Schedule A-2 to Compliance Certificate

If

A. Performance Milestone II has not been achieved on or before November 15, 2020;*then*

- (1) Sum of Cash held by Borrower in accounts in the United States subject to an Account Control Agreement in favor of Agent: \$ _____
- (2) Sum of the Borrower’s accounts payable under GAAP not paid after the 90th day following the invoice date for such account payable: \$ _____
- (3) Outstanding Secured Obligations as of the date hereof \$ _____
- (4) Sum of *line (2) plus line (3)* \$ _____
- (5) Is the amount *line (1)* greater than or equal to the amount in *line (4)*? YES – In compliance
NO – Not in compliance

Schedule A-3 to Compliance Certificate

If

- A. Performance Milestone I has been achieved on or before June 30, 2020; and
- B. Performance Milestone II has been achieved on or before November 15, 2020; and
- C. Both the Tranche 1 Advance and the Tranche 2 Advance have been drawn, *then*

- (1) Sum of Cash held by Borrower in accounts in the United States subject to an Account Control Agreement in favor of Agent: \$ _____
- (2) Sum of the Borrower's accounts payable under GAAP not paid after the 90th day following the invoice date for such account payable: \$ _____
- (3) Sum of *line (2)* plus \$7,500,000 \$ _____
- (4) Is the amount *line (1)* greater than or equal to the amount *inline (3)*? YES – In compliance
NO – Not in compliance

EXHIBIT F

FORM OF JOINDER AGREEMENT

This Joinder Agreement (the "Joinder Agreement") is made and dated as of [], 20[], and is entered into by and between _____, a _____ corporation ("Subsidiary"), and HERCULES CAPITAL, INC., a Maryland corporation (as "Agent").

RECITALS

A. Subsidiary's Affiliate, [] ("Company") [has entered/desires to enter] into that certain Loan and Security Agreement dated as of December 31, 2019, with the several banks and other financial institutions or entities from time to time party thereto as lender (collectively, the "Lenders") and the Agent, as such agreement may be amended, restated, supplemented or otherwise modified (the "Loan Agreement"), together with the other agreements executed and delivered in connection therewith;

B. Subsidiary acknowledges and agrees that it will benefit both directly and indirectly from Company's execution of the Loan Agreement and the other agreements executed and delivered in connection therewith;

AGREEMENT

NOW THEREFORE, Subsidiary and Agent agree as follows:

1. The recitals set forth above are incorporated into and made part of this Joinder Agreement. Capitalized terms not defined herein shall have the meaning provided in the Loan Agreement.
2. By signing this Joinder Agreement, Subsidiary shall be bound by the terms and conditions of the Loan Agreement the same as if it were the Borrower (as defined in the Loan Agreement) under the Loan Agreement, mutatis mutandis, provided however, that (a) with respect to (i) Section 5.1 of the Loan Agreement, Subsidiary represents that it is an entity duly organized, legally existing and in good standing under the laws of [], (b) neither Agent nor the Lenders shall have any duties, responsibilities or obligations to Subsidiary arising under or related to the Loan Agreement or the other Loan Documents, (c) that if Subsidiary is covered by Company's insurance, Subsidiary shall not be required to maintain separate insurance or comply with the provisions of Sections 6.1 and 6.2 of the Loan Agreement, and (d) that as long as Company satisfies the requirements of Section 7.1 of the Loan Agreement, Subsidiary shall not have to provide Agent separate Financial Statements. To the extent that Agent or the Lenders has any duties, responsibilities or obligations arising under or related to the Loan Agreement or the other Loan Documents, those duties, responsibilities or obligations shall flow only to Company and not to Subsidiary or any other Person or entity. By way of example (and not an exclusive list): (i) Agent's providing notice to Company in accordance with the Loan Agreement or as otherwise agreed among Company, Agent and the Lenders shall be deemed provided to Subsidiary; (ii) a Lender's providing an Advance to Company shall be deemed an Advance to Subsidiary; and (iii) Subsidiary shall have no right to request an Advance or make any other demand on the Lenders.
3. Subsidiary agrees not to certificate its equity securities without Agent's prior written consent, which consent may be conditioned on the delivery of such equity securities to Agent in order to perfect Agent's security interest in such equity securities.
4. Subsidiary acknowledges that it benefits, both directly and indirectly, from the Loan Agreement, and hereby waives, for itself and on behalf on any and all successors in interest (including without limitation any assignee for the benefit of creditors, receiver, bankruptcy trustee or itself as debtor-in-possession under any bankruptcy proceeding) to the fullest extent provided by law, any and all

claims, rights or defenses to the enforcement of this Joinder Agreement on the basis that (a) it failed to receive adequate consideration for the execution and delivery of this Joinder Agreement or (b) its obligations under this Joinder Agreement are avoidable as a fraudulent conveyance.

5. As security for the prompt, complete and indefeasible payment when due (whether on the payment dates or otherwise) of all the Secured Obligations, Subsidiary grants to Agent a security interest in all of Subsidiary's right, title, and interest in and to the Collateral.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

SUBSIDIARY:

_____.

By:
Name:
Title:

Address:

Telephone: _____
email: _____

AGENT:

HERCULES CAPITAL, INC.

By: _____

Name: _____
Title: _____

Address:
400 Hamilton Ave., Suite 310
Palo Alto, CA 94301
email: legal@htgc.com
Telephone: 650-289-3060

EXHIBIT G

ACH DEBIT AUTHORIZATION AGREEMENT

Hercules Capital, Inc.
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301

Re: Loan and Security Agreement dated as of December 31, 2019 (the "Agreement") by and among Kaleido Biosciences, Inc. and each of its Qualified Subsidiaries (collectively, "Borrower") and Hercules Capital, Inc., as agent ("Agent") and the Lenders party thereto (collectively, the "Lenders")

In connection with the above referenced Agreement, the Borrower hereby authorizes the Agent to initiate debit entries for (i) the periodic payments due under the Agreement and (ii) reasonable and documented out-of-pocket legal fees and costs incurred by Agent or the Lenders pursuant to Section 11.12 of the Agreement to the Borrower's account indicated below; provided, however, that Agent shall provide Borrower with an invoice of such fees and costs. The Borrower authorizes the depository institution named below to debit to such account.

[IF FILED PUBLICLY, ACCOUNT INFO REDACTED FOR SECURITY PURPOSES]

DEPOSITORY NAME

BRANCH

CITY

STATE AND ZIP CODE

TRANSIT/ABA NUMBER

ACCOUNT NUMBER

This authority will remain in full force and effect so long as any amounts are due under the Agreement.

KALEIDO BIOSCIENCES, INC.

By: _____

Name: _____

Date: _____

EXHIBIT H-1

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Lenders That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of December 31, 2019 (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Kaleido Biosciences, Inc., a Delaware corporation, and each of its Qualified Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and Hercules Capital, Inc., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the Loan(s) (as well as any promissory note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) it is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (iv) it is not a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished the Agent and the Borrower with a certificate of its non-U.S. Person status on IRS Form W-8BEN or IRS Form W-8BEN-E. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, or if a lapse in time or change in circumstances renders the information in this certificate obsolete, expired or inaccurate in any material respect, the undersigned shall promptly so inform the Borrower and the Agent in writing and deliver promptly to the Agent and the Borrower an updated certificate or other appropriate documentation (including any new documentation reasonably requested by the Agent or the Borrower) or promptly notify the Agent and the Borrower in writing of its legal ineligibility to do so, and (2) the undersigned shall have at all times furnished the Borrower and the Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__

[NAME OF LENDER]

By: _____
Name: _____
Title: _____

EXHIBIT H-2

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Participants That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of December 31, 2019 (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Kaleido Biosciences, Inc., a Delaware corporation, and each of its Qualified Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and Hercules Capital, Inc., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the participation in respect of which it is providing this certificate, (ii) it is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (iv) it is not a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished its participating Lender with a certificate of its non-U.S. Person status on IRS Form W-8BEN or IRS Form W-8BEN-E. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, or if a lapse in time or change in circumstances renders the information in this certificate obsolete, expired or inaccurate in any material respect, the undersigned shall promptly so inform such Lender in writing and deliver promptly to such Lender an updated certificate or other appropriate documentation (including any new documentation reasonably requested by such Lender) or promptly notify such Lender in writing of its legal ineligibility to do so, and (2) the undersigned shall have at all times furnished such Lender with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__

[NAME OF PARTICIPANT]

By: _____
Name: _____
Title: _____

EXHIBIT H-3

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Participants That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of December 31, 2019 (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Kaleido Biosciences, Inc., a Delaware corporation, and each of its Qualified Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and Hercules Capital, Inc., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the participation in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such participation, (iii) with respect to such participation, neither the undersigned nor any of its direct or indirect partners/members is a "bank" extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its direct or indirect partners/members is a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (v) none of its direct or indirect partners/members is a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished its participating Lender with IRS Form W-8IMY accompanied by one of the following forms from each of its partners/members that is claiming the portfolio interest exemption: (i) an IRS Form W-8BEN or IRS Form W-8BEN-E or (ii) an IRS Form W-8IMY accompanied by an IRS Form W-8BEN or IRS Form W-8BEN-E from each of such partner's/member's beneficial owners that is claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, or if a lapse in time or change in circumstances renders the information in this certificate obsolete, expired or inaccurate in any material respect, the undersigned shall promptly so inform such Lender in writing and deliver promptly to such Lender an updated certificate or other appropriate documentation (including any new documentation reasonably requested by the Borrower or the Agent) or promptly notify such Lender in writing of its legal ineligibility to do so, and (2) the undersigned shall have at all times furnished such Lender with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__

[NAME OF PARTICIPANT]

By: _____
Name: _____
Title: _____

EXHIBIT H-4

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Lenders That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of December 31, 2019 (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Kaleido Biosciences, Inc., a Delaware corporation, and each of its Qualified Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and Hercules Capital, Inc., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the Loan(s) (as well as any promissory note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such Loan(s) (as well as any promissory note(s) evidencing such Loan(s)), (iii) with respect to the extension of credit pursuant to this Loan Agreement or any other Loan Document, neither the undersigned nor any of its direct or indirect partners/members is a "bank" extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3) (A) of the Code, (iv) none of its direct or indirect partners/members is a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3) (B) of the Code and (v) none of its direct or indirect partners/members is a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished the Agent and the Borrower with IRS Form W-8IMY accompanied by one of the following forms from each of its partners/members that is claiming the portfolio interest exemption: (i) an IRS Form W-8BEN or IRS Form W-8BEN-E or (ii) an IRS Form W-8IMY accompanied by an IRS Form W-8BEN or IRS Form W-8BEN-E from each of such partner's/member's beneficial owners that is claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, or if a lapse in time or change in circumstances renders the information in this certificate obsolete, expired or inaccurate in any material respect, the undersigned shall promptly so inform the Borrower and the Agent in writing and deliver promptly to the Borrower and the Agent an updated certificate or other appropriate documentation (including any new documentation reasonably requested by the Borrower or the Agent) or promptly notify the Borrower and the Agent in writing of its legal ineligibility to do so, and (2) the undersigned shall have at all times furnished the Borrower and the Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__

[NAME OF LENDER]

By: _____
Name: _____
Title: _____

SCHEDULE 1.1

COMMITMENTS

LENDER	TRANCHE	TERM COMMITMENT
Hercules Capital, Inc.	Tranche 1	\$ 22,500,000
Hercules Capital, Inc.	Tranche 2	\$ 5,000,000
Hercules Capital, Inc.	Tranche 3	\$ 7,500,000*
TOTAL COMMITMENTS		\$ 35,000,000.00*

* Funding of Tranche 3 is subject to approval by Lender's investment committee in its sole discretion.

SCHEDULE 1

SUBSIDIARIES

1. Cadena Bio, Inc.
2. Kaleido Biosciences Securities Corporation

SCHEDULE 1A

EXISTING PERMITTED INDEBTEDNESS

<u>Agreement</u>	<u>Date</u>	<u>Description of Indebtedness</u>
Letter of Credit	September 24, 2019, as may be replaced to reflect correction of proper beneficiary (subject to the limitations set forth in clause (viii) of the definition of Permitted Indebtedness)	Letter of Credit with Square 1 Bank issued in connection with the security deposit requirement under the lease for space at 18 Crosby Drive, Bedford MA in the amount of \$117,156.33
Letter of Credit	December 16, 2019	Letter of Credit with JPMorgan Chase Bank, N.A. issued in connection with the security deposit requirement under the lease for space at 65 Hayden Street, Lexington MA in the amount of \$2,057,658.75
Line of Credit	Kaleido's American Express account went effective on October 1, 2018.	Line of Credit with American Express issued in connection with the Company's corporate credit card program in the amount of \$1,000,000.00; provided that the amount of any thereunder Indebtedness, together with any other credit card Indebtedness, shall not exceed the cap set forth in clause (iv) of the definition of Permitted Indebtedness

SCHEDULE 1B

EXISTING PERMITTED INVESTMENTS

Investments held by Kaleido Biosciences, Inc. of 1,000 shares of common stock of Cadena Bio, Inc., par value \$0.001.

Investments held by Kaleido Biosciences, Inc. of 1,000 shares of common stock of Kaleido Biosciences Securities Corporation, par value \$0.001.

SCHEDULE 1C EXISTING PERMITTED LIENS

<u>Name of Holder of Lien/Encumbrance</u>	<u>Description of Property Encumbered</u>	<u>Company/Subsidiary</u>
De Lage Landen Financial Services, Inc.	Lien of De Lage Landen Financial Services, Inc. on a leased asset of Kaleido Biosciences, Inc.	Kaleido Biosciences, Inc.

SCHEDULE 5.3

CONSENTS, ETC.

None.

SCHEDULE 5.8

TAX MATTERS

None.

SCHEDULE 5.9

INTELLECTUAL PROPERTY CLAIMS

None.

SCHEDULE 5.10

INTELLECTUAL PROPERTY

None.

SCHEDULE 5.11

BORROWER PRODUCTS

None.

SCHEDULE 5.14

CAPITALIZATION

[**]

SCHEDULE 7.12

DEPOSIT ACCOUNTS

<u>Bank Name</u>	<u>Account Number</u>	<u>Company/ Subsidiary</u>	<u>Purpose of Account</u>
Pacific Western Bank	1001658366	Kaleido Biosciences, Inc.	LC – collateral Bedford facility
	1001787199	Kaleido Biosciences, Inc.	LC – collateral Lexington facility
Pacific Western Bank	19-SQ79184	Kaleido Biosciences, Inc.	Former Money Market
Asset Mgmt.	19-SQ79184A	Kaleido Securities Corp.	Former Money Market
Morgan Stanley Asset	233-089616-428	Kaleido Biosciences, Inc.	Money Market
Mgmt.	233-089711-428	Kaleido Securities Corp.	Money Market