

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM S-3/A

(AMENDMENT NO. 1)

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Pulse Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware(State or other jurisdiction of
incorporation or organization)**46-5696597**(I.R.S. Employer
Identification Number)**3957 Point Eden Way
Hayward, California 94545
(510) 906-4600**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Kevin P. Danahy
Chief Executive Officer
Pulse Biosciences, Inc.
3957 Point Eden Way
Hayward, California 94545
(510) 906-4600**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Tel: (212) 589-4233****Approximate date of commencement of proposed sale to the public:** From time to time after the effective date of this registration statement.If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: ☐If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. ☒If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐
Non-accelerated filer ☒Accelerated filer ☐
Smaller reporting
company ☒
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 7(a)(2)(B) of Securities Act. ☐**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

The information in this prospectus is not complete and may be changed. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion, dated April 15, 2024.

PROSPECTUS

Pulse Biosciences, Inc.

**Subscription Rights to Purchase Up to 6,000,000 Units at the Initial Price
Each Unit Consisting of One Share of Common Stock and
Two Warrants, Each Being a Warrant to Purchase One-Half of One Share of Common Stock
(and Up to 6,000,000 Shares of Common Stock Underlying the Warrants at
110% of the Initial Price)**

Pulse Biosciences, Inc. (the “Company”, “we”, “us”, and “our”) is distributing at no charge to the holders of our common stock, par value \$0.001 per share, non-transferable subscription rights to purchase up to 6,000,000 Units (“Units”) at the Initial Price (as defined below) with an aggregate offering value of up to \$60,000,000 (the “Rights Offering”). The subscription price per Unit shall be equal to the lesser of: (i) \$10 (the “Initial Price”) and (ii) the volume weighted average price of our common stock for the ten trading day period through and including the Expiration Date (as defined below) (the “Alternate Price”), as provided herein. Each stockholder will receive one subscription right entitling the holder to purchase [●] Units at the Initial Price, for each share of our common stock owned at 5:00 p.m., Eastern Time, on [●], 2024 (the “Record Date”). Each Unit shall consist of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock at an exercise price per whole share that shall be equal to 110% of the per-Unit subscription price (*provided*, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). Each warrant will be exercisable immediately upon completion of this Rights Offering and will expire on the fifth anniversary of the completion of this Rights Offering. The respective warrants will be subject to redemption by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one such warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date. To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, but we will not sell fractional Units. If you fully exercise your basic subscription right and other stockholders do not fully exercise their basic subscription rights, you may also exercise an over-subscription right to purchase additional Units that remain unsubscribed at the expiration of the Rights Offering, subject to the availability and pro rata allocation of Units among persons exercising this over-subscription right. The common stock and the respective warrants comprising the Units will separate upon the closing of this Rights Offering and will be issued separately; however, they may only be purchased as a Unit and the Unit will not trade as a separate security. For a more detailed discussion, see “*The Rights Offering — Subscription Rights — Basic Subscription Rights*” beginning on page 26. The Initial Price or Alternate Price, as applicable, is sometimes referred to herein as the “Subscription Price”. The Subscription Price may present a significant discount to the recent closing trading price of \$[●] on [●], 2024. Following the closing of the Rights Offering, there is no assurance that the price will remain at the current trading price, and the price may decline to the Subscription Price, or to a price lower than the Subscription Price. For a more detailed discussion, see “*Dilution*” beginning on page 21. For a more detailed discussion, see “*The Rights Offering*” beginning on page 26.

The purpose of this Rights Offering is to raise equity capital in a cost-effective manner that provides all of our existing stockholders the opportunity to participate. We anticipate using the net proceeds of the Rights Offering, if any, for general corporate purposes, including the Company’s commercial launch of its proprietary CellFX nsPFA Percutaneous Electrode System, its ongoing investment in current and future clinical studies evaluating the safety and efficacy of the Company’s CellFX nsPFA Cardiac Clamp and CellFX nsPFA 360° Cardiac Catheter for the treatment of atrial fibrillation, obtaining regulatory clearances for these CellFX Systems, and new product development activities. Net proceeds may be temporarily invested prior to use. For a more detailed discussion, see “*Use of Proceeds*” beginning on page 20.

The subscription rights will be distributed and exercisable beginning on [●], 2024. The subscription rights will expire and will have no value if they are not exercised prior to the expiration date of this Rights Offering, which is currently expected to be 5:00 p.m., Eastern Time, on [●], 2024 (the “Expiration Date”), unless we, in our sole discretion, extend the period for exercising the subscription rights. We will extend the duration of the Rights Offering as required by applicable law, and may choose to extend the rights offering if we decide that changes in the market price of our common stock warrant an extension or if we decide that the degree of participation in this Rights Offering by holders of our common stock is less than the level we desire. You should carefully consider whether or not to exercise your subscription rights before the Expiration Date. We reserve the right to cancel the Rights Offering at any time before the expiration of the Rights Offering, for any reason.

Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, but he has not indicated at what level nor has he made any formal binding commitment to do so.

There is no minimum number of Units that we must sell in order to complete the Rights Offering. If you exercise your rights in full, you may also exercise an over-subscription right to purchase additional Units that remain unsubscribed at the expiration of the Rights Offering, subject to the availability and allocation of Units among persons exercising this over-subscription right and certain other limitations as further described elsewhere in this prospectus. Stockholders who do not participate in the Rights Offering will continue to own the same number of shares, but will own a smaller percentage of the total shares outstanding after the rights offering to the extent that other stockholders participate in the Rights Offering. Rights that are not exercised by the Expiration Date will expire and have no value.

We are distributing the rights and offering the underlying securities directly to you. We have not employed any brokers, dealers or underwriters in connection with the solicitation or exercise of rights in the Rights Offering and no commissions, fees or discounts will be paid in connection with the Rights Offering. Broadridge Corporate Issuer Solutions, LLC, is acting as the subscription agent and information agent for the Rights Offering and warrant agent for the warrants. While certain of our directors, officers and other employees may solicit responses from you, those directors, officers and other employees will not receive any commissions or compensation for their services other than their normal compensation.

The subscription rights and Units may not be sold or transferred except as required by operation of law.

Our common stock is listed on the Nasdaq Capital Market under the symbol “PLSE.” On [●], 2024, the last reported sale price for our common stock on the Nasdaq Capital Market was \$[●] per share. We do not intend to apply for listing of the respective warrants offered hereby.

Investing in our securities involves a high degree of risk. See “*Risk Factors*” beginning on page 18 of this prospectus and page 11 of our Annual Report on Form 10-K for the year ended December 31, 2023, incorporated by reference herein as well as the other information contained in this prospectus and the documents incorporated by reference in this prospectus or in any accompanying prospectus supplement for a discussion of the factors you should carefully consider before making a decision to invest in our securities.

Our board of directors (the “Board of Directors” or the “Board”), reserves the right to terminate the Rights Offering for any reason at any time before the completion of the Rights Offering. If we terminate the Rights Offering, all subscription payments received will be returned as soon as practicable, without interest or penalty.

The Board is making no recommendations regarding your exercise of any subscription rights. You should carefully consider whether to exercise your subscription rights before the Expiration Date. You may not revoke or revise any exercises of subscription rights once made, unless we terminate the Rights Offering.

You should rely only on the information contained in this prospectus or any prospectus supplement or amendment hereto. We have not authorized anyone to provide you with different information.

Neither the U.S. Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2024.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the United States Securities and Exchange Commission (the “SEC”). Under this registration statement, we may distribute non-transferable subscription rights to purchase up to 6,000,000 Units (“Units”) at the Initial Price (as defined below) with an aggregate offering value of up to \$60,000,000 (the “Rights Offering”). The subscription price per Unit shall be equal to the lesser of: (i) \$10 (the “Initial Price”) and (ii) the volume weighted average price of our common stock for the ten trading day period through and including the Expiration Date (as defined below) (the “Alternate Price”), as provided herein. Each stockholder will receive one subscription right entitling the holder to purchase [●] Units at the Initial Price, for each share of our common stock owned at 5:00 p.m., Eastern Time, on [●], 2024 (the “Record Date”). Each Unit shall consist of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock at an exercise price per whole share that shall be equal to 110% of the per-Unit subscription price (*provided*, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). Each warrant will be exercisable immediately upon completion of this Rights Offering and will expire on the fifth anniversary of the completion of this Rights Offering. The respective warrants will be subject to redemption by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one such warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date. To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, but we will not sell fractional Units. If you fully exercise your basic subscription right and other stockholders do not fully exercise their basic subscription rights, you may also exercise an over-subscription right to purchase additional Units that remain unsubscribed at the expiration of the Rights Offering, subject to the availability and pro rata allocation of Units among persons exercising this over-subscription right. The common stock and the respective warrants comprising the Units will separate upon the closing of this Rights Offering and will be issued separately; however, they may only be purchased as a Unit and the Unit will not trade as a separate security.

You should rely only on the information provided in this prospectus, as well as the information incorporated by reference into this prospectus and any applicable prospectus supplement. We have not authorized anyone to provide you with different or additional information or to make any representations other than those contained in this prospectus or any applicable prospectus supplement. We do not take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should not assume that the information in this prospectus or any applicable prospectus supplement is accurate as of any date other than the date of the applicable document. Since the date of this prospectus and the documents incorporated by reference into this prospectus, our business, financial condition, results of operations, and prospects may have changed. We will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the information incorporated by reference herein or therein. For general information about the distribution of securities offered, please see “*Plan of Distribution*,” below. You should read both this prospectus and any prospectus supplement, together with the additional information described in “*Information Incorporated by Reference*” and “*Where You Can Find More Information*,” before you make any investment decisions regarding the securities. You may obtain the information incorporated by reference into this prospectus without charge by following the instructions under “*Information Incorporated by Reference*” and “*Where You Can Find More Information*,” below.

This prospectus summarizes certain documents and other information, and we refer you to them for a more complete understanding of what we discuss in this prospectus. All of the summaries are qualified in their entirety by the actual documents. In making an investment decision, you must rely on your own examination of our Company and the terms of the offering and the securities, including the merits and risks involved.

We are not making any representation to any purchasers of our securities regarding the legality of an investment in our securities by such purchasers. You should not consider any information in this prospectus to be legal, business or tax advice. You should consult your own attorney, business advisor or tax advisor for legal, business and tax advice regarding an investment in our securities.

Unless the context indicates otherwise, references in this prospectus to the “Company,” “Pulse,” “Pulse Biosciences,” “we,” “us,” “our,” and similar terms refer to Pulse Biosciences, Inc., a Delaware corporation, and its consolidated subsidiaries.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements made under “Prospectus Summary”, “Use of Proceeds,” and elsewhere in this prospectus, as well as the documents incorporated by reference herein, including in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “intends,” or “continue,” or the negative of these terms or other comparable terminology.

These forward-looking statements may include, but are not limited to, statements related to our expected business, new product introductions, results of clinical studies, expectations regarding regulatory clearance and the timing of FDA or non-US filings or approvals including meetings with FDA or non-U.S. regulatory bodies, procedures and procedure adoption, future results of operations, future financial position, our ability to generate revenues, our financing plans and future capital requirements, anticipated costs of revenue, anticipated expenses, the effect of recent accounting pronouncements, our anticipated cash flows, our ability to finance operations from cash flows or otherwise, and statements based on current expectations, estimates, forecasts, and projections about the economies and markets in which we operate and intend to operate and our beliefs and assumptions regarding these economies and markets.

Forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties. We have based these forward-looking statements on assumptions and assessments made by our management in light of their experience and their perception of historical trends, current conditions, expected future developments, and other factors they believe to be appropriate.

Important factors that could cause actual results, developments and business decisions to differ materially from those anticipated in these forward-looking statements include, among others, those factors referred to in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, which is incorporated by reference herein.

These statements are only current predictions and are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry’s actual results, levels of activity, performance, or achievements to be materially different from those anticipated by the forward-looking statements. We discuss many of these risks in the documents incorporated by reference herein. You should not rely upon forward-looking statements as predictions of future events.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements. Except as required by law, we are under no duty to update or revise any of the forward-looking statements, whether as a result of new information, future events or otherwise, after the date of this prospectus.

SUMMARY OF THE RIGHTS OFFERING	
Issuer	Pulse Biosciences, Inc.
Securities offered	<p>We are distributing to you, at no charge, one non-transferable subscription right to purchase [●] Units at the Initial Price (as defined below) for each share of our common stock that you owned as of 5:00 p.m., Eastern Time, on [●], 2024, either as a holder of record or, in the case of shares held of record by custodian banks, brokers, dealers or other nominees on your behalf, as a beneficial owner of such shares. Each Unit consists of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock (<i>provided</i>, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). To the extent that the Alternate Price (as defined below) is lower than the Initial Price, we will sell additional Units.</p> <p>The shares of common stock and respective warrants comprising the Units sold in this Rights Offering will be issued only in book-entry form. The common stock and respective warrants comprising the Units will separate upon the closing of this Rights Offering and will be issued separately; however, they may only be purchased as a Unit and the Unit will not trade as a separate security. The subscription rights and Units will not be transferable.</p> <p>Each warrant entitles the holder to purchase one-half of one share of our common stock at an exercise price per whole share that shall be equal to 110% the per-Unit subscription price. The exercise price must be paid in cash at the time of exercise and there is no “cashless” exercise provision for the warrants. Each warrant will be exercisable immediately upon completion of this rights offering and will expire on the fifth anniversary of the completion of this Rights Offering.</p> <p>The respective warrants will be subject to redemption by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.</p> <p>As set forth above, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share. For example, if you subscribe for 973 Units, you shall receive (i) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.</p> <p>The warrants will be adjusted to reflect any stock split, stock dividend or similar recapitalization with respect to the common stock.</p> <p>We do not intend to list any of the warrants on any securities exchange or other trading market.</p>
Basic Subscription Rights	Each subscription right will entitle the holder to purchase [●] Units at the Initial Price which shall be paid in cash, with each Unit consisting of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock (<i>provided</i> , that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units.
Over-Subscription Rights	We do not expect that all of our stockholders will exercise all of their basic subscription rights. If you fully exercise your basic subscription right and other stockholders do not fully exercise their basic subscription rights, the over-subscription right of each right entitles you to subscribe for additional Units unclaimed by other holders of rights in this Rights Offering at the same subscription price per Unit. If an insufficient number of Units is available to fully satisfy all over-subscription right requests, the available Units will be distributed proportionately among rights holders who exercise their over-subscription right based on the number of Units each rights holder subscribed for under the basic subscription right. The proration process will be repeated until all Units have been allocated or all over-subscription exercises have been fulfilled, whichever occurs earlier.
Subscription Price	The subscription price per Unit will be the lesser of: (i) \$10 (the “Initial Price”) and (ii) the volume weighted average price of our common stock for the ten trading day period through and including the Expiration Date (as defined below) (the “Alternate Price”). Subscribers must fund their subscriptions pursuant to both the basic subscription right and over-subscription right at the Initial Price. To be effective, any payment related to the exercise of a right must clear prior to the expiration of the Rights Offering.
Excess Subscription Amount	If, on the Expiration Date, the Alternate Price is lower than the Initial Price, any excess subscription amounts paid by a subscriber (the “Excess Subscription Amount”) will be put towards the purchase of additional Units. For more information, see “Questions and Answers About the Rights Offering,” below.
Record Date	5:00 p.m., Eastern Time, on [●], 2024 (the “Record Date”).
Expiration of the Rights Offering	5:00 p.m., Eastern Time, on [●], 2024 (the “Expiration Date”), subject to extension or earlier termination.

Amendment, Extension, and Termination	We have the option to extend the Rights Offering and the period for exercising your subscription rights, although we do not presently intend to do so. The board of directors, in its sole discretion, reserves the right to amend or modify the terms of the Rights Offering. We also reserve the right to terminate the Rights Offering at any time prior to the Expiration Date for any reason, in which event all funds received in connection with the Rights Offering will be returned without interest or deduction to those persons who exercised their subscription rights.
No Fractional Units, Shares, or Warrants	<p>We will not sell fractional Units, shares or warrants. We will, rather, round down the aggregate number of Units you are entitled to receive to the nearest whole number. As each Unit corresponds to one share of common stock and two warrants, the number of shares of common stock issued to you will correspond to the whole number of Units you receive, and the number of warrants (each such warrant being a warrant to purchase one-half of one share of our common stock) issued to you will correspond to twice the whole number of Units you receive, in each case after reflecting the downward rounding of the number of Units subscribed for.</p> <p>Further, as set forth above, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share. For example, if you subscribe for 973 Units, you shall receive (i) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days' written notice, if the volume weighted average price of our common stock equals or exceeds 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days' written notice, if the volume weighted average price of our common stock equals or exceeds 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date. For more information about how the number of warrants is computed, see <i>"Questions and Answers About the Rights Offering — What happens if the final subscription price is less than the Initial Price?"</i></p> <p>Any Excess Subscription Amount resulting from the reduction of the subscription price from the Initial Price to the Alternate Price will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full). The excess amount for any fractional Units will be returned to you as soon as practicable, in the form in which made. You will not receive interest or a deduction on any payments refunded to you under the rights offering. You will not receive a refund or other compensation for any unissued fractional warrants.</p>
Non-Transferability of Rights	The subscription rights and Units may not be sold, transferred or assigned and will not be listed for trading on the Nasdaq Capital Market or any other stock exchange or trading market.
Procedure for Exercising Rights	You may exercise your subscription rights by properly completing and executing your rights certificate and delivering it, together with the subscription price for each Unit for which you subscribe under the basic subscription right and over-subscription right, to the subscription agent, Broadridge Corporate Issuer Solutions, LLC, on or prior to the Expiration Date. If you use mail, we recommend that you use insured, registered mail, with return receipt requested.
How Rights Holders Can Exercise Rights Through Others	If you hold our common stock through a custodian bank, broker, dealer, or other nominee, we will ask your custodian bank, broker, dealer or other nominee to notify you of the rights offering. If you wish to exercise your rights, you will need to have your custodian bank, broker, dealer or other nominee act for you. To indicate your decision, you should complete and return to your custodian bank, broker, dealer or other nominee the form entitled "Beneficial Owners Election Form." You should receive this form from your custodian bank, broker, dealer or other nominee with the other rights offering materials. You should contact your custodian bank, broker, dealer or other nominee if you believe you are entitled to participate in the rights offering but you have not received this form.
How Foreign Stockholders and Other Stockholders Can Exercise Rights	The subscription agent will not mail rights certificates to you if you are a stockholder whose address is outside the United States or if you have an Army Post Office or a Fleet Post Office address. Instead, we will have the subscription agent hold the subscription rights certificates for your account. To exercise your rights, you must notify the subscription agent prior to 11:00 a.m., Eastern Time, at least three (3) business days prior to the Expiration Date, and establish to the satisfaction of the subscription agent that it is permitted to exercise your subscription rights under applicable law. If you do not follow these procedures by such time, your rights will expire and will have no value.
No Revocation	Once you submit the form of rights certificate to exercise any subscription rights, you may not revoke or change your exercise or request a refund of monies paid. All exercises of rights are irrevocable, even if you subsequently learn information about us that you consider to be unfavorable. You should not exercise your subscription rights unless you are certain that you wish to purchase Units in the Rights Offering.
Payment Adjustments	If you send a payment that is insufficient to purchase the number of Units requested, or if the number of Units requested is not specified in the rights certificate, the payment received will be applied to exercise your subscription rights to the extent of the payment. If the payment exceeds the amount necessary for the full exercise of your subscription rights, including any over-subscription rights exercised and permitted and, on the Expiration Date, the Alternate Price is lower than the Initial Price, any Excess Subscription Amount will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full). Otherwise, the excess will be returned to you as soon as practicable, in the form in which made. You will not receive interest or a deduction on any payments refunded to you under the Rights Offering.
Conditions	See <i>"The Rights Offering — Conditions to the Rights Offering"</i> beginning on page 27.
Purchase Commitments	Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, but he has not indicated at what level nor has he made any formal binding commitment to do so.

No Recommendation to Rights Holders	Our board of directors is making no recommendation regarding your exercise of the subscription rights. You are urged to make your decision based on your own assessment of our business and the Rights Offering. An investment in Units must be made according to your evaluation of your own best interests and after considering all of the information herein, including the section titled “ <i>Risk Factors</i> ” beginning on page 18. Neither we nor our board of directors are making any recommendation regarding whether you should exercise your subscription rights.
Use of Proceeds	The purpose of this Rights Offering is to raise equity capital in a cost-effective manner that provides all of our existing stockholders the opportunity to participate. We anticipate using the net proceeds of the Rights Offering, if any, for general corporate purposes, including the Company’s commercial launch of its proprietary CellFX nsPFA Percutaneous Electrode System, its ongoing investment in current and future clinical studies evaluating the safety and efficacy of the Company’s CellFX nsPFA Cardiac Clamp and CellFX nsPFA 360° Cardiac Catheter for the treatment of atrial fibrillation, obtaining regulatory clearances for these CellFX Systems, and new product development activities. Net proceeds may be temporarily invested prior to use. For a more detailed discussion, see “ <i>Use of Proceeds</i> ” beginning on page 20.
Material U.S. Federal income Tax Consequences	Although the authorities governing transactions such as this rights offering are complex and unclear in certain respects, we believe and intend to take the position that the distribution of subscription rights to you with respect to your shares of common stock should generally be treated, for U.S. federal income tax purposes, as a non-taxable distribution if you are a U.S. taxpayer. For a detailed discussion, see “ <i>Material U.S. Federal Income Tax Consequences</i> ” beginning on page 31. You should consult your tax advisor as to the particular consequences to you of the Rights Offering.
Delivery of Shares and Warrants	As soon as practicable after the expiration of the Rights Offering, the subscription agent will arrange for the issuance of the shares of common stock and warrants received pursuant to the Rights Offering. All shares and warrants that are purchased in the Rights Offering will be issued in book-entry, or uncertificated, form meaning that you will receive a direct registration (DRS) account statement from our transfer agent reflecting ownership of these securities if you are a holder of record of shares. If you hold your shares in the name of a custodian bank, broker, dealer, or other nominee, the Depository Trust Company (DTC) will credit your account with your nominee with the securities you purchased in the Rights Offering.
Listing of Common Stock	Our common stock is listed on the Nasdaq Capital Market under the symbol “PLSE.” The shares of common stock to be issued in connection with the Rights Offering will also be listed on the Nasdaq Capital Market under the same symbol. The subscription rights, Units and respective warrants will not be listed for trading on the Nasdaq Capital Market or any other stock exchange or market.
Fees and Expenses	We are not charging any fee or sales commission to issue subscription rights to you or to sell Units to you if you exercise your subscription rights (other than the subscription price). If you exercise your subscription rights through a custodian bank, broker, dealer or other nominee, you are responsible for paying any fees your nominee may charge you.
Subscription Agent	Broadridge Corporate Issuer Solutions, LLC
Information Agent	<p>You should direct any questions or requests for assistance concerning the method of subscribing for Units or for additional copies of this prospectus the information agent, Broadridge Corporate Issuer Solutions, LLC, toll free at 1-888-789-8409, by e-mail at shareholder@broadridge.com, or by mail at:</p> <p style="text-align: center;">Broadridge Corporate Issuer Solutions, LLC Attn: BCIS Re-Organization Dept. P.O. Box 1317 Brentwood, NY 11717-0718</p>
Risk Factors	Before investing in our Units, you should carefully read and consider the information set forth in “ <i>Risk Factors</i> ” beginning on page 18 and all other information appearing elsewhere and incorporated by reference in this prospectus.
No Going Private Transaction	The Rights Offering is not a transaction or series of transactions which has either a reasonable likelihood or a purpose of producing a “going private effect” as specified in Rule 13e-3 of the Exchange Act.
Important Dates to Remember	<p><u>Set forth below are certain important dates for this Rights Offering, which are generally subject to extension:</u></p> <p>Record Date: [●], 2024 Expiration Date: [●], 2024 Deadline for Delivery of Subscription Rights Statements and Payment for Units: [●], 2024 Anticipated Delivery of Units Purchased in Rights Offering: [●], 2024</p>

QUESTIONS AND ANSWERS RELATING TO THE RIGHTS OFFERING

The following are examples of what we anticipate will be common questions about the Rights Offering. The answers are based on selected information included elsewhere in this prospectus. The following questions and answers do not contain all of the information that may be important to you and may not address all of the questions that you may have about the Rights Offering. This prospectus and the documents incorporated by reference contain more detailed descriptions of the terms and conditions of the Rights Offering and provide additional information about us and about our business, including potential risks related to the Rights Offering, our common stock, and our business.

Exercising the subscription rights and investing in our securities involve a high degree of risk. We urge you to carefully read the section titled “Risk Factors” beginning on page 18 of this prospectus and all other information included in, or incorporated by reference into, this prospectus in its entirety before you decide whether to exercise your subscription rights.

Q: What is the Rights Offering?

A: We are distributing to you, at no charge, one non-transferable subscription right to purchase [●] Units at the Initial Price for each share of our common stock that you owned as of 5:00 p.m., Eastern Time, on [●], 2024, either as a holder of record or, in the case of shares held of record by custodian banks, brokers, dealers or other nominees on your behalf, as a beneficial owner of such shares.

Q: Why are we conducting the Rights Offering?

A: The purpose of this Rights Offering is to raise equity capital in a cost-effective manner that provides all of our existing stockholders the opportunity to participate. We anticipate using the net proceeds of the Rights Offering, if any, for general corporate purposes, including the Company’s commercial launch of its proprietary CellFX nsPFA Percutaneous Electrode System, its ongoing investment in current and future clinical studies evaluating the safety and efficacy of the Company’s CellFX nsPFA Cardiac Clamp and CellFX nsPFA 360° Cardiac Catheter for the treatment of atrial fibrillation, obtaining regulatory clearances for these CellFX Systems, and new product development activities. For a more detailed discussion, see “*Use of Proceeds*” beginning on page 20.

Q: What is a Unit?

A: Each Unit consists of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock (*provided*, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, but we will not sell fractional Units. The common stock and respective warrants comprising the Units will separate upon the closing of this Rights Offering and will be issued separately; however, they may only be purchased as a Unit and the Unit will not trade as a separate security.

Q: What are the terms of the warrants?

A: Each warrant entitles the holder to purchase one-half of one share of our common stock at an exercise price per whole share that shall be equal to 110% of the per-Unit subscription price. The exercise price must be paid in cash at the time of exercise and there is no “cashless” exercise provision for the warrants. Each warrant will be exercisable immediately upon completion of this rights offering and will expire on the fifth anniversary of the completion of this rights offering.

The respective warrants will be subject to redemption by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one such warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.

As set forth above, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share. For example, if you subscribe for 973 Units, you shall receive (i) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than thirty (30) days’ written notice, if the volume weighted average price of our common stock equals or exceeds 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.

The warrants will be adjusted to reflect any stock split, stock dividend or similar recapitalization with respect to the common stock.

Q: Are the warrants listed?

A: The warrants will not be listed for trading on the Nasdaq Stock Market or any other securities exchange or market. The warrants will be issued in registered form under a warrant agency agreement with Broadridge Corporate Issuer Solutions, LLC, as warrant agent.

Q: Will fractional shares be issued upon exercise of subscription rights or upon the exercise of warrants?

A: No. As we will not sell fractional Units, and each Unit is comprised of one share of common stock, we will not issue fractional shares of common stock in the Rights Offering.

Rights holders will only be entitled to purchase a whole number of Units, rounded down to the nearest whole number. Included within each such Unit subscription shall be a whole number of shares of common stock corresponding to the number of Units Purchased.

Each Unit shall also include two warrants, each being a warrant to purchase one-half of one share of our common stock, such that each Unit subscription shall include twice the number of warrants (each such warrant being a warrant to purchase one-half of one share of our common stock) as Units included within such subscription; *provided*, that the aggregate number of shares of our common stock that shall be issuable upon the exercise of each warrant included in a given subscription for Units shall be rounded up to the nearest whole share.

Any Excess Subscription Amount resulting from the reduction of the subscription price from the Initial Price to the Alternate Price will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full). The excess amount for any fractional Units will be returned to you as soon as practicable, in the form in which made. You will not receive interest or a deduction on any payments refunded to you under the Rights Offering. You will not receive a refund or other compensation for any unissued fractional warrants.

Q: How was the subscription price determined?

A: In determining the subscription price, our board of directors, with the advice and input of management and advisors, considered a number of factors, including: the likely cost of capital from other sources and general conditions of the securities markets, the price at which our stockholders might be willing to participate in the rights offering, historical and current trading prices for our common stock, our need for liquidity and capital, the value of the warrants being issued as a component of the Unit and the desire to provide an opportunity to our stockholders to participate in the Rights Offering on a pro rata basis. In conjunction with its review of these factors, our board of directors also reviewed a range of subscription prices in various prior rights offerings of public companies. The subscription price is not necessarily related to our book value, net worth or any other established criteria of value and may or may not be considered the fair value of the Units to be offered in the rights offering. You should not consider the subscription price as an indication of value of us or our common stock. The market price of our common stock may decline during or after the Rights Offering, including below the subscription price for the Units. You should obtain a current quote for our common stock before exercising your subscription rights and make your own assessment of our business and financial condition, our prospects for the future, and the terms of the Rights Offering.

Q: Why did our board of directors elect to price the Rights Offering at the lesser of the Initial Price and the Alternate Price?

A: The price of the Units is based on the market price of our common stock. Our board of directors elected to price the rights offering at the lesser of the Initial Price and the Alternate Price to attempt to protect stockholders from any decline in the price of the Company's common stock, which may occur after the commencement of the Rights Offering and prior to the Expiration Date. While there is no guarantee that this mechanism will sufficiently protect stockholders that exercise their rights (see "Risk Factors," below), our board of directors and management wanted to encourage participation in the Rights Offering and strike what they believe to be a fair balance between the capital needs of the Company and the fair value of the Units sold to the stockholders in this offering.

Q: Because the final subscription price may not be determined until the Expiration Date, how much money should I send to the subscription agent if I want to exercise my rights?

A: For purposes of initially exercising your rights, you should assume that the subscription price will equal the Initial Price of \$10.00 per Unit. Accordingly, for each right that you would like to exercise, including any rights that you would like the opportunity to exercise pursuant to the over-subscription right, you should send \$10.00 per Unit, noting that each subscription right corresponds to [●] Units at the Initial Price. For assistance you may contact the information agent, Broadridge Corporate Issuer Solutions, LLC, toll free at 1-888-789-8409 or by e-mail at shareholder@broadridge.com.

Q: What happens if the final subscription price is less than the Initial Price?

A: If, on the Expiration Date, the Alternate Price is lower than the Initial Price, any Excess Subscription Amounts will be put towards the purchase of additional Units. For example, assume that the initial subscription price is \$10.00 per Unit, with each Unit consisting of 1 share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock. If you want to exercise your rights to purchase 100 Units, you will promptly send payment to the subscription agent in the amount of \$1,000. If the final subscription price remains at \$10.00 per Unit, you will receive 100 Units, consisting of 100 shares of common stock and warrants to purchase an aggregate of 100 shares of common stock. If the final subscription price decreases to \$9.00 per Unit, you will receive 111 Units rather than 100 Units, consisting of 111 shares of common stock and warrants to purchase an aggregate of 111 shares of common stock, and you will receive \$1.00 back. The excess amount for any fractional Units will be returned to you as soon as practicable, in the form in which made. You will not receive interest or a deduction on any payments refunded to you under the Rights Offering. You will not receive a refund or other compensation for any unissued fractional warrants. Detailed instructions to exercise your rights, including regarding payment of the subscription price, are also included on your rights certificate. For assistance you may contact the information agent, Broadridge Corporate Issuer Solutions, LLC, toll free at 1-888-789-8409 or by e-mail at shareholder@broadridge.com.

Q: What is the basic subscription right?

A: Each subscription right gives our stockholders the right to purchase [●] Units at the Initial Price, each Unit consisting of one share of our common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock, which shall be payable in cash and subject to the limits described below. To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units. We have granted to you, as a stockholder of record as of 5:00 p.m., Eastern Time, on the Record Date, one subscription right for each share of our common stock you owned at that time. For example, if you owned 100 shares of our common stock as of 5:00 p.m., Eastern Time, on the Record Date, you would have received 100 subscription rights corresponding to [●] Units at the Initial Price, and the Units would altogether consist of [●] shares of common stock and warrants to purchase an aggregate of [●] shares of common stock, subject to certain limitations. You may exercise all or a portion of your basic subscription rights or you may choose not to exercise any subscription rights at all. However, if you exercise fewer than all of your basic subscription rights, you will not be entitled to purchase any additional Units pursuant to the over-subscription right.

Q: What is the over-subscription right?

A: We do not expect all of our stockholders to exercise all of their basic subscription rights. The over-subscription right provides stockholders that exercise all of their basic subscription rights the opportunity to purchase the Units that are not purchased by other stockholders. If you fully exercise your basic subscription right, the over-subscription right of each right entitles you to subscribe for additional Units unclaimed by other holders of rights in this Rights Offering at the same subscription price per Unit. If an insufficient number of Units is available to fully satisfy all over-subscription right requests, the available Units will be distributed proportionately among rights holders who exercise their over-subscription right based on the number of Units each rights holder subscribed for under the basic subscription right. The proration process will be repeated until all Units have been allocated or all over-subscription exercises have been fulfilled, whichever occurs earlier.

In order to properly exercise your over-subscription right, you must deliver the subscription payment for exercise of your over-subscription right before the expiration of the Rights Offering. Because we will not know the total number of unsubscribed Units before the expiration of the Rights Offering, if you wish to maximize the number of Units you purchase pursuant to your over-subscription right, you will need to deliver payment in an amount equal to the aggregate subscription price for the maximum number of Units available, assuming that no stockholder other than you has purchased any Units pursuant to such stockholder's basic subscription right and over-subscription right. Any excess subscription payments received by the subscription agent caused by proration will be returned by the subscription agent to you by mail, without interest or penalty, as soon as practicable after the Expiration Date of the Rights Offering. The subscription agent will return any excess payments in the form in which it was made. Any Excess Subscription Amount resulting from the reduction of the subscription price from the Initial Price to the Alternate Price will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full). See "The Rights Offering — Subscription Rights — Over-Subscription Rights" beginning on page 26.

Q: Who will receive subscription rights?

A: Holders of our common stock will receive one non-transferable subscription right for each share of common stock owned as of [●], 2024, the Record Date.

Q: How many Units may I purchase if I exercise my subscription rights?

A: You will receive one non-transferable subscription right for each share of our common stock that you owned on [●], 2024, the Record Date. Each subscription right evidences a right to purchase [●] Units at the Initial Price, which shall be paid in cash. To the extent that the Alternate Price is lower than the Initial price, we will sell additional Units. You may exercise any number of your subscription rights.

Q: Am I required to subscribe in the rights offering?

A: No

Q: What happens if I choose not to exercise my subscription rights?

A: If you choose not to exercise your subscription rights, you will retain your current number of shares of common stock of Pulse Biosciences. If other stockholders fully exercise their subscription rights or exercise a greater proportion of their subscription rights than you exercise, the percentage of our common stock owned by these other stockholders will increase relative to your ownership percentage, and your voting and other rights in the Company will likewise be diluted. Further, the shares issuable upon the exercise of the warrants to be issued pursuant to the rights offering will dilute the ownership interest of stockholders not participating in this Rights Offering or holders of warrants who have not exercised them.

Q: Am I required to exercise all of the subscription rights I receive in the Rights Offering?

A: No. You may exercise any number of your subscription rights, or you may choose not to exercise any subscription rights. If you do not exercise any subscription rights, the number of shares of our common stock you own will not change; however, you will own a smaller proportional interest in us than if you had timely exercised all or a portion of your subscription rights. If you choose not to exercise your subscription rights or you exercise fewer than all of your subscription rights and other stockholders fully exercise their subscription rights or exercise a greater proportion of their subscription rights than you exercise, the percentage of our common stock owned by these other stockholders will increase relative to your ownership percentage, and your voting and other rights in us will likewise be diluted. In addition, if you do not exercise your basic subscription right in full, you will not be entitled to participate in the over-subscription right.

Q: If I am a holder of stock options or warrants, may I participate in the Rights Offering?

A: No. Holders of outstanding stock options or warrants on the Record Date will not be entitled to participate in the Rights Offering, except to the extent they hold shares of our common stock on the Record Date.

Q: Will the equity awards of our employees, officers and directors automatically convert into common stock in connection with the Rights Offering?

A: No, equity awards will not automatically convert into common stock. Holders of our equity awards, including outstanding stock options and restricted stock units, will not receive rights in the Rights Offering in connection with such equity awards, but will receive subscription rights in connection with any shares of our common stock held as of the Record Date.

Q: How soon must I act to exercise my subscription rights?

A: If you received a rights certificate and elect to exercise any or all your subscription rights, the subscription agent must receive your completed and signed rights certificate and payment (and your payment must clear) prior to the expiration of the Rights Offering, which is [●], 2024, at 5:00 p.m., Eastern Time. If you hold your shares in the name of a custodian bank, broker, dealer or other nominee, your nominee may establish a deadline prior to 5:00 p.m., Eastern Time, on [●], 2024 by which you must provide it with your instructions to exercise your subscription rights and payment for your Units. Our board of directors may, in its discretion, extend the Rights Offering one or more times. Our board of directors may cancel or amend the Rights Offering at any time before its expiration. In the event that the Rights Offering is cancelled, all subscription payments received will be returned promptly, without interest or penalty.

Q: Does Pulse Biosciences need to achieve a minimum participation level in order to complete the Rights Offering?

A: No. We may choose to consummate, amend, extend or terminate the Rights Offering regardless of the number of Units actually purchased.

Q: Can Pulse Biosciences terminate the Rights Offering?

A: Yes. Our board of directors may decide to terminate the Rights Offering at any time prior to the expiration of the Rights Offering, for any reason. If we cancel the Rights Offering, any money received from subscribing stockholders will be refunded as soon as practicable, without interest or a deduction on any payments refunded to you under the Rights Offering. See “*The Rights Offering — Expiration of the Rights Offering and Extensions, Amendments and Termination*” beginning on page 26.

Q: May I transfer my subscription rights if I do not want to purchase any Units?

A: No. Should you choose not to exercise your rights, you may not sell, give away or otherwise transfer your rights. However, rights will be transferable as required by operation of law, for example, upon the death of the recipient.

Q: When will the Rights Offering expire?

A: The subscription rights will expire and will have no value, if not exercised prior thereto, at 5:00 p.m., Eastern Time, on [●], 2024, unless we decide to extend the Rights Offering until some later time or terminate it earlier. See “*The Rights Offering — Expiration of the Rights Offering and Extensions, Amendments and Termination*” beginning on page 26. The subscription agent must actually receive all required documents and payments in cash, as provide herein, before the Expiration Date. There is no maximum duration for the Rights Offering.

Q: Is there a guaranteed delivery period?

A: No. There is no guaranteed delivery period in connection with this Rights Offering, so you must ensure that you properly complete all required steps prior to 5:00 p.m., Eastern Time, on [●], 2024, unless we decide to extend the Rights Offering until some later time or terminate it earlier.

Q: How do I exercise my subscription rights if I own shares in certificate form?

A: You may exercise your subscription rights by properly completing and executing your rights certificate and delivering it, together in full with the subscription price for each Unit you subscribe for, to the subscription agent on or prior to the Expiration Date. If you use mail, we recommend that you use insured, registered mail, return receipt requested.

If you send a payment that is insufficient to purchase the number of Units you requested, or if the number of Units you requested is not specified in the forms, the payment received will be applied to exercise your subscription rights to the fullest extent possible based on the amount of the payment received, subject to the availability of Units in the rights offering and the elimination of fractional shares. Any excess subscription payments received by the subscription agent will be returned promptly, without interest, following the expiration of the Rights Offering.

Q: What form of payment is required to purchase Units?

A: As described in the instructions accompanying the rights certificate, you must timely pay the full subscription price for the full number of Units you wish to acquire under your subscription rights at the Initial Price by delivering to Broadridge Corporate Issuer Solutions, LLC, the subscription agent for this Rights Offering, a certified check, bank draft, cashier's check, personal check that clears before the Expiration Date, money order, or wire transfer of funds.

Please note that funds paid by uncertified personal check may take at least five (5) business days to clear. Accordingly, if you wish to pay by means of an uncertified personal check, we urge you to make payment sufficiently in advance of the Expiration Date to ensure that the subscription agent receives cleared funds before that time.

Q: What should I do if I want to participate in the Rights Offering but my shares are held in the name of my custodian bank, broker, dealer or other nominee?

A: If you hold our common stock through a custodian bank, broker, dealer or other nominee, we will ask your custodian bank, broker, dealer or other nominee to notify you of the Rights Offering. If you wish to exercise your rights, you will need to have your custodian bank, broker, dealer or other nominee act for you. To indicate your decision, you should complete and return to your custodian bank, broker, dealer or other nominee the form entitled “Beneficial Owner Election Form” substantially in the form accompanying this prospectus. You should receive this form from your custodian bank, broker, dealer or other nominee with the other rights offering materials. You should contact your custodian bank, broker, dealer or other nominee if you believe you are entitled to participate in the Rights Offering but you have not received this form.

Q: What should I do if I want to participate in the Rights Offering, but I am a stockholder with a foreign address or a stockholder with an Army Post Office or Fleet Post Office address?

A: The subscription agent will not mail rights certificates to you if you are a stockholder whose address is outside the United States or if you have an Army Post Office or a Fleet Post Office address. To exercise your rights, you must notify the subscription agent prior to 11:00 a.m., Eastern Time, at least three (3) business days prior to the Expiration Date and establish to the satisfaction of the subscription agent that it is permitted to exercise your subscription rights under applicable law. If you do not follow these procedures by such time, your rights will expire and will have no value.

Q: Are there any conditions to my right to exercise my subscription rights?

A: Yes. We may terminate the Rights Offering, in whole or in part, if at any time before completion of the Rights Offering there is any judgment, order, decree, injunction, statute, law or regulation entered, enacted, amended or held to be applicable to the rights offering that in the sole judgment of our board of directors would or might make the Rights Offering or its completion, whether in whole or in part, illegal or otherwise restrict or prohibit completion of the rights offering. See “*The Rights Offering — Conditions to the Rights Offering*” beginning on page 27.

Q: Has the board of directors made a recommendation regarding the Rights Offering?

A: Neither the Company, nor our board of directors is making any recommendation as to whether or not you should exercise your subscription rights. You are urged to make your decision based on your own assessment of the Rights Offering, after considering all of the information herein, including the “*Risk Factors*” beginning on page 18 of this prospectus, and of your best interests.

Q: Have any directors, officers, and/or stockholders agreed to exercise their rights?

A: All holders of our common stock as of the Record Date for the Rights Offering will receive, at no charge, the non-transferable subscription rights to purchase Units as described in this prospectus. To the extent that our directors and officers held shares of our common stock (including shares of restricted common stock) as of the Record Date, they will receive the subscription rights and, while they are under no obligation to do so, will be entitled to participate in the Rights Offering.

Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, but he has not indicated at what level nor has he made any formal binding commitment to do so.

Q: May stockholders in all states participate in the Rights Offering?

A: Although we intend to distribute the rights to all stockholders, we reserve the right in some states to require stockholders, if they wish to participate, to state and agree upon exercise of their respective rights that they are acquiring the securities for investment purposes only, and that they have no present intention to resell or transfer any securities acquired. Our securities are not being offered in any jurisdiction where the offer is not permitted under applicable local laws.

Q: Are there risks in exercising my subscription rights?

A: The exercise of your subscription rights involves significant risks. Exercising your rights means buying our Units, which consist of additional shares of our common stock and warrants exercisable in cash for additional shares of our common stock, and should be considered as carefully as you would consider any other equity investment. Among other things, you should carefully consider the risks described under the heading “*Risk Factors*” beginning on page 18.

Q: How many shares of our common stock will be outstanding after the Rights Offering?

A: The number of shares of our common stock that will be outstanding after the Rights Offering will depend on the number of Units that are purchased in the Rights Offering. Assuming no additional shares of common stock are issued by us prior to consummation of the Rights Offering and assuming all offered Units are sold in the Rights Offering at the Initial Price, we will issue 6,000,000 shares of common stock. In that case, we will have approximately 61,225,333 shares of common stock outstanding after the Rights Offering. This would represent an increase of approximately 10.9% in the number of outstanding shares of common stock. We would also issue warrants to purchase an additional 6,000,000 shares of our common stock. To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, each consisting of one share of common stock and two warrants, each being a warrant to purchase one-half of one share of our common stock in the Rights Offering, and the number of shares of common stock and warrants to purchase common stock outstanding after the Rights Offering will accordingly be higher.

The issuance of shares of our common stock and warrants in the Rights Offering will dilute, and thereby reduce, your proportionate ownership in our shares of common stock, unless you fully exercise your basic subscription rights. In addition, the issuance of our Units at a subscription price that is less than the market price as of the Record Date for the Rights Offering will likely reduce the price per share of our common stock held by you prior to the Rights Offering.

Q: What will be the proceeds of the Rights Offering?

A: If all rights are exercised, we will receive gross proceeds of approximately \$60 million before expenses (excluding the proceeds from any warrants which may be exercised following the completion of the Rights Offering), as provided herein. We are offering Units in the Rights Offering with no minimum purchase requirement. As a result, there is no assurance we will be able to sell all or any of the Units being offered, and it is not likely that all of our stockholders will participate in the Rights Offering.

Furthermore, if all of the rights are exercised, the warrants issued in this Rights Offering would be exercisable for an aggregate of \$66 million. However, no assurance can be given that any warrants will be exercised.

Q: After I exercise my rights, can I change my mind and cancel my purchase?

A: No. Once you exercise and send in your subscription rights certificate and subscription payment, as provided herein, you cannot revoke the exercise of your subscription rights, even if you later learn information about Pulse Biosciences that you consider to be unfavorable. You should not exercise your subscription rights unless you are certain that you wish to purchase Units at the Initial Price. See “*The Rights Offering — No Revocation or Change*” beginning on page 30.

Q: What are the material U.S. Federal income tax consequences of exercising my subscription rights?

A: Although the authorities governing transactions such as this Rights Offering are complex and unclear in certain respects, we believe and intend to take the position that the distribution of subscription rights to a holder with respect to such holder’s shares of common stock should generally be treated, for U.S. federal income tax purposes, as a non-taxable distribution. For a detailed discussion, see “*Material U.S. Federal Income Tax Consequences*” beginning on page 31. You should consult your tax advisor as to the particular consequences to you of the Rights Offering.

Q: If the Rights Offering is not completed, for any reason, will my subscription payment be refunded to me?

A: Yes. The subscription agent will hold all funds it receives in a segregated bank account until the Rights Offering is completed. If the Rights Offering is not completed, for any reason, any money received from subscribing stockholders will be refunded in the form which paid as soon as practicable, without interest or deduction. If your shares are held in the name of a custodian bank, broker, dealer or other nominee, it may take longer for you to receive the refund of your subscription payment than if you were a record holder of your shares because the subscription agent will return payments through the record holder of your shares.

Q: Will I receive interest on any funds I deposit with the subscription agent?

A: No. You will not be entitled to any interest on any funds that are deposited with the subscription agent pending completion or cancellation of the Rights Offering. If the Rights Offering is cancelled for any reason, the subscription agent will return this money to subscribers, without interest or penalty, as soon as practicable.

Q: If I exercise my subscription rights, when will I receive my shares of common stock and warrants that I purchased in the Rights Offering?

A: We will issue the shares of common stock and warrants included in the Units purchased in the Rights Offering to you in book-entry, or uncertificated, form of our common stock purchased in the Rights Offering as soon as practicable after the expiration of the Rights Offering and after all pro rata allocations and adjustments have been completed. We will not be able to calculate the number of shares and warrants to be issued to each exercising holder until after the Expiration Date of the Rights Offering.

Q: When can I sell the shares of common stock and warrants I receive in the Rights Offering?

A: If you exercise your subscription rights and receive common stock included in the Units purchased in the Rights Offering, you will be able to resell the shares of common stock once your account has been credited with those shares, provided you are not otherwise restricted from selling the shares (for example, because you are an insider or affiliate of the Company or because you possess material nonpublic information about the Company). Although we will endeavor to issue the shares and warrants as soon as practicable after completion of the Rights Offering, there may be a delay between the Expiration Date of the Rights Offering and the time that the shares and warrants are issued due to factors such as the time required to complete all necessary calculations. In addition, we cannot assure you that, following the exercise of your subscription rights, you will be able to sell the shares purchased in the Rights Offering at a price equal to or greater than the subscription price. The warrants issued in the Rights Offering will not be listed on any securities exchange or other trading market. We cannot assure you that you will be able to sell or otherwise transfer the warrants.

Q: To whom should I send my forms and payment?

A: If your shares are held in the name of a custodian bank, broker, dealer or other nominee, the nominee will notify you of the rights offering and provide you with the Rights Offering materials, including a form entitled “Beneficial Owners Election Form.” You should send the Beneficial Owner Election Form and payment, as provided therein, to the nominee, at the deadline that your nominee sets which may be earlier than the expiration of the rights offering. You should contact your custodian bank, broker, dealer or other nominee if you believe you are entitled to participate in the Rights Offering but you have not received this form.

If your shares are held in your name such that you are the record holder, then you should send your subscription documents, rights certificate and subscription payment, as provided herein, by first class mail or courier service to Broadridge Corporate Issuer Solutions, LLC, the subscription agent. The address for delivery to the subscription agent is as follows:

By Mail:

*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS Re-Organization Dept.
P.O. Box 1317
Brentwood, NY 11717-0718*

By Overnight Delivery:

*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS IWS
51 Mercedes Way
Edgewood, NY 11717*

Your delivery to a different address or other than by the methods set forth above will not constitute valid delivery. You, or, if applicable, your nominee, are solely responsible for ensuring the subscription agent receives your subscription documents, rights certificate, and subscription payment. You should allow sufficient time for delivery of your subscription materials to the subscription agent and clearance of payment before the expiration of the Rights Offering period.

Q: Will this Rights Offering result in the Company “going private” for purposes of Rule 13e-3 of the Exchange Act?

A: No. The Rights Offering is not a transaction or series of transactions which has either a reasonable likelihood or a purpose or producing a “going private effect” as specified in Rule 13e-3 of the Exchange Act. Given the structure of the Rights Offering, as described in this prospectus, Pulse Biosciences will continue to be registered pursuant to Section 12 of the Exchange Act and intends to remain listed on the Nasdaq Capital Market following completion of the Rights Offering.

Q: What if I have other questions?

A: If you have other questions about the Rights Offering, please contact our information agent, Broadridge Corporate Issuer Solutions, LLC, toll free at 1-888-789-8409, by e-mail at shareholder@broadridge.com, or by mail at:

Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS Re-Organization Dept.
P.O. Box 1317
Brentwood, NY 11717-0718

PROSPECTUS SUMMARY

This summary highlights certain information about us and selected information contained in the prospectus. This summary is not complete and does not contain all of the information that may be important to you. For a more complete understanding of the Company, we encourage you to read and consider the more detailed information included or incorporated by reference in this prospectus and our most recent consolidated financial statements and related notes.

Overview

Pulse Biosciences, Inc. is a novel bioelectric medicine company committed to health innovation using its patented Nano-Pulse Stimulation (“NPS”) technology, a revolutionary energy modality that delivers nanosecond-duration pulses of electrical energy, each less than a millionth of a second long, to non-thermally clear targeted cells while sparing adjacent noncellular tissue. NPS technology, also referred to as Nanosecond Pulsed-Field Ablation (“nsPFA”) technology when used to ablate cellular tissue, can be used to treat a variety of medical conditions for which an optimal solution remains unfulfilled. The Company developed its proprietary CellFX System, a novel nsPFA delivery platform, and commercialized the initial application of its nsPFA technology to treat benign lesions of the skin. In parallel, the Company has designed a variety of applicators, or end-effectors, to explore the potential use of the CellFX platform to treat disorders in other medical specialties, such as cardiology, gastroenterology, gynecology, and ear, nose and throat. These applicators include devices for open surgical procedures, endoscopic or minimally invasive procedures, and endoluminal catheters, and each has been used in preclinical studies. Based on our preclinical experience and the potential to significantly improve outcomes for patients in a large and growing market, the Company decided in 2022 to focus its primary efforts on the use of nsPFA energy and the CellFX platform in the treatment of atrial fibrillation (“AF”).

Our Cardiac Program

AF is a type of heart arrhythmia, or irregular heartbeat, caused by faulty electrical signals in the heart. AF is a highly prevalent condition and is growing significantly with an ageing population. It is estimated that 43 million people worldwide are affected by AF. Treatment requires the precise and safe ablation of heart tissue to block or otherwise prevent these faulty electrical signals from causing the irregular heartbeat, and we believe nsPFA technology is uniquely suited to perform an integral role for this application and that it will prove to be highly differentiated from standard thermal energy modalities in use today. The Company has developed a cardiac ablation clamp for use in cardiac surgery and a cardiac ablation catheter for use in electrophysiology. In December 2023, we initiated a clinical study in Prague to test our CellFX nsPFA 360° Cardiac Catheter in patients with AF and early acute data and remapping data from this study have been promising. More recently, we have taken steps to initiate a clinical study of our CellFX nsPFA Cardiac Clamp in the Netherlands and, in January 2024, we filed a premarket notification 510(k) with the U.S. Food and Drug Administration (the “FDA”) for clearance to commercialize our novel CellFX nsPFA Cardiac Clamp in the United States. In parallel, we have taken initial steps towards a CE mark approval in Europe for the cardiac clamp. The results of preclinical testing of both products have exceeded our expectations and much of the data have been published or presented at physician or industry conferences. While these devices serve different physicians, the application of the energy to safely and effectively ablate cardiac tissue and the treatment of AF are the same, and we believe there will be important synergies realized through their contemporaneous development. The Company’s cardiac ablation clamp and cardiac ablation catheter both use the CellFX System to generate our proprietary pulses of electrical energy.

CellFX nsPFA Cardiac Clamp

Our surgical cardiac ablation clamp is designed for use by cardiac surgeons during the surgical treatment of AF. The standard of care surgical procedure for the treatment of AF is performed by cardiac surgeons and called the Cox-Maze procedure. The Cox-Maze procedure typically uses thermal ablation technologies, such as heat with radiofrequency ablation or cold with cryoablation, to create specific ablation lines in the heart muscle. The ablation lines block the conduction of electrical impulses and can cure the patient of their atrial fibrillation.

We believe our CellFX nsPFA technology can provide important advantages over today’s thermal modalities in creating these ablation lines. For example, surgeons using the CellFX System should be able to deliver faster ablations through thicker tissue than thermal modalities because of the nonthermal mechanism of action that nsPFA employs, which is not affected by heatsinks such as the blood in the heart. In preclinical studies, our CellFX nsPFA Cardiac Clamp has consistently achieved transmural ablations in 1.25 seconds, independent of tissue type or thickness. Moreover, thermal modalities are also known to have problems with char formation on electrode surfaces which can cause gaps in the ablation lines leading to treatment failure and require the char to be scraped off by the surgeon during the procedure. Again, this should not be an issue with CellFX nsPFA ablation given its nonthermal nature. Also, because nsPFA ablation does not impact acellular tissue, such as collagen or cartilage, our technology has the potential to offer significant safety advantages over thermal modalities by allowing surgeons to ablate near and into vessels and valves without concern of permanent damage. And finally, nsPFA ablation has been shown to spare nerves of any permanent damage, even when treated directly, which is another concern for thermal modalities. We believe these advantages will be important to cardiac surgeons, so we are working with leaders in the field to develop this technology quickly. In May 2023, we appointed Dr. Gan Dunnington as our Chief Medical Officer, Cardiac Surgery. Dr. Dunnington is a cardiothoracic surgeon and the Director of Cardiothoracic Surgery at St. Helena Hospital (Napa Valley). He specializes in minimally invasive complex cardiothoracic procedures for the treatment of AF. And, in October 2023, we appointed Dr. Niv Ad as our Chief Science Officer, Cardiac Surgery. Dr. Ad specializes in the surgical treatment of atrial fibrillation, minimally invasive heart surgery and other advanced heart surgery techniques and transcatheter therapies.

Over the last several years, we have been developing the cardiac ablation clamp from proof-of-concept to prototype, and we now have what we believe is our initial commercial design. The device was designed with the input of key physicians in cardiac surgery, and we believe it will offer a highly differentiated option relative to the standard of care thermal modalities. Since 2023, we have been meeting with the U.S. Food and Drug Administration (the “FDA”) to discuss the regulatory requirements for a potential 510(k) clearance or other approval to market our cardiac clamp in the United States. These meetings were done as part of the FDA’s standard Q-submission (or pre-submission) process. In 2023, with guidance from the FDA, we completed a preclinical study, known as a Good Laboratory Practices or “GLP” study and, in January 2024, we filed a premarket notification 510(k) with the FDA for our novel CellFX nsPFA Cardiac Clamp.

CellFX nsPFA 360° Cardiac Catheter

We believe our cardiac catheter ablation device will have many of the same advantages that the cardiac ablation clamp has relative to both performance and safety compared to standard thermal modalities. Our catheter is uniquely designed to provide a circumferential, or circular, ablation in a single treatment cycle. We believe this will enable faster treatment times compared to what is currently performed with thermal modalities, especially when ablating around the pulmonary veins, a common treatment approach for AF.

In recent years, Pulsed Field Ablation (“PFA”) has gained attention in electrophysiology for the treatment of AF because of its safety profile and potential to improve efficacy. PFA differs from CellFX nsPFA technology in that the pulse widths are longer, typically in the 10’s to 100’s of microseconds. We believe CellFX nsPFA can offer similar safety advantages as PFA and may provide improved efficacy advantages based on the circumferential design of our catheter and the potential that CellFX nsPFA technology can create deeper ablations. Another potential advantage of nsPFA ablation is a much shorter pulse duration which appears to stimulate less muscle contraction than does millisecond or microsecond PFA.

Similar to the cardiac ablation clamp, our proprietary catheter has been in development for several years and we have been working with leaders in the electrophysiology field to test the catheter in preclinical studies. We believe the design we have now will be suitable to pursue a first-in-human clinical safety study. In December 2023, we initiated a clinical study in Prague to test our CellFX nsPFA 360° Cardiac Catheter in patients with AF and early acute data and remapping data from this study have been promising. In the United States, we believe the catheter will need to go through the FDA’s Pre-Market Approval (“PMA”) process for FDA approval to market and sell our cardiac catheter in the United States.

CellFX nsPFA Percutaneous Electrode System

Since early 2023, we have made tremendous progress in our percutaneous electrode program. After years of pre-clinical development and testing, as a supplemental point of validation of the Company’s engineering capabilities, and to demonstrate our technology’s unique mechanism of action on internal organs, in June 2023 we initiated a first-in-human study using a novel and proprietary nsPFA-enabled surgical end-effector, our percutaneous electrode. This study is being conducted by Professor Stefano Spiezia at the Ospedale del Mare in Naples, Italy, to help us better understand and confirm the mechanism of action and tissue response of nsPFA energy in internal organs as we advance into human cardiac tissue. Initially, ten subjects were treated and evaluated in the study. All of the initial patients in the study tolerated the procedure well with no reported pain or serious side effects. Ultrasound imaging 90 days post procedure showed that the treated portions of the nodules had been completely resorbed with no sign of scarring or fibrosis, which can be a side effect of other ablation modalities. Based on these positive initial results, in November 2023, we amended the thyroid study protocol to expand enrollment to focus on optimizing treatment parameters.

In parallel, in November 2023, we filed a premarket notification 510(k) with the FDA for clearance to commercialize our novel CellFX nsPFA Percutaneous Electrode System in the United States. In March 2024, the Company received FDA 510(k) clearance for its CellFX nsPFA Percutaneous Electrode System for use in the ablation of soft tissue in percutaneous and intraoperative surgical procedures.

Having secured regulatory approval to market and sell the CellFX nsPFA Percutaneous Electrode System in the United States, we have initiated a limited market release, targeting a handful of select accounts.

The CellFX Console

The CellFX Console is a tunable, software-enabled, console-based platform, designed to accommodate the clinical workflow preferred by physicians. The CellFX System is configured to accept a variety of handpieces or electrodes across a range of clinical applications. In February 2021, the Company received 510(k) clearance from the FDA for the CellFX System for dermatologic procedures requiring ablation and resurfacing of the skin. In January 2021, the Company received Conformité Européenne (“CE”) marking approval for the CellFX System, which allows for marketing of the system in the European Union (“EU”). Shortly after these regulatory clearances the Company began commercializing the CellFX System in dermatology for the treatment of benign skin lesions. However, in September 2022, the Company announced a shift in its focus from dermatology to cardiology and the treatment of AF. The Company has ceased all commercial sales and marketing operations in dermatology. At the present time, we continue to support our remaining commercial users and remain open to a potential commercial partnership. The CellFX System is being used for our current efforts in the treatment of AF and as part of the CellFX nsPFA Percutaneous Electrode System.

We continue to believe nsPFA ablation and NPS technology more broadly has the potential to provide superior outcomes across a variety of medical disciplines and we may seek partnership opportunities to develop additional applications.

Intellectual Property

We maintain a portfolio of intellectual property surrounding our CellFX System and our NPS technology platform. As a medical technology company, our current patents and ongoing intellectual property development are, and will continue to be, a priority for our business. We believe our intellectual property is an important competitive advantage for us. We also rely on trade secrets, know-how, continuing technological innovations, and licensing opportunities to further develop, maintain, and strengthen our competitive position. We actively protect our intellectual property through a combination of patent registrations, trademarks, and copyright protections; confidentiality agreements with our employees, consultants, and other parties; and access control to sensitive information.

Today, on a worldwide basis, we own 197 issued patents and pending patent applications, and we have an exclusive license to 69 additional issued patents and pending patent applications. The vast majority of our granted patents have an expiration date between 2035 and 2042. As in the past, we plan to continue to file new patent applications to protect our systems, algorithms, applicators, methods, and designs of our technologies and products as they evolve. Medical technologies such as ours may be utilized in many different applications and incorporate several patentable features, and our strategy will be to always strive to protect our products and technologies with multiple patents directed to the variety of features and applications, in order to establish a strong and useful patent portfolio against competitors, such that an expiration of a single patent should not lessen our overall comprehensive coverage and competitive advantage. We believe our NPS platform and CellFX System are protected by several issued patents, as well as pending applications.

Employees and Human Capital

As of December 31, 2023, we had 56 employees, of which substantially all were located at our headquarters in Hayward, California. Of these employees, half were engaged in research and development activities and half were engaged in operations, marketing, business development, and general and administrative activities.

Talent Acquisition and Development. We are committed to providing a respectful work environment to our diverse workforce. We provide equal employment opportunities to all persons regardless of race, age, color, gender, sexual orientation, national origin, physical or mental disability, religion, or any other characteristic protected by federal, state, or local law.

We believe our employees are essential to our success and our ability to attract, develop, and retain key talent is a vital part of that. Our philosophy is to both develop talent from within and to strategically recruit key external talent. Our overall talent acquisition and retention strategy is designed to attract and retain diverse and qualified candidates to enable the success of the Company and achievement of our performance goals. The skills, experience and industry knowledge of key employees significantly benefit our operations and performance.

Compensation and Benefits Program. Our compensation program is designed to attract, motivate, and retain talented individuals who possess the skills necessary to support our business and contribute to our strategic goals, creating long-term value for our stockholders. We provide employees with competitive compensation packages that include base salary, annual incentive bonuses, 401(k), and equity awards tied to the value of our stock price. Our comprehensive benefits package also includes medical, dental, vision, life and disability plans, and an employee assistance program.

Wellness and Safety. The health and safety of our employees is of utmost importance to us. We currently operate under a hybrid model of onsite and remote work with our technical teams being mostly back onsite on a full-time basis. We have policies and guidelines which are designed to protect the safety of our employees.

Competition

The applications we intend to target are subject to intense competition from rapidly evolving companies and new scientific discoveries. We compete against well-established incumbent technologies offering products in cardiology, oncology, and dermatology, as well as in minimally invasive procedures. For example, Abbott Laboratories, AtriCure, Inc., Boston Scientific Corporation, Johnson & Johnson (Biosense Webster), Medtronic plc, and several other companies all sell ablation-based surgical and catheter-based medical devices for the treatment of heart arrhythmias, including AF, and additionally, many of these companies are also actively developing PFA products for the treatment of AF. All of these companies currently have greater financial, technical, research, and/or other resources than we do and have larger and more established manufacturing capabilities and marketing, sales, and support functions. Our future success will depend on our ability to establish and maintain a competitive position in current and future technologies. Our technology is unique and differentiated in that NPS technology can influence many cellular functions depending on the energy applied. When it is used to stimulate primarily regulated cell death, such as through nsPFA ablation, we believe it will be less traumatic to treated tissue and result in less scarring or collateral damage to surrounding tissues, which we feel will give us a competitive advantage over these more established companies despite formidable competition.

Government Regulation

The CellFX System is a medical device subject to extensive and ongoing regulation by the FDA under the Federal Food, Drug, and Cosmetic Act and its implementing regulations, as well as other federal and state regulatory bodies in the United States. The laws and regulations govern, among other things, product design and development, preclinical and clinical testing, manufacturing, packaging, labeling, storage, recordkeeping and reporting, clearance or approval, marketing, distribution, promotion, import and export, and post-marketing surveillance.

The FDA regulates the medical device market to ensure the safety and efficacy of these products. For medical devices that require pre-market review, the FDA allows for three clearance/approval pathways for a medical device to be commercialized: approval via a Pre-market Approval Application (“PMA”), clearance of a 510(k) submission, or submission of a de novo application. The FDA has established three different classes of medical devices, based on the level of risk associated with using a device and consequent degree of regulatory controls needed to govern its safety and efficacy, as well as the appropriate clearance/approval pathway needed to obtain authorization to legally market a medical device in the United States.

Class I and Class II devices are considered low and moderate risk devices. Most Class I devices are exempt from premarket notification. Most Class II devices require 510(k) clearance from the FDA in order to be marketed in the U.S. A 510(k) Premarket Notification is a premarket submission made to the FDA to demonstrate that the device to be marketed is substantially equivalent to a legally marketed Class II device, *i.e.*, a predicate device. Companies making a 510(k) submission must compare their 510(k)-candidate device to a predicate device and establish substantial equivalence to the satisfaction of FDA. A device previously cleared under 510(k) or a device approved through a de novo application can be used as a predicate device for later developed substantially equivalent medical devices. However, establishing substantial equivalence in a 510(k) submission requires the candidate device to have the same intended use and the same technological characteristics as a predicate device. The FDA has a 90-calendar day review goal from the date of receipt of the 510(k) to either authorize or decline commercial distribution of the device, but clearance generally takes longer than 90 days. During the review process, the FDA may also request additional information which extends the review process. If the FDA decides that the product is not substantially equivalent to a predicate device, a clearance will not be granted, and the device cannot be commercialized. If a 510(k) submission is rejected by FDA, the applicant may be required to seek premarket authorization through the de novo pathway or the premarket approval pathway, which are more costly and will generally take longer for FDA approval.

Medical devices regarded as the highest risk by the FDA are typically designated Class III and generally require the submission of a PMA application for approval. Class III devices generally include life-sustaining, life-supporting, or implantable devices or devices without a known predicate technology already approved by the FDA. A PMA application must be accompanied by substantial data that supports the reasonable safety and efficacy of the device, which includes the provision of preclinical, clinical, technical, manufacturing, and labeling information. After the FDA determines the application is sufficiently complete to commence a substantive review, it has 180 days to review the submission, but it can typically take longer (up to several years) as this regulatory body can request additional data, including clinical data or clarifications. The FDA may also impose additional regulatory scrutiny for a PMA, including the institution of an outside advisory committee (panel review) to assess the application or provide recommendations as to whether to approve the device. Although the FDA is not required to follow the recommendation of an advisory panel, it generally does. As part of the review, the FDA will also inspect the manufacturing operations of the Company requesting approval to verify compliance with Quality System regulations.

If a new medical device does not qualify for the 510(k) premarket notification process because no predicate device to which it is substantially equivalent can be identified, the device is automatically classified into Class III. The Food and Drug Administration Modernization Act of 1997 established a new route to market for low to moderate risk medical devices that are automatically placed into Class III due to the absence of a predicate device, called the “Request for Evaluation of Automatic Class III Designation,” or the de novo classification process. This process allows a manufacturer whose novel device is automatically classified into Class III to request down-classification of its medical device into Class I or Class II on the basis that the device presents low or moderate risk, rather than requiring the submission and approval of a PMA. If the manufacturer seeks reclassification into Class II, the manufacturer must include a draft proposal for special controls that are necessary to provide a reasonable assurance of the safety and efficacy of the medical device. The FDA may reject the reclassification petition if it identifies a legally marketed predicate device that would be appropriate for a 510(k) or determines that the device is not low to moderate risk and requires PMA or that general controls would be inadequate to control the risks and special controls cannot be developed.

After a device receives 510(k) clearance or PMA approval, any modification that could significantly affect its safety or effectiveness, or that would constitute a major change in its intended use, will require a new 510(k) clearance or PMA Supplemental approval. The FDA requires each manufacturer to make this determination initially, but the FDA can review any such decision and can disagree with a manufacturer’s determination. If the FDA disagrees with the determination not to seek a new 510(k) clearance or PMA Supplement, the FDA may retroactively require a new 510(k) clearance or PMA Supplements to be submitted. The FDA could also require a manufacturer to cease marketing and distribution and/or recall the modified device until clearance or approval is obtained. Also, in these circumstances, the manufacturer may be subject to significant regulatory fines, penalties, and possible warning letters.

Pervasive and Continuing Regulation

Even after a device is placed on the market with FDA clearance or approval, numerous regulatory requirements continue to apply. These include:

- the FDA’s Quality System Regulation (“QSR”) which requires manufacturers, including third-party manufacturers, to follow stringent design, testing, control, documentation, and other quality assurance procedures during all aspects of the manufacturing process;
- labeling regulations and FDA and FTC prohibitions against the promotion of products for uncleared, unapproved, or off-label uses;
- medical device reporting regulations, which require that manufacturers report to the FDA if their device may have caused or contributed to a death or serious injury or malfunctioned in a way that would likely cause or contribute to a death or serious injury if the malfunction were to recur; and
- post-market surveillance regulations, which apply when necessary to protect the public health or to provide additional safety and efficacy data for the device.

The FDA has broad post-market and regulatory enforcement powers, and we must comply with the post-market surveillance regulations, including medical device reporting regulations. We are required to report to the FDA information if a device has, or may have, caused or contributed to a death or serious injury or has malfunctioned in a way that would likely cause or contribute to death or serious injury, if the malfunction of the device or one of our similar devices were to recur. If we fail to report events required to be reported to the FDA within the required timeframes, or at all, the FDA could take enforcement action and impose sanctions against us. Any such adverse event involving our products also could result in future voluntary corrective actions, such as recalls or customer notifications, or agency action, such as inspection or enforcement action. Any corrective action, whether voluntary or involuntary, as well as defending ourselves in a lawsuit, would require our time and capital, distract management from operating our business, and may harm our reputation and have a material adverse effect on our business, financial condition, and results of operations.

We may be subject to unannounced inspections by the FDA and the Food and Drug Branch of the California Department of Public Health to determine our compliance with the QSR and other regulations, and these inspections may include the manufacturing facilities of our suppliers.

Failure to comply with applicable regulatory requirements can result in enforcement action by the FDA, which may include any of the following sanctions:

- warning letters, fines, injunctions, consent decrees, and civil penalties;
- repair, replacement, refunds, recall, or seizure of our products;
- operating restrictions, partial suspension, or total shutdown of production;
- refusing our requests for 510(k) clearance or premarket approval of new products, new intended uses, or modifications to existing products;
- withdrawing 510(k) clearance or premarket approval that has already been granted; and
- criminal prosecution.

Regulatory System for Medical Devices in Europe

The European Union (the “EU”) consists of 27-member states and has a coordinated system for the authorization of medical devices. Marketing medical devices in the EU is subject to compliance with the Medical Devices Directive 93/92/EEC (MDD) and the European Union Medical Device Regulation (2017/745 or EU MDR) following its entry into application on May 26, 2020. A medical device may be placed on the market within the EU only if it conforms to certain “essential requirements” and bears the CE Mark. The most fundamental and essential requirement is that a medical device must be designed and manufactured in such a way that it will not compromise the clinical condition or safety of patients, or the safety and health of users and others. In addition, the device must achieve the essential performance(s) intended by the manufacturer and be designed, manufactured, and packaged in a suitable manner.

Manufacturers must demonstrate that their devices conform to the relevant essential requirements through a conformity assessment procedure. The nature of the assessment depends upon the classification of the device. The classification rules are mainly based on three criteria: (i) the length of time the device is in contact with the body, (ii) the degree of invasiveness, and (iii) the extent to which the device affects the anatomy. Conformity assessment procedures for all but the lowest risk classification of device involve a notified body. Notified bodies are often private entities and are authorized or licensed to perform such assessments by government authorities. Manufacturers usually have some flexibility to select a notified body for the conformity assessment procedures for a particular class of device and to reflect their circumstances, *e.g.*, the likelihood that the manufacturer will make frequent modifications to its products. Conformity assessment procedures require an assessment of available clinical evidence, literature data for the product, and post-market experience in respect of similar products already marketed. Notified bodies also may review the manufacturer’s quality systems. If satisfied that the product conforms to the relevant essential requirements, the notified body issues a certificate of conformity, which the manufacturer uses as a basis for its own declaration of conformity and application of the CE Mark. Application of the CE Mark allows the general commercializing of a product in the EU. The product can also be subjected to local registration requirements depending on the country.

The EU MDR, which repealed and replaced the MDD, entered into force on May 25, 2017 with a transition period extending until May 26, 2021. The EU MDR clearly envisages, among other things, stricter controls of medical devices, including strengthening of the conformity assessment procedures, increased expectations with respect to clinical data for devices, and pre-market regulatory review of high-risk devices. The EU MDR also envisages greater control over notified bodies and their standards, increased transparency, more robust device vigilance requirements, and clarification of the rules for clinical investigations. Under transitional provisions, medical devices with notified body certificates issued under the MDD prior to May 26, 2020, and which have not been significantly changed, may continue to be placed on the market for the remaining validity of the certificate, until December 2028 at the latest. After the expiry of any applicable transitional period, only devices that have been CE marked under the EU MDR may be placed on the market in the EU.

Environmental

We are subject to federal, state, and local laws, rules, regulations, and policies governing the use, generation, manufacture, storage, air emission, effluent discharge, handling, and disposal of certain hazardous and potentially hazardous substances used in connection with our operations. Although we believe that we have complied with these laws and regulations in all material respects and, to date, have not been required to take any action to correct any noncompliance, there can be no assurance that we will not be required to incur significant costs to comply with environmental regulations in the future.

Insurance

We maintain product and clinical trial liability insurance coverage which includes a maximum of per claim and annual aggregate policy limits, subject to self-insured retentions. The policy covers, subject to policy conditions and exclusions, claims of bodily injury and property damage from any product manufactured by us or from trial-related adverse events.

There is no assurance that our level of coverage is adequate. We may not be able to sustain or maintain our current level of coverage and cannot assure you that adequate insurance coverage will continue to be available on commercially reasonable terms, or at all. A successful product liability claim may exceed our existing coverages and may make future coverages significantly more expensive, if available at all.

In May 2023, the Company secured director and officer liability insurance from third-party insurance carriers through a brokered transaction.

Corporate Information

Pulse Biosciences, Inc., formerly Electroplate, Inc., was incorporated in the State of Nevada on May 19, 2014, and was reincorporated in the State of Delaware on June 18, 2018. Our corporate offices are located at 3957 Point Eden Way, Hayward, California 94545, and our telephone number is (510) 906-4600. We maintain a website at www.pulsebiosciences.com where general information about us is available. Our website, and the information contained therein, or that can be accessed through, our website, is not a part of this prospectus, and the inclusion of our website address is an inactive textual reference only.

RISK FACTORS

Investing in our Units, common stock and warrants involves a high degree of risk. Before deciding to invest in our securities, please read carefully the risks and uncertainties related to the Rights Offering described below and the other risk factors affecting the Company and ownership of the Company's common stock discussed in the section entitled "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2023 (the "Annual Report") and in other documents which are incorporated by reference into this prospectus, including all future filings we make with the SEC pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act, as well as the risk factors and other information contained in or incorporated by reference into any accompanying prospectus supplement before investing in any of our securities. The risks referenced above are not the only risks facing our Company. Additional risk and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

For more information about our SEC filings, please see "Where You Can Find More Information" and "Incorporation of Certain Information by Reference."

Risks Related to the Rights Offering

The subscription price determined for this Rights Offering is not an indication of our value.

In determining the subscription price for the Rights Offering, our board of directors, with the advice and input of management and advisors, considered a number of factors, including: the likely cost of capital from other sources and the general conditions of the securities markets, the price at which our stockholders might be willing to participate in the Rights Offering, historical and current trading prices for our common stock, our need for liquidity and capital, the value of the warrants being issued as a component of the Unit and the desire to provide an opportunity to our stockholders to participate in the rights offering on a pro rata basis. In conjunction with its review of these factors, our board of directors also reviewed a range of subscription prices in various prior rights offerings of public companies. The subscription price is not necessarily related to our book value, net worth or any other established criteria of value and may or may not be considered the fair value of the Units to be offered in the Rights Offering. The market price of our common stock may decline during or after the Rights Offering, including below the subscription price for the Units. After the date of this prospectus, our common stock may trade at prices above or below the subscription price.

The market price of our common stock may decline.

We cannot assure you that the market price of our common stock will not either increase or decline before the subscription rights expire. Depending upon the trading price of our common stock at the time of our announcement of the Rights Offering, the announcement of the Rights Offering and its terms, including the subscription price, together with the number of shares of common stock and warrants we could issue if the Rights Offering is completed, may result in a decrease in the trading price of our common stock. This decline may continue after the completion of this Rights Offering. Further, if a substantial number of rights are exercised and the holders of the shares received in the Rights Offering or upon exercise of the warrants received in the Rights Offering choose to sell some or all of the shares of common stock, the resulting sales could depress the market price of our common stock. There is no guarantee that by the time the shares and warrants are delivered to you, the market price of our common stock will be above the subscription price for the Units or exercise price for the warrants. Further, because the exercise of your rights is not revocable and because the rights are not transferrable, you will not be able to revoke your subscription if the market price decreases prior to the delivery of the shares and warrants or transfer of the shares and warrants until after they are delivered.

There is no guarantee that the subscription price, whether it is set at the Initial Price or the Alternate Price, will be lower than the market price of our common stock at the time that the shares and warrants that you receive in the Rights Offering are delivered. Further, because the exercise of your rights is not revocable and because the rights are not transferable, you will not be able to revoke your subscription if the market price decreases prior to the delivery of the shares and warrants or transfer of the shares until after they are delivered to you. Given that the Board reserves the right to terminate the Rights Offering at any time, we concluded that a floor price was not in the best interests of the Company. Accordingly, the subscription price at which you are purchasing Units, which include shares of common stock and warrants, may be above the prevailing market price by the time that the shares of common stock are purchased and delivered.

If you exercise your subscription rights and the market price of the common stock falls below the subscription price, then you will have committed to buy Units in the Rights Offering, which include shares of common stock and warrants, at a price that is higher than the market price. Moreover, we cannot assure you that you will ever be able to sell shares of common stock that you received in the Rights Offering or that result from the exercise of warrants you received in the Rights Offering at a price equal to or greater than the subscription price or exercise price. Until shares are issued to you in book-entry, or uncertificated, form upon expiration of the Rights Offering, you may not be able to sell the shares of our common stock that you receive in the Rights Offering. We will issue shares of our common stock that you received in the Rights Offering in book-entry, or uncertificated, form as soon as practicable after expiration of the Rights Offering. We will not pay you interest on funds delivered to the subscription agent pursuant to the exercise of rights.

If you do not exercise your subscription rights in full, your percentage ownership and voting rights in Pulse Biosciences will experience dilution.

If you choose not to exercise your subscription rights, you will retain your current number of shares of our common stock. If other stockholders fully exercise their subscription rights or exercise a greater proportion of their subscription rights than you exercise, the percentage of our common stock owned by these other stockholders will increase relative to your ownership percentage, and your voting and other rights in the Company will likewise be diluted. Further, the shares issuable upon the exercise of the warrants to be issued pursuant to the Rights Offering will dilute the ownership interest of stockholders not participating in this Rights offering or holders of warrants who have not exercised them.

The subscription rights and Units are non-transferable and thus there will be no market for them.

You may not sell, transfer or assign your subscription rights or Units to anyone else, unless as required by operation of law. We do not intend to list the subscription rights on any securities exchange or any other trading market. Because the subscription rights are non-transferable, there is no market or other means for you to directly realize any value associated with the subscription rights.

There is no public market for the warrants included in the Units.

There is no public trading market for our warrants, and we do not expect a market to develop. We do not intend to list the respective warrants included in the Units on any securities exchange or other trading market. Without an active market, we cannot assure you that you will be able to sell or otherwise transfer the warrants as the liquidity of the warrants will be limited and you may not realize any value from the warrants by attempting to sell or otherwise transfer them for consideration.

The market price of our common stock may never exceed the exercise price of the warrants.

The warrants being issued in connection with this Rights Offering become exercisable upon issuance and will expire five years after issuance. We cannot provide you any assurance that the market price of our common stock will ever exceed the exercise price per whole share under the warrants (which shall be equal to 110% of the subscription price in this Rights Offering) prior to their date of expiration. Any warrants not exercised by their date of expiration will expire for no value and we will be under no further obligation to the warrant holder.

In certain circumstances, we may call the warrants for redemption.

We may call the warrants for redemption, in whole or in part, for \$0.01 per underlying share of common stock, on not less than 30 days written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one such warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date. The warrants will be adjusted to reflect any stock split, stock dividend or similar recapitalization with respect to the common stock. If we give notice of redemption, you will be forced to sell or exercise your warrants or accept the redemption price. Furthermore, the exercise price must be paid in cash at the time of exercise and there is no “cashless” exercise provision for the warrants. The notice of redemption could come at a time when it is not advisable or possible for you to exercise the warrants. As a result, you would be unable to benefit from owning the warrants being redeemed. A notice of redemption may also result in our common stock becoming more volatile and being subject to greater selling pressure which could result in declines in the market price for our common stock.

You may not be able to resell any shares of our common stock that you receive pursuant to the exercise of subscription rights immediately upon expiration of the subscription rights offering period or be able to sell your shares at a price equal to or greater than the subscription price.

If you exercise subscription rights, you may not be able to resell the common stock that you receive in the Rights Offering until you, or your custodian bank, broker, dealer or other nominee, if applicable, have received those shares. Moreover, you will have no rights as a stockholder of the shares you received in the Rights Offering until we issue the shares to you. Although we will endeavor to issue the shares as soon as practicable after completion of the Rights Offering, and after all necessary calculations have been completed, there may be a delay between the Expiration Date of the Rights Offering and the time that the shares are issued. In addition, we cannot assure you that, following the exercise of your subscription rights, you will be able to sell your common stock at a price equal to or greater than the subscription price.

Because no minimum subscription is required and because we do not have formal commitments from our stockholders for the entire amount we seek to raise pursuant to the Rights Offering, we cannot assure you of the amount of proceeds that we will receive from the Rights Offering.

No minimum subscription is required for consummation of the rights offering. Although Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, he has not indicated at what level nor has he made any formal binding commitment to do so. Additionally, we do not have formal commitments from our other stockholders for the amount we seek to raise pursuant to the Rights Offering. It is possible that no rights will be exercised in connection with the Rights Offering. As a result, we cannot assure you of the amount of proceeds that we will receive in the Rights Offering. Therefore, if you exercise all or any portion of your subscription rights, but other stockholders do not, we may not raise the desired amount of capital in the Rights Offering, the market price of our common stock could be adversely impacted and we will find it necessary to pursue alternative means of financing, which may be dilutive to your investment.

Because we may terminate the Rights Offering at any time prior to the Expiration Date, your participation in the Rights Offering is not assured.

We do not intend, but have the right, to terminate the Rights Offering at any time prior to the Expiration Date. If we determine to terminate the Rights Offering, we will not have any obligation with respect to the subscription rights except to return any money received from subscribing stockholders as soon as practicable, without interest or deduction. Because our Board of Directors reserves the right to terminate the Rights Offering at any time, we concluded a floor price for each Unit was neither necessary nor in the best interests of the Company.

You will need to act promptly and to carefully follow the subscription instructions, or your exercise of rights may be rejected.

Stockholders who desire to purchase Units in the rights offering must act promptly to ensure that all required forms and payments are actually received by the subscription agent prior to the Expiration Date, which is currently set to be 5:00 p.m. on [●], 2024. If you are a beneficial owner of shares, you must act promptly to ensure that your custodian bank, broker, dealer or other nominee acts for you and that all required forms and payments are actually received by the subscription agent prior to the Expiration Date. Your nominee may establish a deadline prior to the Expiration Date by which you must provide it with your instructions to exercise your subscription rights and payment for your Units. We will not be responsible if your custodian bank, broker, dealer or nominee fails to ensure that all required forms and payments are actually received by the subscription agent prior to the Expiration Date. If you fail to complete and sign the required subscription forms, send an incorrect payment amount, or otherwise fail to follow the subscription procedures that apply to your desired transaction the subscription agent may, depending on the circumstances, reject your subscription or accept it to the extent of the payment received. Neither we nor our subscription agent will undertake to contact you concerning, or attempt to correct, an incomplete or incorrect subscription form or payment. We have the sole discretion to determine whether a subscription exercise properly follows the subscription procedures.

By participating in the Rights Offering and executing a rights certificate, you are making binding and enforceable representations to the Company.

By signing the rights certificate and exercising their rights, each stockholder agrees, solely with respect to such stockholder's exercise of rights in the Rights Offering, that we have the right to void and cancel (and treat as if never exercised) any exercise of rights, and securities issued pursuant to an exercise of rights, if any of the agreements, representations or warranties of a subscriber in the subscription documents are false.

If you make payment of the subscription price by uncertified personal check, your check may not clear in sufficient time to enable you to purchase Units in the rights offering.

Any uncertified personal check used to pay the subscription price in the Rights Offering must clear prior to the Expiration Date, and the clearing process may require at least five (5) business days. As a result, if you choose to use an uncertified personal check to pay the subscription price, it may not clear prior to the Expiration Date, in which event you would not be eligible to exercise your subscription rights. You may eliminate this risk by paying the subscription price by a certified check, bank draft, cashier's check, U.S. postal money order, or wire transfer of funds to ensure that the subscription agent receives your funds prior to the expiration of the Rights Offering.

If you exercise the over-subscription right, you may not receive all of the Units for which you subscribe.

Exercise of the over-subscription right will only be honored if and to the extent that the basic subscription rights have not been exercised in full. If sufficient Units are available, we will seek to honor your over-subscription request in full. If, however, over-subscription requests exceed the number of Units available to be purchased pursuant to the over-subscription right, we will allocate the available Units proportionately among stockholders who exercised their over-subscription rights based on the number of Units each stockholder subscribed for under such stockholder's basic subscription rights. As a result, you may not receive any or all of the Units for which you exercise your over-subscription right.

As soon as practicable after the Expiration Date, the subscription agent will determine the number of Units that you may purchase pursuant to the over-subscription right. If you have properly exercised your over-subscription right, we will issue the shares of common stock and warrants included in the Units purchased in the rights offering to you in book-entry, or uncertificated, form as soon as practicable after the Expiration Date and after all allocations and adjustments have been effected. If you request and pay for more Units than are allocated to you, we will refund the overpayment, without interest or deduction. In connection with the exercise of the over-subscription right, custodian banks, brokers, dealers and other nominee holders of subscription rights who act on behalf of beneficial owners will be required to certify to us and to the subscription agent as to the aggregate number of subscription rights exercised, and the number of Units requested through the over-subscription right, by each beneficial owner on whose behalf the nominee holder is acting.

The tax treatment of the rights offering may be treated as a taxable event to you.

We believe and intend to take the position that the distribution of the subscription rights in connection with the Rights Offering generally should not be a taxable event to holders of our common stock for U.S. federal income tax purposes. If the Rights Offering is deemed to be part of a “disproportionate distribution” under Section 305 of the Internal Revenue Code of 1986, as amended (the “Code”), holders of our common stock may recognize taxable income for U.S. federal income tax purposes in connection with the receipt of subscription rights in the Rights Offering. Holders of our common stock are urged to consult their tax advisors with respect to the tax consequences of the rights offering. Please see the section titled “*Material U.S. Federal Income Tax Consequences*” beginning on page 31 for further information.

We have broad discretion in the use of proceeds of the Rights Offering. Because our management will have broad discretion over the use of the net proceeds from the Rights Offering, you may not agree with how we use the proceeds, and we may not invest the proceeds successfully.

We anticipate using the net proceeds of the Rights Offering, if any, for general corporate purposes, including the Company’s commercial launch of its proprietary CellFX nsPFA Percutaneous Electrode System, its ongoing investment in current and future clinical studies evaluating the safety and efficacy of the Company’s CellFX nsPFA Cardiac Clamp and CellFX nsPFA 360° Cardiac Catheter for the treatment of atrial fibrillation, obtaining regulatory clearances for these CellFX Systems, and new product development activities. Our board of directors and management will have considerable discretion in the application of the net proceeds from the Rights Offering, and it is possible that we may allocate the proceeds differently than investors in the Rights Offering may desire or that we may fail to maximize the return on these proceeds. Accordingly, you will be relying on the judgment of our management with regard to the use of the proceeds from the Rights Offering, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the proceeds will be invested in a way that does not yield a favorable, or any, return for the Company.

USE OF PROCEEDS

Although we cannot determine what the actual net proceeds from the sale of the Units in the Rights Offering will be until the Rights Offering is completed, assuming all subscription rights are exercised, we estimate that the aggregate net proceeds from the sale of the Units, after deducting estimated offering expenses, will be approximately \$59.8 million. Furthermore, if all of the rights are exercised, the warrants issued in this Rights Offering would be exercisable, in cash, for an aggregate of \$66 million. However, no assurance can be given that any warrants will be exercised.

We anticipate using the net proceeds of the Rights Offering, if any, for general corporate purposes, including the Company’s commercial launch of its proprietary CellFX nsPFA Percutaneous Electrode System, its ongoing investment in current and future clinical studies evaluating the safety and efficacy of the Company’s CellFX nsPFA Cardiac Clamp and CellFX nsPFA 360° Cardiac Catheter for the treatment of atrial fibrillation, obtaining regulatory clearances for these CellFX Systems, and new product development activities. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. As a result, our management will have broad discretion regarding the timing and application of the net proceeds from this offering. Pending the uses described above, we intend to invest the net proceeds in interest-bearing, investment-grade securities.

DILUTION

Our net tangible book value as of December 31, 2023 was approximately \$32 million, or \$0.58 per share of our common stock (based on 55,144,374 shares outstanding as of December 31, 2023). Net tangible book value per share is equal to our total net tangible book value, which is our total tangible assets less our total liabilities, divided by the number of shares of our outstanding common stock. Dilution per share equals the difference between the amount per share paid by purchasers of shares of common stock that are included in the Units offered in the rights offering and the net tangible book value per share of our common stock immediately after the rights offering.

After giving effect to the assumed sale of 6,000,000 Units in the rights offering (consisting of 6,000,000 shares of our common stock and warrants to purchase an aggregate of 6,000,000 shares of common stock upon exercise), based on the assumed subscription price of \$10.00 per Unit (the Initial Price), and after deducting estimated offering expenses payable by us, our pro forma net tangible book value as of December 31, 2023 would have been approximately \$91.9 million, or \$1.50 per share. This represents an immediate increase in pro forma net tangible book value to existing stockholders of \$0.92 per share and an immediate dilution to purchasers in the Rights Offering of \$8.50 per share.

The following table illustrates this per-share dilution (assuming a fully subscribed for rights offering of 6,000,000 Units at the assumed subscription price of \$10.00 per Unit) (the Initial Price), but excluding the issuance of shares of common stock upon exercise of warrants. To the extent that the Alternate Price is lower than the Initial Price, purchasers of our common stock in the rights offering will experience further dilution.

Assumed subscription price per share	\$10.00
Net tangible book value per share at December 31, 2023	\$0.58
Net increase per share attributable to the Rights Offering	\$0.92
Pro forma net tangible book value per share after giving effect to the Rights Offering	\$1.50
Dilution in net tangible book value per share to purchasers	\$8.50

The information above is illustrative only and will adjust based on the actual subscription price and the actual number of Units sold in the Rights Offering. The number of shares to be outstanding after this Rights Offering is based on 55,144,374 shares of common stock outstanding as of December 31, 2023 and excludes:

- Options, outstanding as of December 31, 2023, to purchase 9,466,036 shares of common stock at a weighted average exercise price of \$9.01;
- 231,763 shares of common stock reserved for future issuances under our 2017 Equity Incentive Plan; and
- 1,249,126 shares of common stock reserved for future issuances under our 2017 Inducement Equity Incentive Plan.
- 113,318 shares of common stock reserved for future issuances under our 2017 Employee Stock Purchase Plan.

To the extent that any options are exercised, new options are issued under our equity incentive plans or we otherwise issue additional shares of common stock in the future at a price less than the public offering price, there will be further dilution to new investors.

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock is a summary and is qualified in its entirety by reference to our restated certificate of incorporation, as amended (“Certificate of Incorporation”) and amended and restated bylaws (“Bylaws”), copies of which have been filed with the SEC and are incorporated by reference as exhibits to the registration statement of which this prospectus forms a part, and by applicable law.

General

As of the date of this prospectus, our authorized capital stock consists of 500,000,000 shares of common stock, par value \$0.001 per share and 50,000,000 shares of preferred stock, par value \$0.001 per share. As of December 31, 2023, we had 55,144,374 shares of our common stock issued and outstanding.

Common Stock

Voting Rights. Each holder of common stock is entitled to one vote for each share held of record on all matters to be voted upon by stockholders. The common stock does not have cumulative voting rights.

Dividends. Subject to the preferences that may be applicable to any preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive such dividends as may be declared from time to time by the board of directors out of funds legally available therefor.

Liquidation, Dissolution and Winding Up. Subject to the rights, powers and preferences of any outstanding preferred stock, in the event of liquidation, dissolution or winding up of the company to holders of outstanding shares of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any then outstanding shares of preferred stock.

Other Rights. Holders of common stock have no preemptive or conversion rights. There are no redemption or sinking fund provisions applicable to the common stock.

Preferred Stock

Our board of directors is authorized, subject to limitations prescribed by Delaware law, to issue up to 50,000,000 shares of preferred stock in one or more series without stockholder approval. Our board of directors may designate the powers, designations, preferences, and relative participation, optional or other rights, if any, and the qualifications, limitations or restrictions of the shares of each series of preferred stock, including dividend rights, conversion rights, voting rights, redemption rights, liquidation preference, sinking fund terms and the number of shares constituting any series or the designation or any series. The rights, preferences, rights and restrictions of the preferred stock of each series will be fixed by the certificate of designation relating to that series. There are no restrictions presently on the repurchase or redemption of any shares of our preferred stock.

A series of our preferred stock could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt. Our board of directors will make any determination to issue preferred shares based upon its judgment as to the best interests of our stockholders. Our directors, in so acting, could issue preferred stock having terms that could discourage an acquisition attempt through which an acquirer may be able to change the composition of our board of directors, including a tender offer or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which stockholders might receive a premium for their stock over the then-current market price of the stock.

The issuance of shares of preferred stock will affect, and may adversely affect, the rights of holders of common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of common stock until our board of directors determines the specific rights attached to that preferred stock. The effects of issuing additional preferred stock could include one or more of the following:

- restricting dividends on the common stock;
- diluting the voting power of the common stock;
- impairing the liquidation rights of the common stock;
- delaying or preventing changes in control or management of our company.

Certain Provisions of Our Certificate of Incorporation and Bylaws and Delaware Law

Some provisions of Delaware law and our certificate of incorporation and bylaws contain provisions that could make the following transactions more difficult:

- acquisition of us by means of a tender offer;
- acquisition of us by means of a proxy contest or otherwise; or
- removal of our incumbent officers and directors.

Those provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids and to promote stability in our management. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors.

Certificate of Incorporation and Bylaws

Our certificate of incorporation and our bylaws provide for the following:

Stockholder Meetings. Our bylaws provide that in general a special meeting of stockholders may be called only by our board of directors, the chairman of our board of directors, any of our officers, or any stockholder holding at least fifteen percent (15%) of the voting power of the capital stock issued and outstanding and entitled to vote.

Requirements for Advance Notification of Stockholder Nominations and Proposals. Our bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee of the board of directors.

Limits on Ability of Stockholders to Act by Written Consent. We have provided in our bylaws that our stockholders may not act by written consent. This limit on the ability of our stockholders to act by written consent may lengthen the amount of time required to take stockholder actions. As a result, a holder controlling a majority of our capital stock would not be able to amend our bylaws or remove directors without holding a meeting of our stockholders called in accordance with our bylaws.

Amendment of Certificate of Incorporation and Bylaws. The amendment of the above provisions of our certificate of incorporation and bylaws requires approval by holders of at least two-thirds of our outstanding capital stock entitled to vote generally in the election of directors.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not for determining the outstanding voting stock owned by the interested stockholder, (i) shares owned by persons who are directors and also officers, and (ii) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to the date of the transaction, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns 15% or more of a corporation's outstanding voting stock or is an affiliate or associate of a corporation and was the owner of 15% or more of the corporation's outstanding voting stock within three years prior to the determination of interested stockholder status.

Choice of Forum

Our bylaws provide that unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (c) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws, or (d) any action asserting a claim governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein; provided that, if and only if the Court of Chancery dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in Delaware. Our bylaws further provide that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Broadridge Corporate Issuer Solutions, Inc.

Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol "PLSE."

PRICE RANGE OF OUR COMMON STOCK

Our common stock trades on the Nasdaq Capital Market under the symbol “PLSE.” The following table sets forth the range of high and low closing prices for our common stock as reported on The Nasdaq Capital Market for the periods indicated.

	High		Low	
Year Ended December 31, 2021:				
First quarter	\$	44.27	\$	22.43
Second quarter	\$	23.64	\$	16.31
Third quarter	\$	26.63	\$	17.25
Fourth quarter	\$	24.40	\$	14.78
Year Ended December 31, 2022:				
First quarter	\$	14.79	\$	4.21
Second quarter	\$	4.28	\$	1.48
Third quarter	\$	2.30	\$	1.23
Fourth quarter	\$	2.89	\$	1.73
Year Ending December 31, 2023:				
First quarter	\$	3.88	\$	2.48
Second quarter	\$	8.64	\$	3.36
Third quarter	\$	8.73	\$	4.03
Fourth quarter	\$	12.84	\$	3.85

The last reported sale price of our common stock on the Nasdaq Capital Market on [●], 2024 was \$[●] per share. Past price performance is not indicative of future price performance.

DIVIDEND POLICY

The payment of dividends on our common stock will be at the discretion of our board of directors and will depend on our results of operations, capital requirements, financial condition, prospects, contractual arrangements, any limitations on payment of dividends present in our future debt agreements, and other factors that our board of directors may deem relevant.

THE RIGHTS OFFERING

Subscription Rights

Basic Subscription Rights

We will distribute to each holder of our common stock who is a record holder of our common stock on the Record Date, which is [●], 2024 at no charge, one non-transferable subscription right for each share of common stock owned. The subscription rights will be evidenced by non-transferable subscription rights certificates. Each subscription right will entitle the rights holder to purchase [●] Units (subject to adjustment at the Record Date) at the Initial Price, which shall be paid in cash, upon timely delivery of the required documents and payment of the subscription price. Each Unit consists of one share of our common stock at the Initial Price and two warrants, each being a warrant to purchase one-half of one share of our common stock at an exercise price per whole share equal to 110% of the per-Unit subscription price (*provided*, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, but we will not sell fractional Units. If rights holders wish to exercise their subscription rights, they must do so prior to 5:00 p.m., Eastern Time, on [●], 2024, the Expiration Date for the Rights Offering, subject to extension. After the Expiration Date, the subscription rights will expire and will have no value. See below “—*Expiration of the Rights Offering and Extensions, Amendments and Termination.*” You are not required to exercise all of your subscription rights. We will issue to the record holders who purchase Units in the rights offering the shares and warrants in book-entry, or uncertificated, form as soon as practicable after the Rights Offering has expired.

Over-Subscription Rights

Subject to the allocation described below, each subscription right also grants the holder an over-subscription right to purchase additional Units that are not purchased by other rights holders pursuant to their basic subscription rights. You are entitled to exercise your over-subscription right only if you exercise your basic subscription right in full.

If you wish to exercise your over-subscription right, you should indicate the number of additional Units that you would like to purchase in the space provided on your rights certificate, as well as the number of shares that you beneficially own without giving effect to any Units to be purchased in this Rights Offering. When you send in your rights certificate, you must also send the full purchase price, as provided herein, for the number of additional Units that you have requested to purchase (in addition to the payment, as provided herein, due for Units purchased through your basic subscription right). If the number of Units remaining after the exercise of all basic subscription rights is not sufficient to satisfy all requests for Units pursuant to over-subscription rights, you will be allocated additional Units in the proportion which the number of Units you purchased through the basic subscription right bears to the total number of Units that all oversubscribing stockholders purchased through the basic subscription right. The subscription agent will return any excess payments in the form in which made.

As soon as practicable after the Expiration Date, the subscription agent will determine the number of Units that you may purchase pursuant to the over-subscription right. If you request and pay for more Units than are allocated to you, we will refund the overpayment in the form in which made. You will not receive a refund or other compensation for any unissued fractional warrants. In connection with the exercise of the over-subscription right, custodian banks, brokers, dealers and other nominee holders of subscription rights who act on behalf of beneficial owners will be required to certify to us and to the subscription agent as to the aggregate number of subscription rights exercised, and the number of Units requested through the over-subscription right, by each beneficial owner on whose behalf the nominee holder is acting.

Subscription Price

The subscription price per Unit will be the lesser of: (i) \$10.00 (the “Initial Price”) and (ii) the volume weighted average price of our common stock for the ten trading period through and including the Expiration Date (the “Alternate Price”). Subscribers must fund their subscriptions pursuant to both the basic subscription right and over-subscription right at the Initial Price.

In determining the subscription price, our board of directors, with the advice and input of management and advisors, considered a number of factors, including: the likely cost of capital from other sources and general conditions of the securities markets, the price at which our stockholders might be willing to participate in the Rights Offering, historical and current trading prices for our common stock, our need for liquidity and capital, the value of the warrants being issued as a component of the Unit, and the desire to provide an opportunity to our stockholders to participate in the Rights Offering on a pro rata basis. In conjunction with its review of these factors, our board of directors also reviewed a range of subscription prices in various prior rights offerings of public companies. The subscription price is not necessarily related to our book value, net worth or any other established criteria of value and may or may not be considered the fair value of our Units to be offered in the rights offering. You should not consider the subscription price as an indication of value of us or our common stock. The market price of our common stock may decline during or after the Rights Offering, including below the subscription price for the Units. You should obtain a current quote for our common stock before exercising your subscription rights and make your own assessment of our business and financial condition, our prospects for the future, and the terms of the Rights Offering.

Warrants

Each warrant entitles the holder to purchase one-half of one share of our common stock at an exercise price per whole share that shall be equal to 110% of the per-Unit subscription price (*provided*, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share). The exercise price must be paid in cash at the time of exercise and there is no “cashless” exercise provision for the warrants. Each warrant will be exercisable immediately upon completion of this rights offering and will expire on the fifth anniversary of the completion of this Rights Offering.

The respective warrants will be subject to redemption by the Company for \$0.01 per underlying share of common stock, on not less than 30 days written notice, if the volume weighted average price of our common stock equals or exceeds: (i) in respect of one such warrant, 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) in respect of the other such warrant, 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.

As set forth above, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share.

The warrants will be adjusted to reflect any stock split, stock dividend or similar recapitalization with respect to the common stock. The warrants will not be listed for trading on any stock exchange or market. Broadridge Corporate Issuer Solutions, LLC is acting as the warrant agent for the warrants.

Expiration of the Rights Offering and Extensions, Amendments and Termination

You may exercise your subscription rights at any time prior to 5:00 p.m., Eastern Time, on [●], 2024, the Expiration Date for the Rights Offering. If you do not exercise your subscription rights before the Expiration Date, your subscription rights will expire and will have no value. We will not be required to sell Units to you if the subscription agent receives your rights certificate or payment, after the Expiration Date, regardless of when you sent the rights certificate and payment.

We may, in our sole discretion, extend the time for exercising the subscription rights. We may extend the Expiration Date at any time after the Record Date. If the commencement of the Rights Offering is delayed for a period of time, the Expiration Date may be similarly extended. We will extend the duration of the Rights Offering as required by applicable law, and may choose to extend the duration of the rights offering for any reason. We may extend the Expiration Date by giving oral or written notice to the subscription agent on or before the scheduled Expiration Date. If we elect to extend the Expiration Date, we will issue a press release announcing such extension no later than 9:00 a.m., Eastern Time, on the next business day after the most recently announced Expiration Date.

We reserve the right, in our sole discretion, to amend or modify the terms of the Rights Offering. We also reserve the right to terminate the Rights Offering at any time prior to the Expiration Date for any reason, in which event all funds received in connection with the Rights Offering will be returned without interest or deduction to those persons who exercised their subscription rights as soon as practicable.

Calculation of Subscription Rights Exercised; Missing or Incomplete Subscription Information

If you do not indicate the number of subscription rights being exercised, or do not forward full payment of the total subscription price payment for the number of subscription rights that you indicate are being exercised, then you will be deemed to have exercised your subscription rights with respect to the maximum number of whole Units that may be exercised with the aggregate subscription price payment you delivered to the subscription agent. If your aggregate subscription price payment is greater than the amount you owe for exercise of your basic subscription right in full, you will be deemed to have exercised your over-subscription right to purchase the maximum number of Units with your over-payment.

If an insufficient number of Units is available to fully satisfy all over-subscription right requests, the available Units will be distributed proportionately among rights holders who exercise their oversubscription right based on the number of Units each rights holder subscribed for under the basic subscription right. The proration process will be repeated until all Units have been allocated or all over-subscription exercises have been fulfilled, whichever occurs earlier. Any excess subscription payments received by the subscription agent caused by proration will be returned by the subscription agent to you by mail, without interest or penalty, as soon as practicable after the Expiration Date of the rights offering. The subscription agent will return any excess payments in the form in which it was made. You will not receive a refund or other compensation for any unissued fractional warrants. Any Excess Subscription Amount resulting from the reduction of the subscription price from the Initial Price to the Alternate Price will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full).

No Fractional Shares

Rights holders will only be entitled to purchase a whole number of Units representing a whole number of shares of common stock, rounded down to the nearest whole number of Units a holder would otherwise be entitled to purchase. As we will not sell fractional Units, and each Unit includes one share of common stock and two warrants, we will not issue fractional shares of common stock in the Rights Offering. The number of shares of common stock issued to you shall correspond to the number of Units issued to you, and the number of warrants issued to you (each such warrant being a warrant to purchase one-half of one share of our common stock) shall correspond to twice the number of Units issued to you.

As set forth above, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share. For example, if you subscribe for 973 Units, you shall receive (i) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than 30 days written notice, if the volume weighted average price of our common stock equals or exceeds 150% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, and (ii) warrants to purchase 487 shares of our common stock which are redeemable by the Company for \$0.01 per underlying share of common stock, on not less than 30 days written notice, if the volume weighted average price of our common stock equals or exceeds 200% of the exercise price for the warrants, subject to adjustment, per whole share, for twenty (20) consecutive trading days, provided that, in each case, we may not redeem the warrants prior to the date that is three months after the issuance date.

Any Excess Subscription Amount resulting from the reduction of the subscription price from the Initial Price to the Alternate Price will be put towards the purchase of additional Units (either towards your basic subscription right, if available, or towards the over-subscription right if you have already exercised your basic subscription right in full). The excess amount for any fractional Units will be returned to you as soon as practicable, in the form in which made. You will not receive interest or a deduction on any payments refunded to you under the Rights Offering. No subscriber will receive a refund or other compensation for any unissued fractional warrants.

No Recombination

The common stock and warrants comprising the Units will separate upon the closing of this Rights Offering and will be issued separately; however, they may only be purchased as a Unit and the Unit will not trade as a separate security. Holders may not recombine shares of common stock and warrants to receive a Unit.

Conditions to the Rights Offering

We may terminate the Rights Offering, in whole or in part, if at any time before completion of the Rights Offering there is any judgment, order, decree, injunction, statute, law or regulation entered, enacted, amended or held to be applicable to the Rights Offering that in the sole judgment of our board of directors would or might make the Rights Offering or its completion, whether in whole or in part, illegal or otherwise restrict or prohibit completion of the Rights Offering. We may waive any of these conditions and choose to proceed with the Rights Offering even if one or more of these events occur. If we terminate the Rights Offering, in whole or in part, all affected subscription rights will expire without value and all subscription payments in the form in which received by the subscription agent will be returned in the form in which paid, without interest or deduction, as soon as practicable. See also “*Expiration of the Rights Offering and Extensions, Amendments and Termination.*”

Method of Exercising Subscription Rights

The exercise of subscription rights is irrevocable and may not be cancelled or modified. Your subscription rights will not be considered exercised unless the subscription agent receives from you, your custodian bank, broker, dealer or nominee, as the case may be, all of the required documents properly completed and executed and your full subscription price payment in cash, as provided herein, prior to the Expiration Date, which is currently set to be 5:00 p.m., Eastern Time, on [●], 2024. Rights holders may exercise their rights as follows:

Subscription by Registered Holders

Rights holders who are registered holders of our common stock as of the Record Date may exercise their subscription right by properly completing and executing the rights certificate together with any required signature guarantees and forwarding it, together with payment in full, as provided herein, of the subscription price for each Unit for which they subscribe, to the subscription agent at the address set forth under the subsection titled “*Delivery of Subscription Materials and Payment,*” on or prior to the Expiration Date.

Subscription by DTC Participants

Banks, trust companies, securities dealers and brokers (each, a “Nominee”) that hold shares of our common stock on the Record Date as nominee for more than one beneficial owner may, upon proper showing to the subscription agent, exercise such beneficial owner’s subscription right through DTC on the same basis as if the beneficial owners were stockholders on the Record Date. Such Nominee may exercise the subscription right on behalf of the exercising beneficial owner through DTC’s PSOP Function on the “agents subscription over PTS” procedure by (1) providing a certification as to the aggregate number of subscription rights exercised by the beneficial owner on whose behalf such Nominee is acting, and (2) instructing DTC to charge the Nominee’s applicable DTC account for the subscription payment for the new Units to facilitate the delivery of the full subscription payment to the subscription agent. DTC must receive the subscription instructions and payment for the new Units no later than the Expiration Date.

Subscription by Beneficial Owners

Rights holders who are beneficial owners of shares of our common stock as of the Record Date and whose shares are registered in the name of a custodian bank, broker, dealer or other nominee, or would prefer to have an institution conduct the transaction relating to the rights on their behalf, should instruct their custodian bank, broker, dealer or other nominee or institution to exercise their rights and deliver all documents and payment, on their behalf, prior to the Expiration Date. A rights holder’s subscription rights will not be considered exercised unless the subscription agent receives from such rights holder or the rights holder’s custodian bank, broker, dealer, or other nominee or institution, as the case may be, all of the required documents and such holder’s full subscription price payment.

Method of Payment

You must timely pay the full subscription price, in U.S. currency, for the full number of Units at the Initial Price you wish to acquire pursuant to the exercise of rights (including any exercise of the over-subscription rights, if available) by delivering:

- an uncertified check drawn against a U.S. bank payable to “Broadridge Corporate Issuer Solutions, LLC (acting as Subscription Agent for Pulse Biosciences);”
- a wire transfer of immediately available funds to accounts maintained by the subscription agent;
- a certified check, bank draft, or cashier’s check drawn against a U.S. bank payable to “Broadridge Corporate Issuer Solutions, LLC (acting as Subscription Agent for Pulse Biosciences);” or
- a U.S. Postal money order payable to “Broadridge Corporate Issuer Solutions, LLC (acting as Subscription Agent for Pulse Biosciences).”

Rights certificates received after the Expiration Date of the rights offering will not be honored, and we will return your payment to you in the form received as soon as practicable, without interest or deduction.

The subscription agent will be deemed to receive payment upon:

- clearance of any uncertified check deposited by the subscription agent;
- receipt of collected funds wired in the subscription agent’s account;
- receipt by the subscription agent of any certified check, bank draft, or cashier’s check drawn upon a U.S. bank; or
- receipt by the subscription agent of any U.S. Postal money order.

If, on the Expiration Date, the Alternate Price is lower than the Initial Price, any Excess Subscription Amounts paid by a subscriber will be put towards the purchase of additional Units.

Clearance of Uncertified Personal Checks

If you are paying by uncertified personal check, please note that payment will not be deemed to have been received by the subscription agent until the check has cleared, which could take at least five (5) business days. Any personal check used to pay for Units must clear the appropriate financial institutions prior to 5:00 p.m., Eastern Time, on [●], 2024, the expected Expiration Date, unless we, in our sole discretion, extend the period for exercising the subscription rights. Accordingly, holders that wish to pay the subscription price by means of an uncertified personal check are urged to make payment sufficiently in advance of the expiration of the Rights Offering to ensure such payment is received and clears by such date. If you elect to exercise your subscription rights, we urge you to consider using a certified check, cashier’s check, bank draft, U.S. Postal money order, or wire transfer of funds to ensure that the subscription agent receives your funds prior to the expiration of the Rights Offering.

Instructions for Completing Your Subscription Rights Certificate

You should read the instruction letter accompanying the rights certificate carefully and strictly follow it. **DO NOT SEND RIGHTS CERTIFICATES OR PAYMENTS TO THE COMPANY.** We will not consider your subscription received until the subscription agent has received delivery of a properly completed and duly executed rights certificate and payment of the full subscription amount. The risk of delivery of all documents and payments is on you or your nominee, not us or the subscription agent.

The method of delivery of rights certificates and payment of the subscription amount to the subscription agent will be at the risk of the holders of rights, but, if sent by mail, we recommend that you send those certificates and payments by overnight courier or by registered mail, properly insured, with return receipt requested, and that a sufficient number of days be allowed to ensure delivery to the subscription agent and clearance of payment before the expiration of the subscription period.

Unless a rights certificate provides that the shares of common stock and warrants are to be delivered to the record holder of such rights or such certificate is submitted for the account of a bank or a broker, signatures on such rights certificate must be guaranteed by an “Eligible Guarantor Institution,” as such term is defined in Rule 17Ad-15 of the Securities Exchange Act of 1934 (an “Eligible Institution”), subject to any standards and procedures adopted by the subscription agent. See “—*Medallion Guarantee May Be Required.*”

Medallion Guarantee May Be Required

If you completed any part of the subscription rights certificate to provide that the common stock and warrants that comprise the Units purchased pursuant to your exercise of subscription rights were to be (x) issued in a name other than that of the registered holder, or (y) issued to an address other than that shown on the front of the subscription rights certificate, your signature on each subscription rights certificate must be guaranteed by an Eligible Institution, such as a member firm of a registered national securities exchange or a member of the Financial Industry Regulatory Authority, Inc., or a commercial bank or trust company having an office or correspondent in the United States, or by a member of a Stock Transfer Association approved medallion program such as STAMP, SEMP or MSP subject to standards and procedures adopted by the subscription agent.

Subscription and Information Agent

The subscription agent and information agent for this Rights Offering is Broadridge Corporate Issuer Solutions, LLC. We will pay all fees and expenses of Broadridge related to the Rights Offering and have also agreed to indemnify Broadridge from certain liabilities that it may incur in connection with the Rights Offering. Broadridge can be contacted at the following address and telephone number:

Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS Re-Organization Dept.
P.O. Box 1317
Brentwood, NY 11717-0718
Toll Free: 1-888-789-8409

Delivery of Subscription Materials and Payment

You should deliver your subscription rights certificate and payment of the subscription price, as provided herein, or, if applicable, nominee holder certifications, to the subscription agent by one of the methods described below:

By mail:
*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS Re-Organization Dept.
P.O. Box 1317
Brentwood, NY 11717-0718*

By overnight courier:
*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS IWS
51 Mercedes Way
Edgewood, NY 11717*

Your delivery to an address or by any method other than as set forth above will not constitute valid delivery and we may not honor the exercise of your subscription rights.

You should direct any questions or requests for assistance concerning the method of subscribing for Units or for additional copies of this prospectus to the information agent.

Funding Arrangements; Return of Funds

Broadridge Corporate Issuer Solutions, LLC, the subscription agent, will hold funds received in payment for Units in a segregated account pending completion of the Rights Offering. The subscription agent will hold this money until the Rights Offering is completed or is withdrawn or terminated. If the rights offering is canceled for any reason, all subscription payments received by the subscription agent will be returned to subscribers, without interest or penalty, as soon as practicable.

Guaranteed Delivery

There is no guaranteed delivery period in connection with this Rights Offering, so you must ensure that you properly complete all required steps prior to 5:00 p.m., Eastern Time, on [●], 2024, unless we decide to extend the Rights Offering until some later time or terminate it earlier.

Notice to Beneficial Holders

If you are a broker, a trustee or a depository for securities who holds shares of our common stock for the account of others as of the Record Date, you should notify the respective beneficial owners of such shares of the Rights Offering as soon as possible to find out their intentions with respect to exercising their subscription rights. You should obtain instructions from the beneficial owners with respect to their subscription rights, as set forth in the instructions we have provided to you for your distribution to beneficial owners. If a beneficial owner so instructs, you should complete the appropriate subscription rights certificates and submit them to the subscription agent with the proper payment. If you hold shares of our common stock for the account(s) of more than one beneficial owner, you may exercise the number of subscription rights to which all such beneficial owners in the aggregate otherwise would have been entitled had they been direct record holders of our common stock on the Record Date, provided that you, as a nominee record holder, make a proper showing to the subscription agent by submitting the form entitled “Nominee Holder Certification” substantially in the form accompanying this prospectus. If you did not receive this form, you should contact the subscription agent to request a copy.

Beneficial Owners

If you are a beneficial owner of shares of our common stock or will receive subscription rights through a custodian bank, broker, dealer or other nominee, we will ask your custodian bank, broker, dealer or other nominee to notify you of the Rights Offering. If you wish to exercise your subscription rights, you will need to have your custodian bank, broker, dealer or other nominee act for you. If you hold shares of our common stock directly under your name in stock certificate(s) or in book-entry, or uncertificated, form, but would prefer to have your custodian bank, broker, dealer or other nominee act for you, you should contact your nominee and request it to effect the transactions for you. Your nominee may establish a deadline prior to the Expiration Date by which you must provide it with your instructions to exercise your subscription rights and payment for your shares.

To indicate your decision with respect to your subscription rights, you should complete and return to your custodian bank, broker, dealer or other nominee the form entitled “Beneficial Owners Election Form” substantially in the form accompanying this prospectus. You should receive the “Beneficial Owners Election Form” from your custodian bank, broker, dealer or other nominee with the other Rights Offering materials. If you wish to obtain a separate subscription rights certificate, you should contact the nominee as soon as possible and request that a separate subscription rights certificate be issued to you. You should contact your custodian bank, broker, dealer or other nominee if you do not receive this form but you believe you are entitled to participate in the Rights Offering. We are not responsible if you do not receive this form from your custodian bank, broker, dealer or nominee or if you receive it without sufficient time to respond.

Determinations Regarding the Exercise of Your Subscription Rights

We will decide all questions concerning the timeliness, validity, form and eligibility of the exercise of your subscription rights and any such determinations by us will be final and binding. We, in our sole discretion, may waive, in any particular instance, any defect or irregularity, or permit, in any particular instance, a defect or irregularity to be corrected within such time as we may determine. We will not be required to make uniform determinations in all cases. We may reject the exercise of any of your subscription rights because of any defect or irregularity. We will not accept any exercise of subscription rights until all irregularities have been waived by us or cured by you within such time as we decide, in our sole discretion. Our interpretations of the terms and conditions of the Rights Offering will be final and binding. Neither we, nor the subscription agent, will be under any duty to notify you of any defect or irregularity in connection with your submission of subscription rights certificates and we will not be liable for failure to notify you of any defect or irregularity. We reserve the right to reject your exercise of subscription rights if your exercise is not in accordance with the terms of the Rights Offering or in proper form. We will also not accept the exercise of your subscription rights if our sale of Units to you could be deemed unlawful under applicable law.

No Revocation or Change

Once you submit the form of rights certificate to exercise any subscription rights, you may not revoke or change your exercise or request a refund of monies paid. All exercises of rights are irrevocable, even if you subsequently learn information about us that you consider to be unfavorable. You should not exercise your rights unless you are certain that you wish to purchase additional Units at the Initial Price.

Non-Transferability of the Rights

The subscription rights and Units granted to you are non-transferable and, therefore, may not be assigned, gifted, purchased, sold or otherwise transferred to anyone else. Notwithstanding the foregoing, you may transfer your rights, Units and warrants as required by operation of law; for example, a transfer of rights to the estate of the recipient upon the death of the recipient would be permitted. If the rights are transferred as permitted, evidence satisfactory to us that the transfer was proper must be received by us prior to the Expiration Date.

Issuance of Common Stock and Warrants

All shares of our common stock and warrants that you purchase in the Rights Offering as part of the Units will be issued in book-entry, or uncertificated, form, meaning that you will receive a direct registration (DRS) account statement from our transfer agent reflecting ownership of these securities if you are a holder of record of shares or warrants. If you hold your shares of common stock in the name of a custodian bank, broker, dealer, or other nominee, DTC will credit your account with your nominee with the securities you purchased in the Rights Offering. Subject to state securities laws and regulations, we have the discretion to delay distribution of any securities you may have elected to purchase by exercise of your rights in order to comply with state securities laws.

Validity of Subscriptions

We will resolve all questions regarding the validity and form of the exercise of your subscription rights, including time of receipt and eligibility to participate in the rights offering. Our determination will be final and binding. Once made, subscriptions and directions are irrevocable, and we will not accept any alternative, conditional or contingent subscriptions or directions. We reserve the absolute right to reject any subscriptions or directions not properly submitted or the acceptance of which would be unlawful. You must resolve any irregularities in connection with your subscriptions before the subscription period expires, unless waived by us in our sole discretion. Neither the subscription agent nor we shall be under any duty to notify you or your representative of defects in your subscriptions. A subscription will be considered accepted, subject to our right to cancel the Rights Offering, only when a properly completed and duly executed subscription rights certificate and any other required documents and payment of the full subscription amount have been received by the subscription agent (and any payment by uncertified personal check has cleared) and any defects or irregularities therein waived by us. Our interpretations of the terms and conditions of the Rights Offering will be final and binding.

Rights of Subscribers

You will have no rights as a holder of the shares of our common stock you purchase in the Rights Offering until shares are issued in book-entry form or your account at your broker, dealer, bank or other nominee is credited with the shares of our common stock purchased in the Rights Offering. Holders of warrants issued in connection with the Rights Offering will not have rights as holders of our common stock until such warrants are exercised and the shares of common stock underlying the warrants are issued to the holder. You will have no right to revoke your subscriptions after you deliver your completed rights certificate, subscription payment, as provided herein, and any other required documents to the subscription agent.

Foreign Stockholders and Stockholders with Army Post Office or Fleet Post Office Addresses

The subscription agent will not mail rights certificates to you if you are a stockholder whose address is outside the United States or if you have an Army Post Office or a Fleet Post Office address. Instead, we will have the subscription agent hold the subscription rights certificates for your account. To exercise your rights, you must notify the subscription agent prior to 11:00 a.m., Eastern Time, at least three (3) business days prior to the Expiration Date, and establish to the satisfaction of the subscription agent that it is permitted to exercise your subscription rights under applicable law. If you do not follow these procedures by such time, your rights will expire and will have no value.

No Board of Directors Recommendation

An investment in Units (and the common stock and respective warrants that comprise such Units) must be made according to your evaluation of your own best interests and after considering all of the information herein, including the section titled “*Risk Factors*” beginning on page 18 of this prospectus. Neither we nor our board of directors are making any recommendation regarding whether you should exercise your subscription rights.

Purchase Commitments

Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, but he has not indicated at what level nor has he made any formal binding commitment to do so.

Shares of Common Stock Outstanding After the Rights Offering

The number of shares of our common stock that will be outstanding after the rights offering will depend on the number of Units that are purchased in the rights offering. Assuming no additional shares of common stock are issued by us prior to consummation of the rights offering and assuming all offered Units are sold in the Rights Offering at the Initial Price, we will issue 6,000,000 shares of common stock. In that case, we will have approximately 61,225,333 shares of common stock outstanding after the Rights Offering. This would represent an increase of approximately 10.9% in the number of outstanding shares of common stock. We would also issue warrants to purchase an aggregate of an additional 6,000,000 shares of our common stock. To the extent that the Alternate Price is lower than the Initial Price, we will sell additional Units, each consisting of one share of common stock and two warrants, each being a warrant to purchase one share of our common stock in the Rights Offering, and the number of shares of common stock and warrants to purchase common stock outstanding after the Rights Offering will accordingly be higher.

Fees and Expenses

Neither we, nor the subscription agent, will charge a brokerage commission or a fee to subscription rights holders for exercising their rights. However, if you exercise your subscription rights through a custodian bank, broker, dealer or nominee, you will be responsible for any fees charged by your custodian bank, broker, dealer or nominee.

Questions About Exercising Subscription Rights

If you have any questions or require assistance regarding the method of exercising your subscription rights or requests for additional copies of this document or any document mentioned herein, you should contact the subscription agent at the address and telephone number set forth above under “— *Delivery of Subscription Materials and Payment.*”

No “Going Private” Transaction

The Rights Offering is not a transaction or series of transactions which has either a reasonable likelihood or a purpose of producing a “going private effect” as specified in Rule 13e-3 of the Exchange Act. Given the structure of the Rights Offering, as described in this prospectus, Pulse Biosciences will continue to be registered pursuant to Section 12 of the Exchange Act and intends to remain listed on the Nasdaq Capital Market following completion of the Rights Offering.

Other Matters

Pulse Biosciences is not making the Rights Offering in any state or other jurisdiction in which it is unlawful to do so, nor is Pulse Biosciences distributing or accepting any offers to purchase any of our securities from subscription rights holders who are residents of those states or of other jurisdictions or who are otherwise prohibited by federal or state laws or regulations to accept or exercise the subscription rights. Pulse Biosciences may delay the commencement of the Rights Offering in those states or other jurisdictions, or change the terms of the Rights Offering, in whole or in part, in order to comply with the securities law or other legal requirements of those states or other jurisdictions. Subject to state securities laws and regulations, Pulse Biosciences also has the discretion to delay allocation and distribution of any securities you may elect to purchase by exercise of your subscription rights in order to comply with state securities laws. Pulse Biosciences may decline to make modifications to the terms of the Rights Offering requested by those states or other jurisdictions, in which case, if you are a resident in one of those states or jurisdictions or if you are otherwise prohibited by federal or state laws or regulations from accepting or exercising the subscription rights you will not be eligible to participate in the Rights Offering.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following summary does not purport to be a complete analysis of all of the potential U.S. federal income tax considerations, and does not address any tax consequences arising under any state, local or non-U.S. tax laws or any other U.S. federal tax laws, including the U.S. federal estate or gift tax laws. This discussion applies only to holders who are U.S. persons (as defined below) and does not address all aspects of U.S. federal income taxation that may be relevant to holders in light of their particular circumstances or to holders who may be subject to special tax treatment under the Code, including, without limitation, holders who are dealers in securities or non-U.S. currency, non-U.S. persons, certain former citizens or long-term residents of the United States, insurance companies, tax-exempt organizations, banks, financial institutions or broker-dealers, holders who hold our common stock as part of a hedge, straddle, conversion or other risk reduction transaction, or holders who acquired our common stock pursuant to the exercise of compensatory stock options or otherwise as compensation.

This summary is of a general nature only and is not intended to constitute a complete analysis of all tax consequences relating to the receipt, exercise and expiration of the subscription rights, the ownership and disposition of our common stock and warrants acquired upon exercise of the subscription rights and the ownership and disposition of our common stock acquired upon exercise of the warrants. It is not intended to constitute, and should not be construed to constitute, legal or tax advice to any particular holder. This discussion neither binds nor precludes the Internal Revenue Service (“IRS”) from adopting a position contrary to, or otherwise challenging, the positions addressed in this prospectus, and we cannot assure you that such a contrary position will not be asserted successfully by the IRS or adopted by a court if the position or matter was litigated. We have not sought, and will not seek, either (i) a ruling from the IRS or (ii) an opinion from legal counsel, in either instance regarding the tax considerations discussed herein. *Holders should consult their own tax advisors as to the tax consequences in their particular circumstances.*

For purposes of this discussion, a “U.S. person” means a beneficial owner of subscription rights that is:

- An individual who is a citizen or resident of the United States;
- A corporation (or entity treated as a corporation for U.S. federal income tax purposes) created or organized, or treated as created or organized, in or under the laws of the United States, any state thereof or the District of Columbia;
- An estate whose income is subject to U.S. federal income tax regardless of its source; or
- A trust (i) if a U.S. court can exercise primary supervision over the trust’s administration and one or more U.S. persons are authorized to control all substantial decisions of the trust, or (ii) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

If a partnership (including any entity treated as a partnership for U.S. federal income tax purposes) receives the subscription rights or holds the stock received upon exercise of the subscription right, the tax treatment of a partner in such partnership generally will depend upon the status of the partner and the activities of the partnership. Such a partner and the partnership are urged to consult their own tax advisors as to the U.S. federal income tax consequences of receiving the subscription rights and exercising (or allowing to expire) the subscription rights.

This discussion does not describe all of the tax considerations which may be relevant to a particular holder’s ownership of the shares of common stock received upon exercise of the basic subscription rights or the over-subscription rights.

EACH HOLDER OF SHARES OF OUR COMMON STOCK IS STRONGLY URGED TO CONSULT SUCH HOLDER’S OWN TAX ADVISORS REGARDING THE SPECIFIC FEDERAL, STATE, LOCAL AND NON-U.S. INCOME AND OTHER TAX CONSIDERATIONS OF THE RECEIPT AND EXERCISE OF THE SUBSCRIPTION RIGHTS, THE OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK AND WARRANTS ACQUIRED UPON EXERCISE OF THE SUBSCRIPTION RIGHTS AND THE OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ACQUIRED UPON EXERCISE OF THE WARRANTS.

U.S. Federal Income Tax Considerations Applicable to the Receipt of Subscription Rights

Receipt of Subscription Rights

Under section 61(a)(3) of the Code, gross income includes “gains derived from dealings in property.” Under section 301 of the Code, “a distribution of property... made by a corporation to its stockholder with respect to its stock” is taxable as gross income to the extent that the distribution is made out of the corporation’s current or accumulated earnings and profits. If at the time of the distribution the corporation does not have current or accumulated earnings and profits, then the amount of the distribution is applied first as a reduction in the stockholder’s basis in its stock; the amount of any distribution in excess of the stockholder’s basis is treated as a capital gain from the sale or exchange of property.

Code section 305(a), however, provides that gross income does not include “the amount of any distribution of the stock of a corporation made by such corporation to its stockholders with respect to its stock.” For purposes of Code section 305, “stock” is defined in Code section 305(d)(1) to include rights to acquire such stock.

The general rule set forth in Code section 305(a) regarding nonrecognition is subject to certain exceptions, including if receipt by a holder of subscription rights is part of a “disproportionate distribution” as set forth in Code section 305(b)(2). A “disproportionate distribution” is a distribution or a series of distributions, including deemed distributions, that has the effect of the receipt of cash or other property by some holders and an increase in the proportionate interest of other holders in our assets or earnings and profits. During the last 36 months, we have made a distribution of subscription rights to holders of our common stock. Our common stock was then and is now our sole outstanding class of stock, and we have no current intention of issuing another class of stock or convertible debt. The fact that we have made a prior distribution of subscription rights within the last 36 months means that the 36-month safe harbor rule set forth in the Treasury Regulations will not apply and, therefore, the distribution of subscription rights will not be presumed to not result in the receipt of cash or property by some stockholders and an increase in the proportionate interest of other stockholders. We also have outstanding options (issued as equity awards) which could cause, under certain circumstances that cannot currently be predicted, the receipt of subscription rights pursuant to this Rights Offering to be part of a disproportionate distribution. The Company believes that the distribution of subscription rights in this rights offering is not likely to constitute an increase in the proportionate interest of some stockholders in the assets or earnings and profits of the Company for purposes of Code section 305(b)(2) based on the fact that all of our stockholders will receive rights in the offering based upon their respective ownership of our common stock. The Company also intends to take the position that the outstanding options (issued as equity awards) do not cause the subscription rights issued pursuant to this Rights Offering to be part of a disproportionate distribution, but there can be no assurances in this regard.

Our position regarding the tax-free treatment of the receipt of subscription rights in this Rights Offering is not binding on the IRS or the courts, and there can be no assurance that the IRS or any applicable court would agree. If this position were finally determined to be incorrect, whether on the basis that the issuance of the subscriptions rights constitutes a “disproportionate distribution” under the Code and Treasury Regulations or otherwise, the fair market value of the subscription rights would be taxable to holders of our common stock as a dividend on the date of the distribution to the extent of the holder’s pro rata share of our current and accumulated earnings and profits, if any, with any excess being treated as a return of capital to the extent of the holder’s basis in shares of our common stock and thereafter as capital gain. Although no assurance can be given, it is anticipated that we will not have current and accumulated earnings and profits through the end of 2024.

The following discussion assumes that the receipt by a holder of subscription rights with respect to such holder’s common stock pursuant to this rights offering is non-taxable for U.S. federal income tax purposes.

Tax Basis in the Subscription Rights

A holder’s tax basis in its subscription rights will depend on the relative fair market value of the subscription rights received by such holder and the common stock owned by such holder at the time the subscription rights are distributed. If either (i) the fair market value of the subscription rights on the date such subscription rights are distributed is equal to at least 15% of the fair market value on such date of the common stock with respect to which the subscription rights are received or (ii) the holder elects, in its U.S. federal income tax return for the taxable year in which the subscription rights are received, to allocate part of its tax basis in such common stock to the subscription rights, then upon exercise of the subscription rights (and upon exercise, between the old stock and the stock received upon the exercise of the rights), the holder’s tax basis in the common stock will be allocated between the common stock and the subscription rights in proportion to their respective fair market values on the date the subscription rights are distributed. If the subscription rights received by a holder have a fair market value that is less than 15% of the fair market value of the common stock owned by such holder at the time the subscription rights are distributed, the holder’s tax basis in its subscription rights will be zero unless the holder elects to allocate its adjusted tax basis in the common stock owned by such holder in the manner described in the previous sentence. The fair market value of the subscription rights on the date the subscription rights are received is uncertain, and we have not obtained, and do not intend to obtain, an appraisal of the fair market value of the subscription rights as of that date. Therefore, you should consult with your tax advisor to determine the proper allocation of basis between the subscription rights and the shares of common stock with respect to which the subscription rights are received.

Expiration of Subscription Rights

A holder that allows the subscription rights received in the Rights Offering to expire will not recognize any gain or loss, and the tax basis in the common stock owned by such holder with respect to which such subscription rights were distributed will be equal to the tax basis in such common stock immediately before the receipt of the subscription rights in the Rights Offering.

Exercise of Subscription Rights and Holding Period

A holder will not recognize any gain or loss upon the exercise of the subscription rights received in the Rights Offering. The tax basis in the common stock acquired through exercise of the subscription rights will equal the sum of the subscription price for the common stock and the holder’s tax basis, if any, allocated to the rights as described above. The holding period for the common stock acquired through exercise of the subscription rights will begin on the date the subscription rights are exercised. Holders who exercise subscription rights after disposing of all of the shares of the common stock owned by such holder should consult with their tax advisor regarding the allocation of tax basis.

U.S. Federal Income Tax Considerations Applicable to the Warrants

Sale or Other Taxable Disposition of Warrants

Upon the sale, exchange or other taxable disposition of a warrant received upon exercise of the subscription rights, including if we redeem such warrants at a price of \$0.01 per underlying share of common stock, in general, a holder will recognize taxable gain or loss measured by the difference, if any, between (i) the amount of cash and the fair market value of any property received upon such taxable disposition, and (ii) such holder’s adjusted tax basis in such warrant as allocated pursuant to the rules discussed above. Such gain or loss generally will be capital gain or loss and generally will be long-term capital gain or loss if, at the time of the sale or other disposition, a holder’s holding period for the warrant is more than one year. The deductibility of capital losses is subject to limitations.

Exercise of Warrants

Upon the exercise of a warrant for cash, in general, holders will not recognize gain or loss for U.S. federal income tax purposes. A holder’s initial tax basis in common stock received will equal such holder’s adjusted tax basis in the warrant exercised. A holder’s holding period for the shares of our common stock received on exercise generally will commence on the day of exercise.

Expiration of Warrants

A holder who allows a warrant to expire will generally recognize a loss for U.S. federal income tax purposes equal to the adjusted tax basis of the warrant. In general, such a loss will be a capital loss, and will be a short-term or long-term capital loss depending on the holder’s holding period for the warrant.

Certain Adjustments to the Warrants

Under Section 305 of the Code, an adjustment to the number of shares that will be issued on the exercise of the warrants, or an adjustment to the exercise price of the warrants, may be treated as a constructive distribution to holders if, and to the extent that, such adjustment has the effect of increasing the holder’s proportionate interest in our earnings and profits or assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to our stockholders). Adjustments to the exercise price of warrants made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders of the warrants generally should not be considered to result in a constructive distribution. Any such constructive distribution would be taxable whether or not there is an actual distribution of cash or other property. See the more detailed discussion of the rules applicable to distributions made by us under the heading “*Taxation of Common Shares – Distributions*” below.

U.S. Federal Income Tax Considerations Applicable to Our Common Shares

Distributions

Distributions with respect to shares of our common stock acquired upon exercise of subscription rights or upon exercise of warrants will be taxable as dividend income when actually or constructively received to the extent of our current or accumulated earnings and profits as determined for U.S. federal income tax purposes. The excess will be treated first as a return of capital to the extent of a holder's adjusted tax basis in its shares of our common stock, and, thereafter, as capital gain.

Dividend income received by certain non-corporate holders with respect to shares of our common stock generally will be "qualified dividends" subject to preferential rates for U.S. federal income tax purposes, provided that the holder meets applicable holding period and other requirements. Subject to similar exceptions for short-term and hedged positions, dividend income on our shares of common stock paid to holders which are domestic corporations generally will qualify for the dividends-received deduction.

Dispositions

A holder which sells or otherwise disposes of shares of common stock acquired upon exercise of subscription rights or upon exercise of warrants in a taxable transaction will generally recognize capital gain or loss equal to the difference between the amount realized and such holder's adjusted tax basis in the shares. Such capital gain or loss will be long-term capital gain or loss if a holder's holding period for such shares is more than one year at the time of disposition. Long-term capital gain of a non-corporate holder is generally taxed at preferential U.S. income tax rates. The deductibility of capital losses is subject to limitations.

Information Reporting and Backup Withholding

U.S. backup withholding (currently at a rate of 24%) is imposed upon certain distributions (or deemed distributions) to persons who fail (or are unable) to furnish the information required pursuant to U.S. information reporting requirements. Distributions (or deemed distributions or similar transactions) to a holder will generally be exempt from backup withholding, provided the holder meets applicable certification requirements, including (i) providing us with such holder's U.S. taxpayer identification number (*e.g.*, an individual's social security number or individual taxpayer identification number, or an entity's employer identification number, each a "TIN") or (ii) otherwise establishing an exemption (*e.g.*, an exemption from backup withholding as a corporate payee), in each instance on a properly completed IRS Form W-9, certifying under penalties of perjury that, among others, such TIN or exemption is correct, together with such other certifications as may be required by law.

Backup withholding does not represent an additional tax. Any amounts withheld from a payment to a holder under the backup withholding rules will generally be allowed as a credit against such holder's U.S. federal income tax liability, and may entitle such holder to a refund, provided the required information and returns are timely furnished by such holder to the IRS.

AS INDICATED ABOVE, THE FOREGOING DISCUSSION IS FOR GENERAL INFORMATION PURPOSES ONLY AND SHOULD NOT BE VIEWED AS COMPLETE OR COMPREHENSIVE TAX ADVICE. HOLDERS RECEIVING A DISTRIBUTION OF STOCK RIGHTS CONTEMPLATED IN THIS RIGHTS OFFERING AND HOLDERS CONSIDERING THE PURCHASE OF OUR COMMON STOCK AND WARRANTS BY EXERCISING SUCH STOCK RIGHTS ARE URGED TO CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE APPLICABILITY AND EFFECT OF STATE, LOCAL AND NON-U.S. LAWS TO THEM.

PLAN OF DISTRIBUTION

We are distributing rights certificates and copies of this prospectus to those persons who were holders of our common stock on [●], 2024, the Record Date, following the effective date of the registration statement of which this prospectus forms a part. We have not employed any brokers, dealers or underwriters in connection with the solicitation or exercise of rights in the Rights Offering and no commissions, fees or discounts will be paid in connection with the Rights Offering. While certain of our directors, officers and other employees may solicit responses from you, those directors, officers and other employees will not receive any commissions or compensation for their services other than their normal compensation, and will not register with the SEC as brokers in reliance on certain safe harbor provisions contained in Rule 3a4-1 under the Exchange Act.

Delivery of Subscription Rights

As soon as practicable after the Record Date, we will distribute the rights, rights certificates and copies of this prospectus to individuals who owned shares of common stock on 5:00 p.m., Eastern Time, on [●], 2024. If your shares are held in the name of a custodian bank, broker, dealer or other nominee, then you should send your subscription documents and subscription payment to that record holder. If you are the record holder, then you should send your subscription documents, rights certificate, and subscription payment to the subscription agent, Broadridge Corporate Issuer Solutions, LLC, at the following address. If sent by mail, we recommend that you send documents and payments by registered mail, properly insured, with return receipt requested, and that a sufficient number of days be allowed to ensure delivery to the subscription agent. Do not send or deliver these materials to the Company.

By mail:

*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS Re-Organization Dept.
P.O. Box 1317
Brentwood, NY 11717-0718*

By overnight courier:

*Broadridge Corporate Issuer Solutions, LLC
Attn: BCIS IWS
51 Mercedes Way
Edgewood, NY 11717*

In the event that the Rights Offering is not fully subscribed, holders of rights who exercise all of their rights pursuant to their basic subscription right will have the opportunity to subscribe for additional Units pursuant to the over-subscription right. See further the section titled “*The Rights Offering*” beginning on page 26.

We have not agreed to enter into any standby or other arrangement to purchase or sell any rights or any of our securities. Robert W. Duggan, chairman of our board of directors and the beneficial owner of approximately 69% of our outstanding common stock as of the Record Date, has indicated that he intends to participate in the Rights Offering, but he has not indicated at what level nor has he made any formal binding commitment to do so.

We have not entered into any agreements regarding stabilization activities with respect to our securities. If you have any questions, you should contact the information agent at Broadridge Corporate Issuer Solutions, LLC, Attn: BCIS Re-Organization Dept., P.O. Box 1317, Brentwood, NY 11717-0718, by telephone at 1-888-789-8409 or by email at shareholder@broadridge.com. We have agreed to pay Broadridge Corporate Issuer Solutions, LLC a fee plus certain expenses, which we estimate will total approximately \$16,500. We estimate that our total expenses in connection with the Rights Offering will be approximately \$160,097.

Other than as described herein, we do not know of any existing agreements between any stockholder, broker, dealer, underwriter or agent relating to the sale or distribution of Units or the shares of common stock and warrants comprising the Units.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities being offered by this prospectus will be passed upon by Baker & Hostetler, LLP. Additional legal matters may be passed upon for us or any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of Pulse Biosciences, Inc. as of December 31, 2023 and 2022, and for each of the two years in the period ended December 31, 2023, incorporated by reference in this Prospectus by reference to Pulse Biosciences Inc.’s annual report on Form 10-K for the year ended December 31, 2023, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report. Such consolidated financial statements are incorporated by reference in reliance upon the report of such firm given their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information into this prospectus. This means that we can disclose important information about us and our financial condition to you by referring you to other documents filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus, except any information that is superseded by information that is included in a document subsequently filed with the SEC.

This prospectus incorporates by reference the documents listed below that we have previously filed with the SEC and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), from the date of this prospectus until the termination of an offering of securities, except that we are not incorporating by reference any information furnished (and not filed) with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K:

- Our [Annual Report on Form 10-K for the fiscal year ended December 31, 2023, as filed on March 28, 2024](#);
- Our Current Reports on Form 8-K filed on [January 2, 2024](#), [February 14, 2024](#) and [March 11, 2024](#);
- The description of our common stock contained in the [Registration Statement on Form 8-A relating thereto, filed on April 15, 2016](#), including any amendment or report filed for the purpose of updating such description.

Any statement contained in a document all or a portion of which is incorporated or deemed to be incorporated by reference herein will be deemed to be modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any statement so modified will not be deemed to constitute a part hereof, except as so modified, and any statement so superseded will not be deemed to constitute a part hereof.

A copy of any document incorporated by reference in this prospectus may be obtained at no cost by writing or telephoning us at the following address and telephone number:

Pulse Biosciences, Inc.
3957 Point Eden Way
Hayward, CA 94545
Attn: Investor Relations
510-906-4600

We maintain a website at www.pulsebiosciences.com. Information about us, including our reports filed with the SEC, is available through that site. Such reports are accessible at no charge through our website and are made available as soon as reasonably practicable after such material is filed with or furnished to the SEC. Our website and the

information contained on that website, or connected to that website, are not incorporated by reference in this prospectus.

You may read and copy any materials we file with the SEC at the SEC's website mentioned under the heading "*Where You Can Find More Information.*" The information on the SEC's website is not incorporated by reference in this prospectus.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.pulsebiosciences.com. The information contained in, or accessible through, our website, however, should not be considered a part of this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information included in the registration statement and the amendments, exhibits and schedules thereto, in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information on us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's website.

Pulse Biosciences, Inc.

**Subscription Rights to Purchase Up to 6,000,000 Units at the Initial Price
Each Unit Consisting of One Share of Common Stock and
Two Warrants, Each Being a Warrant to Purchase One-Half of One Share of Common Stock (and Up to 6,000,000 Shares of Common Stock Underlying the Warrants
at
110% of the Initial Price)**

PROSPECTUS

[•], 2024

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following is an estimate of the expenses (all of which are to be paid by us) that we may incur in connection with the securities being registered hereby.

SEC Registration Fee**	\$	18,597
Subscription and Information Agent Expenses		16,500
Printing Expenses		5,000
Accounting Fees and Expenses		50,000
Legal Fees and Expenses		50,000
Miscellaneous		20,000
Total	\$	160,097

** Excludes registration fee offset pursuant to Rule 457(p) of the Securities Act.

Item 15. Indemnification of Directors and Officers

Section 145 of the General Corporation Law of the State of Delaware empowers a corporation to indemnify its directors and officers and to purchase insurance with respect to liability arising out of their capacity or status as directors and officers, provided that the person acted in good faith and in a manner the person reasonably believed to be in our best interests, and, with respect to any criminal action, had no reasonable cause to believe the person's actions were unlawful. The General Corporation Law of the State of Delaware further provides that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. Our certificate of incorporation provides for the indemnification of our directors and officers to the fullest extent permitted under the General Corporation Law of the State of Delaware. In addition, our bylaws require us to fully indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by reason of the fact that such person is or was our director or officer, or is or was serving at our request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, to the fullest extent permitted by applicable law.

Section 102(b)(7) of the General Corporation Law of the State of Delaware permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except (1) for any breach of the director's duty of loyalty to the corporation or its stockholders, (2) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (3) for payments of unlawful dividends or unlawful stock repurchases or redemptions or (4) for any transaction from which the director derived an improper personal benefit. Our certificate of incorporation provides that our directors shall not be personally liable to the registrant or its stockholders for monetary damages for breach of fiduciary duty as a director and that if the General Corporation Law of the State of Delaware is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors shall be eliminated or limited to the fullest extent permitted by the General Corporation Law of the State of Delaware, as so amended.

Section 174 of the General Corporation Law of the State of Delaware provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption may be held liable for such actions. A director who was either absent when the unlawful actions were approved, or dissented at the time, may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

Our policy is to enter into separate indemnification agreements with each of our directors and officers that provide the maximum indemnity allowed to directors and executive officers by Section 145 of the General Corporation Law of the State of Delaware and also to provide for certain additional procedural protections. We also maintain directors and officers coverage to protect such persons against certain liabilities.

These indemnification provisions and the indemnification agreements entered into between the registrant and the registrant's officers and directors may be sufficiently broad to permit indemnification of the registrant's officers and directors for liabilities (including reimbursement of expenses incurred) arising under the Securities Act of 1933, as amended, or the Securities Act.

Item 16. Exhibits

Exhibit No.	Description
2.1	Plan of Conversion of Pulse Biosciences, Inc. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
3.1	Articles of Conversion (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
3.2	Certificate of Conversion (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
3.3	Certificate of Incorporation of Pulse Biosciences, Inc. (incorporated by reference to Exhibit 3.3 to Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
3.4	Bylaws of Pulse Biosciences, Inc. (incorporated by reference to Exhibit 3.4 to the Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K12B (File No. 001-37744), filed with the Securities and Exchange Commission on June 18, 2018)
4.2*	Form of Subscription Rights Certificate
4.3*	Form of Warrant Certificate
4.4*	Warrant Agency Agreement, dated April 3, 2024
5.1**	Opinion of Baker & Hostetler LLP
23.1**	Consent of Deloitte & Touche LLP, an independent registered public accounting firm for the Registrant.
23.2**	Consent of Baker & Hostetler LLP (included in Exhibit 5.1)
24.1*	Powers of Attorney
99.1*	Form of Instructions As To Use of Non-Transferable Subscription Rights Certificates
99.2*	Form of Letter to Stockholders who are Record Holders
99.3*	Form of Letter to Brokers and other Nominee Holders
99.4*	Form of Letter to Clients of Brokers and other Nominee Holders
99.5*	Form of Nominee Holder Certification
99.6*	Form of Beneficial Owner Election Form
107**	Filing Fee Table

* Previously Filed.

** Filed herewith.

Exhibit Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

- (1) to file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) to include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.
- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (i) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (7) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Hayward, State of California, on April 15, 2024.

PULSE BIOSCIENCES, INC.

By: /s/ Kevin P. Danahy
Name: Kevin P. Danahy
Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, the following persons in the capacities and on the dates indicated have signed this Registration Statement below.

Signature	Title	Date
<div>/s/ Kevin P. Danahy</div> <div>Kevin P. Danahy</div>	President and Chief Executive Officer <i>(Principal Executive and Principal Financial Officer)</i>	April 15, 2024
<div>/s/ *</div> <div>Robert W. Duggan</div>	Executive Chairman of the Board of Directors	April 15, 2024
<div>/s/ Darrin R. Uecker</div> <div>Darrin R. Uecker</div>	Chief Technology Officer and Director	April 15, 2024
<div>/s/ *</div> <div>Shelley D. Spray</div>	Director	April 15, 2024
<div>/s/ *</div> <div>Manmeet S. Soni</div>	Director	April 15, 2024
<div>/s/ *</div> <div>Richard A. van den Broek</div>	Director	April 15, 2024
<div>/s/ *</div> <div>Mahkam Zanganeh</div>	Director	April 15, 2024
<div>/s/ *</div> <div>Timothy H. Mitsuoka</div>	Corporate Controller <i>(Principal Accounting Officer)</i>	April 15, 2024

* By: /s/ Kevin P. Danahy
Kevin P. Danahy
As Attorney-in-Fact

BakerHostetler

Baker & Hostetler LLP

45 Rockefeller Plaza
New York, NY 10111

T 212.589.4200
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April 15, 2024

Pulse Biosciences, Inc.
3957 Point Eden Way
Hayward, California 94545

Ladies and Gentlemen:

We have acted as counsel to Pulse Biosciences, Inc., a Delaware corporation (the “Company”), in connection with the filing by the Company with the Securities and Exchange Commission (the “Commission”) of a Registration Statement on Form S-3 (as may be amended from time to time, the “Registration Statement”), under the Securities Act of 1933, as amended (the “Act”). Pursuant to the Registration Statement, the Company plans to distribute non-transferable subscription rights (the “Rights”) to its stockholders as of the Record Date (as defined in the Registration Statement), entitling the holders of such Rights to purchase an aggregate of up to \$60,000,000 of units (the “Units”). Each Unit shall consist of one share of our common stock, par value \$0.001 per share (“Common Stock”, and, such shares, collectively, the “Rights Shares”), and two warrants (collectively, the “Warrants”), each being a warrant to purchase one-half of one share of our Common Stock at an exercise price per whole share that shall be equal to 110% of the per-Unit subscription price (provided, that, the aggregate number of shares of our common stock that shall be issuable upon the exercise of each set of warrants included in a given subscription for Units shall be rounded up to the nearest whole share), and the shares of Common Stock issuable upon exercise of the Warrants (collectively, the “Warrant Shares”). This opinion is being delivered at the request of the Company and in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated by the Commission.

We have examined the Registration Statement, together with the documents incorporated by reference therein, including the forms of the certificate representing the Rights and each of the Warrants included in each Unit, and the related prospectus forming a part thereof (the “Prospectus”). In addition, we have examined originals or copies, certified or otherwise identified to our satisfaction, of such other instruments, documents, certificates and records which we have deemed relevant and necessary for the basis of our opinions hereinafter expressed. In such examination, we have assumed: (i) the authenticity of original documents and the genuineness of all signatures; (ii) the conformity to the originals of all documents submitted to us as copies; (iii) the truth, accuracy and completeness of the information, representations and warranties contained in the instruments, documents, certificates and records we have reviewed; (iv) that the Units, including the Rights Shares, the Warrants, and the Warrant Shares, will be issued and sold in compliance with applicable U.S. federal and state securities laws and in the manner stated in the Registration Statement and the Prospectus; (v) the legal capacity of all natural persons; and (vi) that the Warrant Shares will be reserved for issuance upon such exercise. As to any facts material to the opinions expressed herein that were not independently established or verified, we have relied upon oral or written statements and representations of officers and other representatives of the Company.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware (including the statutory provisions and all applicable judicial decisions interpreting those laws) and the federal laws of the United States of America.

We express no opinion as to (i) the effect of any bankruptcy, insolvency, reorganization, arrangement, fraudulent conveyance, moratorium or other similar laws relating to or affecting the rights of creditors generally, (ii) rights to indemnification and contribution which may be limited by applicable law or equitable principles, or (iii) the effect of general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing, the effect of judicial discretion and the possible unavailability of specific performance, injunctive relief or other equitable relief, and the limitations on rights of acceleration, whether considered in a proceeding in equity or at law.

On the basis of the foregoing, we are of the opinion that:

1. the Rights, when issued, will be valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.
2. The Units, when duly executed and delivered upon valid exercise of the Rights, including without limitation, payment of the consideration therefor as contemplated in the Prospectus, will be valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.
3. The Rights Shares, when issued and delivered as contemplated in the Prospectus, will be validly issued, fully paid and non-assessable.
4. The Warrants, when duly executed and delivered as contemplated in the Prospectus, will be valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.
5. The Warrant Shares, when issued upon the valid exercise of the Warrants in accordance with their terms, including without limitation, payment of the consideration therefor as described therein, will be validly issued, fully paid and non-assessable.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the caption “Legal Matters” in the Prospectus. In giving such consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder. We assume no obligation to update or supplement any of the opinion set forth herein to reflect any changes of law or fact that may occur following the date hereof.

Very truly yours,

/s/ Baker & Hostetler LLP

BAKER & HOSTETLER LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Amendment No. 1 to Form S-3 of our report dated March 28, 2024 relating to the consolidated financial statements of Pulse Biosciences, Inc. appearing in the Annual Report on Form 10-K of Pulse Biosciences, Inc. for the year ended December 31, 2023. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ Deloitte & Touche LLP

San Francisco, California
April 15, 2024

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Pulse Biosciences, Inc.

(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title (1)	Fee Calculation or Carry Forward Rule	Amount Registered (3)	Proposed Maximum Offering Price Per Security (3)	Maximum Aggregate Offering Price (4)	Fee Rate	Amount of Registration Fee (2)
Newly Registered Securities								
Fees to Be Paid	Other (1)	Subscription Rights to purchase Common Stock, par value \$0.001 per share ⁽²⁾	457(o)	—	—			
	Equity	Common Stock, par value \$0.001 per share, issuable upon exercise of Subscription Rights and exercise of Warrants	457(o)	—	—	\$ 126,000,000	0.00014760	\$ 18,597
	Equity	Warrants to purchase Common Stock, par value \$0.001 per share ⁽²⁾	457(o)	—	—			
Fees Previously Paid	—	—	—	—	—	—	—	—
	Total Offering Amounts					\$ 126,000,000		\$ 18,597
	Total Fees Previously Paid							—
	Total Fee Offsets							15,335 ⁽⁵⁾
	Net Fee Due							\$ 3,262

- (1) This registration statement relates to: (a) non-transferable subscription rights to purchase common stock of the Registrant, (b) the shares of the Registrant's common stock issuable upon the exercise of such non-transferable subscription rights pursuant to the rights offering, and (c) the shares of the Registrant's common stock (the "Warrant Shares") issuable upon the exercise of warrants to purchase common stock to be received upon the exercise of subscription rights.
- (2) No separate registration fee is payable with respect to the subscription rights being or Warrant Shares offered hereby since the subscription rights and Warrant Shares are being registered in the same registration statement as the common stock underlying the subscription rights.
- (3) The securities registered hereunder include an indeterminate number of shares of common stock which shall have an aggregate initial offering price not to exceed \$126,000,000. In accordance with Rule 416 under the Securities Act of 1933, as amended, this registration statement shall be deemed to cover an indeterminate number of additional shares to be offered or issued from stock splits, stock dividends or similar transactions with respect to the shares being registered.
- (4) Estimated solely for the purpose of calculating the registration fee. Subject to Rule 462(b) under the Securities Act, the aggregate maximum offering price of all securities issued by the Registrant pursuant to this registration statement from (a) the assumed exercise of all subscription rights, which would yield gross proceeds to the Company equal to a maximum of \$60,000,000 and (b) the assumed exercise in full of all of the warrants forming part of the units, which would yield gross proceeds to the Company equal to a maximum of \$66,000,000, will not exceed \$126,000,000.
- (5) On August 14, 2020, the registrant filed a registration statement on Form S-3 with the Securities and Exchange Commission (the "SEC"), declared effective on August 21, 2020 (File No. 333-246346) (the "2020 Registration Statement"), registering the issuance of up to \$250,000,000 of common stock, preferred stock, debt securities, depositary shares, warrants, subscription rights, purchase contracts and units (the "2020 Securities"). A filing fee of \$32,450.00 with respect to an aggregate of \$250,000,000 of the 2020 Securities was paid in connection with the filing of the 2020 Registration Statement. Pursuant to the 2020 Registration Statement, the registrant brought down a total of \$75,000,000 of the 2020 Securities, which equated to an associated registration fee of \$9,735. Accordingly, the unused registration fee paid in connection with the 2020 Registration Statement and the 2020 Securities was \$22,715.

On March 28, 2023, the registrant filed a registration statement on Form S-3 with the SEC (the "2023 Registration Statement"), which has not yet become effective, registering the issuance of up to \$50,000,000 of common stock, preferred stock, debt securities, depositary shares, warrants, subscription rights, purchase contracts and units (the "2023 Securities"). In accordance with Rule 457(p) under the Securities Act, the registration fee applicable to the \$50,000,000 of 2023 Securities in the amount of \$7,380 was offset by the \$22,715 unused registration fee paid in connection with the 2020 Registration Statement and the 2020 Securities, leaving a remaining balance of \$15,335 from the unused registration fee paid in connection with the 2020 Registration Statement and the 2020 Securities. Concurrently with the filing of the 2023 Registration Statement, any offering of the unsold 2020 Securities pursuant to the 2020 Registration Statement was terminated.

In accordance with Rule 457(p) under the Securities Act, the registration fee applicable to the \$126,000,000 of securities proposed to be sold pursuant to the current registration statement, in the amount of \$18,597, is offset by the remaining balance of \$15,335 from the unused registration fee paid in connection with the 2020 Registration Statement and the 2020 Securities.

Table 2: Fee Offset Claims and Sources

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rule 457(p)											
Fee Offset Claims	Pulse Biosciences, Inc.	S-3	333-246346	8/14/2020		\$15,335	Unallocated (Universal) Shelf	—	N/A	175,000,000 ⁽¹⁾	
Fee Offset Sources	Pulse Biosciences, Inc.	S-3	333-246346		2/4/2021						7,788 ⁽¹⁾
Fee Offset Sources	Pulse Biosciences, Inc.	S-3	333-246346		5/4/2022						1,947 ⁽¹⁾
Fee Offset Sources	Pulse Biosciences, Inc.	S-3	333-278322		3/28/2024					\$7,380 (1)	

(1) See Note (5) under Table 1 above.