

| OMB APPROVAL                                 |           |
|--|-----------|
| OMB Number:                                  | 3235-0104 |
| Estimated average burden hours per response: | 0.5       |

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

|   |   |  |   |
|---|---|--|---|
| 1. Name and Address of Reporting Person*<br><u>Brumm Joshua T</u><br><hr/> (Last) (First) (Middle)<br>C/O KALEIDO BIOSCIENCES, INC.<br>65 HAYDEN AVENUE<br><hr/> (Street)<br>LEXINGTON MA 02421<br><hr/> (City) (State) (Zip) | 2. Date of Event Requiring Statement (Month/Day/Year)<br>02/27/2019 | 3. Issuer Name and Ticker or Trading Symbol<br><u>Kaleido Biosciences, Inc. [ KLDG ]</u>   |   |
|   |   | 4. Relationship of Reporting Person(s) to Issuer (Check all applicable)<br>Director 10% Owner<br><input checked="" type="checkbox"/> Officer (give title below) Other (specify below)<br>See Remarks | 5. If Amendment, Date of Original Filed (Month/Day/Year)<br><hr/> 6. Individual or Joint/Group Filing (Check Applicable Line)<br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br>Form filed by More than One Reporting Person |

**Table I - Non-Derivative Securities Beneficially Owned**

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|---|--|---|
|---------------------------------|---|--|---|

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) |                 | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--|--|-----------------|---|--|--|---|
|  | Date Exercisable   | Expiration Date |   |  |  |   |
| Stock Option (Right to Buy)                | (1)  | 05/29/2028      | Common Stock  | 137,500  | 5.9  | D   |
| Stock Option (Right to Buy)                | (1)  | 05/29/2028      | Common Stock  | 125,000  | 5.9  | D   |
| Stock Option (Right to Buy)                | (2)  | 08/15/2028      | Common Stock  | 124,089  | 10.28  | D   |

**Explanation of Responses:**

- 25% of this option shall vest and become exercisable on April 23, 2019, with the remainder subject to vesting per agreement with the Company.
- 25% of this option shall vest and become exercisable on August 16, 2019, with the remainder subject to vesting per agreement with the Company.

**Remarks:**

Title: Chief Operating Officer and Chief Financial Officer Exhibit 24.1: Power of Attorney

/s/ Joshua T. Brumm 02/27/2019

\*\* Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

POWER OF ATTORNEY

Know all by these presents, that the undersigned hereby constitutes and appoints Alison Lawton, signing singly, the undersigned's true and lawful attorney-in-fact to:

- (1) execute for and on behalf of the undersigned, in the undersigned's capacity as an officer and/or director of Kaleido Biosciences, Inc. (the "Company"), (i) Form ID, including any attached documents, to effect the assignment of codes to the undersigned to be used in the transmission of information to the United States Securities and Exchange Commission using the EDGAR System, (ii) Forms 3, 4 and 5, (iii) Schedule 13D, (iv) Schedule 13G and (v) amendments of each thereof, in accordance with Section 16(a) of the Securities Exchange Act of 1934, as amended, and the rules thereunder;
- (2) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such Form 3, 4 or 5, Schedule 13D, Schedule 13G or any amendments thereto and timely file such form with the United States Securities and Exchange Commission and any stock exchange or similar authority; and
- (3) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this Power of Attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming, nor is the Company assuming, any of the undersigned's responsibilities to comply with Section 16 or Regulation 13D-G of the Securities Exchange Act of 1934, as amended. The undersigned hereby agrees to indemnify the attorney-in-fact and the Company from and against any demand, damage, loss, cost or expense arising from any false or misleading information provided by the undersigned to the attorney-in-fact.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file Forms 3, 4 and 5 with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact. This Power of Attorney may be filed with the United States Securities and Exchange Commission as a confirming statement of the authority granted herein. This Power of Attorney supersedes any prior power of attorney in connection with the undersigned's capacity as an officer and/or director of the Company. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to be an executive officer of the Company.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of February 14, 2019.

/s/ Joshua T. Brumm  
-----  
Name: Joshua T. Brumm