

**Prospectus Supplement No. 2  
(to Prospectus dated August 14, 2020, as supplemented  
on May 4, 2022)**

**PROSPECTUS SUPPLEMENT NO. 2**

**PULSE BIOSCIENCES, INC.**

**Subscription Rights to Purchase Up to 4,032,258 of Units at the Initial Price  
Each Unit Consisting of 1 Share of Common Stock  
and a Warrant to Purchase 1 Share of Common Stock  
(and Up to 4,032,258 of Shares of Common Stock Underlying the Warrants at  
the Initial Price)**

This prospectus supplement no. 2 (“Prospectus Supplement No. 2”) supplements the prospectus dated August 14, 2020 (the “Original Prospectus”), as previously supplemented on May 4, 2022 (the “Prospectus Supplement” and, collectively, with the Original Prospectus, the “Prospectus”), relating to the offering of non-transferable subscription rights to purchase up to \$15,000,000 of Units (as defined in the Prospectus Supplement) to holders of record of our common stock as of 5:00 p.m., Eastern Time, on April 25, 2022.

On May 19, 2022, we filed a press release and, concurrently, a Current Report on Form 8-K announcing that we have extended the expiration time of the rights offering to 5:00 p.m., Eastern Time, on May 26, 2022 (as so extended, the “Expiration Date”). We simultaneously announced, in the same press release and Form 8-K, that the “Alternate Price” will be redefined as follows:

“the volume weighted average price of our common stock for the five trading day period through and including May 23, 2022.”

Therefore, the subscription price per Unit shall be equal to the lesser of (i) \$3.72 (the “Initial Price”) and (ii) the Alternate Price, as defined above.

We are filing this Prospectus Supplement No. 2 to update and supplement the information included or incorporated by reference in the Prospectus, with the information contained in the Current Report on Form 8-K.

This Prospectus Supplement No. 2 should be read in conjunction with the Prospectus and may not be delivered or utilized without the Prospectus. To the extent there is a discrepancy between the information contained in this Prospectus Supplement No. 2 and the information in the Prospectus, the information contained in this Prospectus Supplement No. 2 supersedes and replaces such conflicting information.

**The exercise of subscription rights for shares of our common stock involves a high degree of risk. See “Risk Factors” beginning on page S-21 of the Prospectus Supplement as well as the risk factors and other information in any documents we incorporate by reference into the prospectus to read about important factors you should consider before exercising your subscription rights.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

The date of this Prospectus Supplement No. 2 is May 19, 2022.