

**Prospectus Supplement No. 5**  
(To Prospectus dated October 5, 2022)



**GREENLIGHT BIOSCIENCES HOLDINGS, PBC**

**114,692,259 Shares of Common Stock**  
**10,350,000 Shares of Common Stock Issuable Upon Exercise of Warrants**

This prospectus supplement no. 5 (this "Prospectus Supplement") amends and supplements the prospectus dated October 5, 2022 (as amended or supplemented from time to time, the "Prospectus"), relating to the offering and resale by the selling stockholders of up to 114,692,259 shares of our common stock, par value \$0.0001 per share (the "Common Stock"), and the issuance by us of up to 10,350,000 shares of Common Stock upon the exercise of outstanding warrants.

This Prospectus Supplement amends and supplements the Prospectus with the information contained in our attached current report on Form 8-K, which was filed with the Securities and Exchange Commission on March 7, 2023.

This Prospectus Supplement is not complete without, and may not be delivered or utilized except in combination with, the Prospectus, including any amendments or supplements thereto. This Prospectus Supplement should be read in conjunction with the Prospectus and any amendments or supplements thereto. If there is any inconsistency between the information in the Prospectus and this Prospectus Supplement, you should rely on the information in this Prospectus Supplement.

Our Common Stock is listed on The Nasdaq Global Market ("Nasdaq") under the symbol "GRNA" and our Public Warrants (as defined in the Prospectus) are listed on Nasdaq under the symbol "GRNAW". On March 6, 2023, the closing sale price of our Common Stock as reported on Nasdaq was \$0.48 per share, and the closing sale price of our Public Warrants as reported on Nasdaq was \$0.07 per warrant.

**Investing in our securities involves a high degree of risk. Before buying any securities, you should carefully read the discussion of the risks of investing in our securities in "Risk Factors" beginning on page 11 of the Prospectus.**

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

**The date of this Prospectus Supplement is March 7, 2023.**

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

**FORM 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): March 07, 2023**

**GreenLight Biosciences Holdings, PBC**

(Exact name of Registrant as Specified in Its Charter)

**Delaware**  
(State or Other Jurisdiction  
of Incorporation)

**001-39894**  
(Commission File Number)

**85-1914700**  
(IRS Employer  
Identification No.)

**200 Boston Avenue  
Suite 3100  
Medford, Massachusetts**  
(Address of Principal Executive Offices)

**02155**  
(Zip Code)

**Registrant's Telephone Number, Including Area Code: (617) 616-8188**

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value \$0.0001 per share	GRNA	The Nasdaq Stock Market LLC
Warrants, each exercisable for one share of Common Stock for \$11.50 per share	GRNAW	The Nasdaq Stock Market LLC

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

Emerging growth company

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

## Item 7.01 Regulation FD Disclosure

On March 7, 2023, GreenLight Biosciences Holdings, PBC (the “Company” or “GreenLight”) issued a press release entitled “GreenLight Biosciences Outlines Development Strategy and Highlights Portfolio Updates at Plant Health R&D Day.” The Company will present business updates on a webcast on March 7, 2023 at 10:30 a.m. ET. A copy of the press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and the presentation can be found on the Company’s website at <https://investors.greenlightbio.com/events-presentations/presentations>.

The information in this Item 7.01, including Exhibit 99.1 to this Current Report on Form 8-K, the presentation referenced above and the other content on our website, shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, except as expressly set forth by specific reference in such a filing.

## Item 8.01 Other Events

On March 7, 2023, the Company is hosting a research and development day to outline its pipeline strategy and R&D progress for dsRNA-based crop protection and plant delivery innovations focused on addressing food security with innovative and sustainable, solutions.

GreenLight has advanced its portfolio strategy, target product profiles and delivery capabilities in a number of ways it will discuss as part of the R&D day. GreenLight intends to use, and has taken steps to use, its platform to expand its market access by progressing its product development from generation 1, high-value crops (e.g. single target solutions designed to demonstrate proof-of-concept for dsRNA-based agricultural solutions intended to be primarily registered and commercialized by GreenLight), to generation 2, multitarget products (e.g. solutions designed to address multiple targets, anticipated to be developed in collaboration with partners that possess significant distribution capabilities for large markets and retained in house for high value), to generation 3, systemic delivery capabilities (e.g. solutions delivered to the plant to target weeds, nematodes or improve nutrition; intended primarily to be developed in partnership with crop fertility and other potential partners).

Progress updates in GreenLight’s plant health pipeline are as follows:

### Generation 1: High-Value Crops

Calantha™: Subject to receiving regulatory approval and applicable state registrations in the US, we anticipate and are in active preparations for commercial launch prior to the end of 2023. As part of this effort, we are in active discussions with territory-relevant distributors across the US as potential partners to support our planned commercial launch. Furthermore, we are planning to submit Calantha™ for regulatory approval in the EU, UK, Mexico, Canada and Ukraine.

Varroa mite solution: In February 2023, GreenLight submitted a registration dossier to the EPA for our RNA solution that targets the varroa destructor mite, which threatens the role of honeybees in pollinating more than 100 crops annually. We are also planning to submit this solution for regulatory approval in Canada, New Zealand, the EU, and UK, with other potential territories under consideration. As previously described, our field trial data has shown that there are ~40% fewer Varroa destructor mites at 12 weeks in hives compared with a leading chemical control product and with higher hive survival rates compared to the chemical control. Through our ongoing mode of action studies with Victoria University of Wellington (NZ), data shows that the average number of mite offspring decreased approximately 95% compared to control with no detectable negative impact on the growth and development of juvenile bees. Furthermore, our 2022 trials showed that our varroa mite solution used in spring and fall will more than double the rate of hive survival compared to not treating for varroa mite.

### Generation 2: Multitarget Solutions

GreenLight is expanding certain dsRNA-based fungal, insecticide, and acaricide programs into solutions that are designed to address multiple targets.

Powdery Mildew (“PM”): A complex of diseases that impacts a wide range of crops and plants consisting of multiple species that are slightly genetically diverse. GreenLight has further developed its powdery mildew solution by modifying our lead sequence to enable potential control of multiple targets (i.e. cucurbits PM, cereal PM, and ornamentals PM in addition to original target of vine PM). Our field trials have demonstrated that sprayed unformulated (naked) dsRNA decreases disease severity in grapes and performed similarly to the biological standard in field trials. In a similar field trial on zucchini, data showed that our naked dsRNA sequences performed well but inferior to field trial standards. However, when formulated with adjuvants, our trial results showed that our formulated dsRNA provided a larger reduction in disease severity compared to the industry standard. We are targeting our first regulatory submission of our powdery mildew program in 2024 in the US.

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Grey Mold: Disease that impacts a wide range of crops and plants. GreenLight has modified its lead sequences to add additional target species (i.e. sclerotinia sclerotiorum in addition to original target of botrytis cinerea). Data from recent field trials show that dsRNA can provide multi-species control with commercially relevant spray intervals and naked dsRNA applied on snap beans performed similar to the chemical standard. We are targeting our first regulatory submission of our powdery mildew program for 2025.

### Generation 3: Systemic Delivery

Through data from field trial studies conducted at the end of 2022, GreenLight has demonstrated stability of RNA through a standard seed treatment process and dsRNA delivery into plants, showing decreased fusarium disease severity in lettuce seed treatment field trials across two locations and three lettuce varieties. Additionally, data from early experiments (n+2) conducted in February 2023 showed very preliminary indications of herbicidal activity.

### **Forward-Looking Statements**

Certain statements in this Current Report on Form 8-K may constitute “forward-looking statements” for purposes of the federal securities laws. Our forward-looking statements include, but are not limited to, statements regarding our or our management team’s expectations, hopes, beliefs, intentions or strategies regarding the future, including those relating to the success, cost and timing of our research and development activities in our plant and human health programs, the timing of regulatory submissions and approvals, our ability to commercialize our products, the acceptance of RNA-based technologies by regulators and the public, our ability to raise and productively deploy capital and the rate at which we can successfully bring products to market, our projected cash runway and our ability to obtain funding for our operations when needed. Forward-looking statements include statements relating to our management team’s expectations, hopes, beliefs, intentions or strategies regarding the future. In addition, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intends,” “may,” “might,” “plan,” “possible,” “potential,” “predict,” “project,” “should,” “will,” “would” and similar expressions may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. These forward-looking statements are based on current expectations and beliefs concerning future developments and their potential effects. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described under the heading “Risk Factors” in the Company’s most recent Annual Report on Form 10-K filed with the SEC, as well as discussions of potential risks, uncertainties, and other important factors included in our Quarterly Reports on Form 10-Q, periodic filings on Form 8-K, and any of our future filings with the SEC. Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. Some of these risks and uncertainties may in the future be amplified by current macroeconomic conditions and the ongoing COVID-19 pandemic and there may be additional risks that we consider immaterial, or which are unknown. It is not possible to predict or identify all such risks. Our forward-looking statements only speak as of the date they are made, and we do not undertake any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws.

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**Item 9.01 Financial Statements and Exhibits**

(d) Exhibits

<b><u>Exhibit No.</u></b>	<b><u>Description</u></b>
99.1	Press Release issued by GreenLight Biosciences Holdings, PBC on March 7, 2023
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

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**SIGNATURES**

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

GREENLIGHT BIOSCIENCES HOLDINGS, PBC

Date: March 7, 2023

By: /s/ David Kennedy

David Kennedy  
General Counsel

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