As filed with the Securities and Exchange Commission on July 24, 2026

Registration Statement No. 333-287537

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 1
TO

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

REPLIMUNE GROUP, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**82-2082553**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)

500 Unicorn Park Drive
Suite 303
Woburn MA 01801
(781) 222-9600

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Sushil Patel
Chief Executive Officer
Replimune Group, Inc.
500 Unicorn Park Drive
Suite 303
Woburn MA 01801
(781) 222-9600

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

With copies to:
Timothy J. Corbett
Thurston J. Hamlette
Morgan, Lewis & Bockius LLP
101 Park Ave.
New York, NY 10178
(212) 309-6000

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, 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	☐	Accelerated filer	☐
Non-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 of 1933, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to such Section 8(a), may determine.

EXPLANATORY NOTE

This Amendment No. 1 ("Amendment No. 1") to the Registration Statement on Form S-3 (File No. 333-287537) of Replimune Group, Inc. (the "Original Registration Statement") is being filed to amend the Original Registration Statement to comply with the applicable requirements of Form S-3 under the Securities Act of 1933, as amended.

The Original Registration Statement was filed with the Securities and Exchange Commission (the "SEC") on May 22, 2025 and relates only to the potential resale from time to time of the securities by the selling stockholders identified therein. The Original Registration Statement was not declared effective by the SEC due to the prolonged U.S. federal government shutdown, during which the U.S. federal government furloughed critical employees and stopped critical activities, including the review of registration statements. No securities have been sold by the selling stockholders under the Original Registration Statement.

This Amendment No. 1 is being filed to (a) update the sections entitled "Summary," "The Offering," "Cautionary Statements Regarding Forward-Looking Statements," "Selling Stockholders," "Experts," and "Incorporation of Certain Information by Reference;" (b) file a revised opinion of Morgan, Lewis & Bockus LLP as Exhibit 5.1 and the accompanying consent as 23.2; and (c) file a revised consent of Replimune Group, Inc.'s independent registered public accounting firm as Exhibit 23.1.

No additional securities are being registered for resale under this Amendment No. 1. Accordingly, the remainder of the Original Registration Statement remains unchanged.

SUBJECT TO COMPLETION, DATED JULY 24, 2026

PROSPECTUS

REPLIMUNE GROUP, INC.

25,103,489 Shares of common stock
Offered by the Selling Stockholders

This prospectus relates to the offer and resale from time to time of up to an aggregate of 25,103,489 shares of our common stock, par value $0.001 per share, or the Shares, held by Baker Brothers Life Sciences, L.P. and 667, L.P., or the selling stockholders.

The Shares consists of (i) 11,045,336 shares of our common stock collectively held by the selling stockholders, and (ii) 14,058,153 shares of our common stock that are issuable upon the exercise of pre-funded warrants held by the selling stockholders, or the Pre-Funded Warrants, which were originally acquired by the selling stockholders in various transactions from June 2020 through December 2024. We are registering the offer and resale of the Shares to satisfy certain registration rights we have granted to the selling stockholders under a registration rights agreement that we entered into with the selling stockholders on March 5, 2025, which we refer to as the Affiliate Registration Rights Agreement.

We will not receive any of the proceeds from any sale of the Shares by the selling stockholders, although we will receive proceeds from the nominal exercise price of any Pre-Funded Warrants, if and to the extent any such Pre-Funded Warrants are so exercised.

Any Shares subject to resale hereunder will have been issued by us and received by the applicable selling stockholder prior to any resale of such Shares pursuant to this prospectus.

The selling stockholders, or their donees, pledgees, transferees or other successors-in-interest may offer or resell the Shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. The selling stockholders will bear all commissions and discounts and similar selling expenses, if any, attributable to the sale of the Shares. We will bear all costs, expenses and fees (other than commissions and discounts and similar selling expenses) in connection with the registration of the Shares. For additional information on the methods of sale that may be used by the selling stockholders, see "Plan of Distribution" beginning on page 19 of this prospectus.

Our common stock is listed on the Nasdaq Global Select Market under the symbol "REPL." On July 23, 2026, the last reported sale price of our common stock was $10.46.

We are a "smaller reporting company" under federal securities laws and as such, have elected to comply with reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See "Summary — Implications of Being a Smaller Reporting Company."

Investing in our securities involves significant risks. We strongly recommend that you read carefully the risks we describe in this prospectus and in any accompanying prospectus supplement, as well as the risk factors that are incorporated by reference into this prospectus from our filings made with the Securities and Exchange Commission. See "Risk Factors" on page 8 of this prospectus.

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 is , 2026

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission, or the SEC, using a "shelf" registration process. By using a shelf registration statement, the selling stockholders may sell shares of our common stock from time to time and in one or more offerings as described in this prospectus and may provide a prospectus supplement to this prospectus that contains specific information about the shares of our common stock being offered and sold and the specific terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement or free writing prospectus may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or free writing prospectus, you should rely on the prospectus supplement or free writing prospectus, as applicable. Before purchasing any shares of our common stock, you should carefully read both this prospectus and any applicable prospectus supplement and free writing prospectuses, together with the additional information described under the heading "Where You Can Find More Information."

Neither we, the selling stockholders nor any underwriter has authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus, any applicable prospectus supplement or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. Neither we, the selling stockholders nor any underwriter takes responsibility for, and can provide no assurances as to the reliability of, any other information that others may give you. Neither we nor the selling stockholders will make an offer to sell the shares of our common stock in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus and any applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover, that the information appearing in any applicable free writing prospectus is accurate only as of the date of that free writing prospectus and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless indicated otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

This prospectus includes summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or are incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described under the heading "Where You Can Find More Information."

The terms "Replimune," the "Company," "our," "us" and "we," as used in this prospectus, refer to Replimune Group, Inc., a Delaware corporation, and its subsidiaries unless we state otherwise or the context indicates otherwise.

MARKET DATA

This prospectus and the documents incorporated by reference herein include market and industry data and forecasts concerning our business and the markets for certain cancers, including data regarding the estimated size of those markets and the incidence and prevalence of certain medical conditions, that we have derived from independent consultant reports, publicly available information, various industry, medical and general publications, other published industry sources, government data and our internal data and estimates. Independent consultant reports, industry publications and other published industry sources generally indicate that the information contained therein was obtained from sources believed to be reliable. Our internal data and estimates are based upon information obtained from trade and business organizations and other contacts in the markets in which we operate and our management's understanding of industry conditions.

SUMMARY

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, any applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading "Risk Factors" contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our consolidated financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Company Overview

We are a clinical-stage biotechnology company committed to applying our leading expertise in the field of oncolytic immunotherapy to transform the lives of cancer patients through our novel oncolytic immunotherapies. Our proprietary oncolytic immunotherapy product candidates are designed and intended to maximally activate the immune system against cancer.

Oncolytic immunotherapy is an emerging drug class. Oncolytic immunotherapy exploits the ability of certain viruses to selectively replicate in and directly kill tumors, as well as induce a potent, patient-specific, anti-tumor immune response. Our product candidates incorporate multiple mechanisms into a practical "off-the-shelf" approach that is intended to maximize the immune response against a patient's cancer and to offer significant advantages over other approaches to inducing anti-tumor immunity. We believe that the bundling of multiple approaches for the treatment of cancer into single therapies will increase clinical efficacy and simplify the development path of our product candidates, while also improving patient outcomes.

Our proprietary RPx platform is based on a novel, engineered strain of herpes simplex virus 1, or HSV-1, backbone with payloads added that are intended to maximize immunogenic cell death and the induction of a systemic anti-tumor immune response. The RPx platform is intended to have unique dual local and systemic activity consisting of direct selective virus-mediated killing of the tumor resulting in the release of tumor-derived antigens and altering of the tumor microenvironment to ignite a strong and durable systemic response. Our product candidates are expected to be synergistic with most established and experimental cancer treatment modalities, and, with an attractive safety profile, the RPx platform is expected to have the versatility to be developed alone or combined with a variety of other treatment options. We currently have two RPx product candidates in our development pipeline, RP1 (vusolimogene oderparepvec), our lead product candidate and RP2 (sturlimgene erparepvec). Although our fiscal year ends March 31st, our programs and program updates are reported on a calendar year basis.

We have been conducting a number of clinical trials of RP1, both as a monotherapy and in combination with anti-PD-1 therapy, with the goal of establishing a major skin cancer treatment franchise.

Our leading clinical trial of RP1 is referred to as the IGNYTE trial, which is a multi-cohort clinical trial being conducted in collaboration with Bristol Myers Squibb Company, or BMS, under which BMS has granted us a non-exclusive, royalty-free license to, and is supplying at no cost, its anti-PD-1 therapy, nivolumab, for use in combination with RP1.

The leading tumor specific cohort in the IGNYTE trial is our registration directed Phase 2 expansion cohort in anti-PD-1 failed cutaneous melanoma. The anti-PD-1 failed melanoma cohort from the IGNYTE trial includes 140 patients who received RP1 in combination with nivolumab. The primary analysis by independent central review was triggered once all patients had been followed for at least 12 months. As reported in the Journal of Clinical Oncology 43(33):p 3589-3599, of the 140 patients enrolled, 48.6% had stage IVM1b/c/d disease, 65.7% had primary anti-PD-1 resistance, 56.4% were PD-L1 negative, and 46.4% received prior anti-PD-1 and anti-cytotoxic T-lymphocyte antigen-4, or anti-CTLA-4, therapy. The confirmed ORR was 32.9% (15.0% complete response) and the responses occurred with similar frequency, depth, duration, and kinetics for injected and non-injected lesions, including visceral lesions. The median duration of response was 33.7 months and overall survival rates at 1 and 2 years were 75.3% and 63.3%, respectively. A 3-year landmark overall survival analysis from the IGNYTE clinical trial was recently presented at the 2026 American Society of Clinical Oncology annual meeting in May 2026. RP1 plus nivolumab achieved a

median overall survival (mOS) of 32.9 months in patients with anti-PD-1-failed advanced melanoma. At 3 years, 47.8% of all treated patients remained alive, rising to 83.5% among responders. The survival benefit was observed across all key patient subgroups, including those with varying disease stage, PD-L1 expression status, prior anti-CTLA-4 therapy, and primary or secondary anti-PD-1 resistance. The combination of RP1 and nivolumab continued to demonstrate a favorable and manageable safety profile over long-term follow-up, with predominantly Grade 1-2 constitutional side effects, no Grade 5 events, and no new safety signals identified.

In November 2024, we announced submission of our first Biologics License Application, or BLA, to the U.S. Food and Drug Administration, or the FDA, for RP1 (vusolimogene oderparepvec) in combination with nivolumab for the treatment of adult patients with advanced melanoma who have previously received an anti-PD-1 containing regimen, and that the FDA had granted Breakthrough Therapy designation for RP1 in combination with nivolumab in the same setting. The submission was made under the accelerated approval pathway. The FDA accepted our BLA and granted priority review with a Prescription Drug User Fee Act, or PDUFA, goal date of July 22, 2025. On July 21, 2025 the FDA issued a complete response letter, or CRL, for the RP1 BLA for the treatment of advanced melanoma. The FDA stated in the CRL that it was unable to approve the application in its present form and that the IGNYTE trial was not considered to be an adequate and well-controlled clinical investigation that provided substantial evidence of effectiveness, including contribution of components. Furthermore, the FDA said the trial could not be adequately interpreted due to the heterogeneity of the patient population. On September 2, 2025 we announced that a type A meeting with the FDA had been scheduled to discuss the CRL following our submission of a briefing book addressing the points raised in the CRL, highlighting prior agreements related to the patient population, criteria for PD-1 resistance, and use of literature to support contribution of components. The briefing book also included an additional analysis of data from the BLA and addressed comments about the Phase 3 confirmatory trial design raised by the FDA in the CRL. On September 18, 2025 we announced that, following the type A meeting with the FDA to discuss the CRL, which was conducted on September 16, 2025, we were evaluating feedback received during the type A meeting to determine our next steps and that, at that time, a path forward under the accelerated approval pathway had not been determined. Following the evaluation of FDA feedback and minutes from the type A meeting, we resubmitted the BLA on October 9, 2025. On October 20, 2025 we announced that the FDA had accepted the resubmission of the BLA for RP1 in combination with nivolumab for the treatment of advanced melanoma in patients who progress on an anti-PD-1 containing regimen. The resubmission of the BLA included additional information, data and analyses that will be part of the BLA review. The FDA indicated that the resubmission is considered to be a complete response to the CRL and set a target action date of April 10, 2026 based on a Class 2 resubmission timeline.

On April 10, 2026, the FDA issued a second CRL for the RP1 BLA for the treatment of advanced melanoma. The second CRL reiterated points made in the first CRL that were presumably addressed by the FDA accepting the BLA for resubmission indicating the resubmission was a complete response to the initial CRL. The second CRL also reverses on points the FDA made in the September 2025 Type A meeting following the initial CRL. We announced on May 29, 2026, that following collaborative communications with the FDA, the Company and the FDA aligned on a path forward for resubmission and reconsideration of the BLA for RP1 in combination with nivolumab for the treatment of advanced melanoma. In that announcement, we reported that the FDA indicated that it will treat the BLA resubmission as an urgent matter upon receipt and will prioritize its review in recognition of the significant unmet need for patients in the advanced melanoma community. Without an accelerated approval of the BLA for RP1 in combination with nivolumab for the treatment of advanced melanoma from this resubmitted BLA we might not be able to continue the development of RP1 for this indication, if at all, and we may be required to implement a restructuring plan and review our priorities across the RPx portfolio and the company as a whole. On June 26, 2026 we announced the FDA accepted the BLA resubmission as a Class 1 resubmission with an action date of August 2, 2026. The FDA also stated that they would convene an advisory committee meeting on July 30, 2026.

In August 2024, we announced the dosing of the first patient in the IGNYTE-3 trial, or the I-3 trial, a 2-arm randomized Phase 3 clinical trial with physician's choice of treatment as a comparator arm in anti-PD-1 failed melanoma patients. In the September 2025 type A meeting minutes following the initial CRL, the FDA stated a control arm of nivolumab in combination with relatlimab (Opdualag$_{(R)}$) may be an acceptable

comparator for the I-3 randomized controlled trial. However, in the second CRL we believe the FDA reverted on its position in the September 2025 type A meeting. Following the recent collaborative communications with the FDA we plan to continue working with the FDA on a path forward for the I-3 trial. We continue to enroll patients in the I-3 trial.

In our non-melanoma skin cancer, or NMSC, cohort of the IGNYTE trial, we provided a data update in December 2023 from the first 30 patients with at least 6 months of follow up including patients with cutaneous squamous cell carcinoma, or CSCC, Merkel cell carcinoma, or MCC, basal cell carcinoma, or BCC, and angiosarcoma in this cohort. The data showed that treatment with RP1 in combination with nivolumab led to an ORR of 30% which is consistent with data from the anti-PD-1 failed melanoma cohort with approximately one-third of patients responding and 60% demonstrating clinical benefit. The combination of RP1 and nivolumab was well tolerated in this patient population with a safety profile consistent with the overall experience seen with this treatment regimen to date. We provided updated data from the NMSC cohort during our June 2025 Investor Day event and in October 2025 at the European Society for Medical Oncology, or ESMO, conference. Responses to RP1 plus nivolumab occurred across the NMSC tumor types enrolled, with confirmed responses seen in patients with both anti-PD-1 naïve and anti-PD-1 failed disease, as well as both in locally advanced and metastatic disease. The ORR by NMSC tumor type for anti-PD-1 naïve patients was 100.0% (n=4) in MCC, 33.3% (n=3) in BCC, 66.7% (n=6) in angiosarcoma, and 56.3% (n=16) in CSCC. The ORR by NMSC tumor type for anti-PD-1 failed patients was 26.3% (n=19) in MCC, 30.0% (n=10) in BCC, 37.5% (n=8) in angiosarcoma, and 15.2% (n=33) in CSCC. We closed enrollment in the NMSC tumor type cohorts in the fourth quarter of 2025.

We had been furthering development of RP1 through enrollment in a Phase 1b/2 clinical trial of single agent RP1 in solid organ transplant recipients with skin cancers, including CSCC, which we referred to as the ARTACUS trial. The ARTACUS trial enrolled 69 patients to assess the safety and efficacy of RP1 in liver, kidney, heart, lung, and hematopoietic cell transplant patients with skin cancers. Most recently, Dr. Michael R. Migden presented updated data from the ARTACUS trial at the Society for Melanoma Research 22nd International Congress in October 2025. This updated data showed anti-tumor activity in locally advanced CSCC with an ORR of 34.6% (CR rate of 23.1%) and 2-year duration of response of 61.0%. Furthermore, the data showed that RP1 monotherapy continued to be well tolerated and the safety profile continued to be similar to that observed in non-immunocompromised patients with advanced skin cancers, and, importantly, no implant rejections were attributed to the RP1 treatment. We have closed enrollment in the ARTACUS trial and are planning a publication of the data in 2026.

Our previous clinical trial of RP1 in patients with CSCC, which we referred to as the CERPASS trial, is fully closed and we are planning for a study report to be available in 2026.

We are also developing or are continuing to develop additional product candidates, RP2 and RP3, that have been further engineered to enhance anti-tumor immune responses and are intended to address additional tumor types, including traditionally less immune responsive tumor types. In addition to the expression of GALV-GP R(-) and human GM-CSF as in RP1, RP2 has been engineered to express an antibody-like molecule intended to block the activity of CTLA-4, a protein that inhibits the full activation of an immune response, including to tumors. RP3 has been engineered with the intent to further stimulate an anti-tumor immune response through activation of immune co-stimulatory pathways through the additional expression of the ligands for CD40 and 4-1BBL, as well as anti-CTLA-4 and GALV-GP R(-), but without the expression of GM-CSF.

We continue the development of our product candidate RP2 with the goal of moving beyond skin cancers and aiming to treat the more prevalent tumor types commonly found in liver and lung metastasis and including those involving primary liver cancer. Notably, as previously reported, from our Phase 1 clinical trial of RP2 alone and in combination with nivolumab, we have seen durable responses from a monotherapy cohort in a variety of difficult to treat tumors as well as in combination with anti-PD-1 and in particular in patients with metastatic uveal melanoma, or mUM. In November 2023, we presented updated data from a cohort of mUM patients during a Plenary Session at the 20th Annual International Society for Melanoma Research Congress. The updated data showed RP2 led to an ORR of 29.4% (5 of 17 patients; one of the responding patients was treated with RP2 monotherapy and four of the responding patients were treated with RP2 combined with nivolumab), including responses in patients with liver, lung, and bone metastases. The median DOR at the data cutoff was 11.47 months (range of 2.78 to 21.22 with responses ongoing). Nearly all

patients (15 of 17, 88.2%) in the study had progressed on or after immunotherapy with 12 of 17 patients (70.6%) having previously received both anti-PD-1 and anti-CTLA-4 therapies, including four of the responding patients. RP2 was generally well tolerated both as monotherapy and in combination with nivolumab with no additive adverse events observed. The most common grade 1 or 2 treatment related adverse events, or TRAEs, overall in both cohorts were pyrexia, chills, fatigue, hypotension and pruritis. Six patients had grade 3 TRAEs, including two cases of hypotension. There were no grade 4 or 5 TRAEs. In June 2024, we presented that the disease control rate for this cohort of mUM patients was 58.8%.

Leading the development of the RP2 product candidate is our REVEAL study. The REVEAL study is enrolling patients in a registration-directed study of RP2 in mUM patients who are immune checkpoint inhibitor-naïve. The REVEAL study is a randomized, Phase 2/3 open label study expected to enroll approximately 280 patients to investigate the efficacy and safety of RP2 in combination with nivolumab vs. ipilimumab in combination with nivolumab in immune checkpoint inhibitor naïve adult patients with metastatic uveal melanoma. The primary endpoints of the trial are overall survival and progression free survival, and key secondary endpoints are overall response rate and disease control rate. In January 2026 we announced the Phase 2/3 transition is expected to occur in the first quarter of 2027.

We continue our signal finding trial of RP2 in combination with atezolizumab and bevacizumab in the 2L setting of patients with hepatocellular carcinoma, or HCC, in collaboration with Roche. The protocol has been amended to include RP2 as monotherapy and we plan to release preliminary HCC data by the end of 2026. We have also opened a cohort in our RP2 study to investigate the potential to address biliary tract cancer, or BTC, through the dosing of RP2 in combination with durvalumab. We are currently evaluating these signal finding studies.

RP1, RP2 and RP3 are administered by direct injection into solid tumors, guided either visually or by ultrasound, computerized tomography or other imaging methods. We believe that direct injection maximizes virus-mediated tumor cell death, provides the most efficient delivery of virus-encoded immune activating proteins into the tumor with the goal of activating systemic immunity, and limits the systemic toxicities that could be associated with intravenous administration. Activation of systemic immunity through local administration is intended to lead to the induction of anti-tumor immune responses leading to clinical response of tumors that have not themselves been injected.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company,” as defined in Regulation S-K. As a result, we may take advantage of certain of the scaled disclosures available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and have reduced disclosure obligations regarding executive compensation. We will remain a smaller reporting company if we have (i) less than $250 million in market value of our shares of common stock held by non-affiliates as of the last business day of our second fiscal quarter, or (ii) less than $100 million of annual revenues in our most recent fiscal year completed before the last business day of our second fiscal quarter and less than $700 million in market value of our shares of common stock held by non-affiliates as of the last business day of our second fiscal quarter.

Corporate Information

We are a Delaware corporation organized in July 2017. Our principal executive offices are located at 500 Unicorn Park Drive, Suite 303, Woburn, MA 01801, and our telephone number is (781) 222-9600. Our website is www.replimune.com. The information contained on or accessible through our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our common stock.

The Offering

common stock offered by us	None.
common stock offered by the selling stockholders	Up to 25,103,489 shares of our common stock, including 14,058,153 shares of our common stock issuable upon the exercise of the Pre-Funded Warrants by the selling stockholders.
common stock to be outstanding after this offering	107,820,412 shares of our common stock, assuming the exercise of all of the Pre-Funded Warrants by the selling stockholders and their subsequent sale of the Shares.
Selling stockholders	All of the shares of our common stock are being offered by the selling stockholders. See "Selling Stockholders" on beginning on page 12 for additional information on the selling stockholders.
Use of proceeds	We will not receive any proceeds from the sale of the shares of common stock in this offering by the selling stockholders.
Plan of Distribution	The selling stockholders, or their pledgees, donees, transferees, distributees, beneficiaries or other successors-in-interest, may offer or sell the shares of our common stock offered under this prospectus from time to time through public or private transactions at our prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. The selling stockholders may also resell the shares of our common stock offered under this prospectus to or through underwriters, broker-dealers or agents, who may receive compensation in the form of discounts, concessions or commissions. See "Plan of Distribution" beginning on page 19 for additional information on the methods of sale that may be used by the selling stockholders.
Risk factors	Investing in our common stock involves significant risks. See "Risk Factors" beginning on page 8 of this prospectus and the other information included in, or incorporated by reference into, this prospectus for a discussion of certain factors you should carefully consider before deciding to invest in shares of our common stock.
Nasdaq Global Select Market symbol	"REPL"

The number of shares of common stock to be outstanding after this offering, as set forth above, is based on 82,716,923 shares of our common stock outstanding as of March 31, 2026, which amount excludes:

- 11,785,458 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2026 at a weighted average exercise price of $14.12 per share;
- 5,508,882 shares of our common stock underlying unvested restricted stock units and performance stock units outstanding as of March 31, 2026 at a weighted average grant date fair value of $9.69 per share;
- 1,569,457 shares of our common stock reserved, as of March 31, 2026, for future issuance under our 2018 Omnibus Incentive Compensation Plan; and
- 4,102,399 shares of our common stock reserved, as of March 31, 2026, for future issuance under our Employee Stock Purchase Plan.

RISK FACTORS

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should carefully consider the risks described below and discussed under the sections captioned "Risk Factors" contained in our most recent Annual Report on Form 10-K, as well as in any of our subsequent Quarterly Reports on Form 10-Q, which are incorporated by reference herein in their entirety, together with other information in this prospectus, the information and documents incorporated by reference in this prospectus, and in any prospectus supplement or free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.

The sale of a substantial number of shares of our common stock in the public market, including resale of the Securities issued or issuable to the selling stockholders, could adversely affect the prevailing market price for our common stock.

We are registering for resale up to 25,103,489 Shares, including 14,058,153 shares of our common stock issuable upon the exercise of the Pre-Funded Warrants by the selling stockholders to fulfill our contractual obligations under the Affiliate Registration Rights Agreement (as defined below). Sales of substantial amounts of shares of our common stock in the public market, or the perception that such sales might occur, could adversely affect the market price of our common stock. We cannot predict if and when the selling stockholders may sell such shares in the public markets. Furthermore, in the future, we may issue additional shares of our common stock or other equity or debt securities exercisable for, or convertible into, shares of our common stock. Any such issuances could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock.

Our stock price has been and is likely to be volatile. The stock market in general and the market for biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, a purchaser of our common stock may not be able to sell shares of our common stock at or above the price at which it was acquired.

Our independent registered public accounting firm's report on our financial statements included in our Annual Report on Form 10-K for the year ended March 31, 2026 contains an explanatory paragraph expressing substantial doubt about our ability to continue as a going concern.

Our consolidated financial statements have been prepared on the basis of continuity of operations, realization of assets and the satisfaction of liabilities and commitments in the ordinary course of business. Based on our current operating plan, we expect to continue to generate operating losses for the foreseeable future and our existing cash, cash equivalents and short-term investments will be sufficient to fund our operating expenses and capital expenditure requirements only into the first calendar quarter of 2027, which is less than one year from the filing of this prospectus. This raises substantial doubt about our ability to continue as a going concern. We are collaborating with the FDA regarding a path forward for RP1 and, if the BLA is approved, we will determine the best source of capital, which may be raising additional capital through public or private equity offerings (including under our at-the-market facility), although there can be no guarantee that we will be able to raise such capital on acceptable terms, or at all. If the BLA is not approved, we will likely need to reconsider our product development efforts and strategies and pursue collaborations, strategic alliances, licensing arrangements, or business combination, merger or acquisition, or other strategic business development activities to continue operations. In either scenario, our plans are subject to risks and uncertainties, including factors outside our control.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the information incorporated by reference into this prospectus, contains, and any applicable prospectus supplement may contain, "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities and Exchange Act of 1934, as amended, or the Exchange Act, including statements regarding our expectations about our cash runway, the design and advancement of our clinical trials, the timing and sufficiency of our clinical trial outcomes to support potential approval of any of our product candidates, our goals to develop and commercialize our product candidates, patient enrollments in our existing and planned clinical trials and the timing thereof, and other statements concerning our business, operations and financial performance and condition, as well as our plans, objectives and expectations for our business operations and financial performance and condition. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements.

In some cases, you can identify these forward-looking statements by the use of words such as "outlook," "believes," "expects," "potential," "continues," "may," "will," "should," "seeks," "approximately," "predicts," "intends," "plans," "estimates," "anticipates" or the negative version of these words or other comparable words. Such forward-looking statements are subject to various risks and uncertainties. Accordingly, there are or will be important factors that could cause actual outcomes or results to differ materially from those indicated in these statements. We believe these factors include, among other things:

- the timing, progress, and results of preclinical studies and clinical trials for our product candidates, including the timing of initiation and completion of studies or trials and related preparatory work and the period during which the results of the trials will become available;
- our ability to obtain additional funding as necessary;
- the timing, scope or likelihood of regulatory filings and approvals, including timing of approval by the U.S. Food and Drug Administration, or the FDA, of, RP1 or any of our other product candidates;
- our ability to address comments in the second Complete Response Letter, or CRL, related to our Biologics License Application, or BLA, for RP1 in combination with nivolumab for the treatment of advanced melanoma to the satisfaction of the FDA, and the outcome of a resubmitted BLA;
- the timing, scope, or likelihood of foreign regulatory filings and approvals;
- our ability to develop our product candidates for use in combination with other checkpoint blockade therapies, including anti-PD-1;
- our ability to develop and advance any future product candidates into, and successfully complete, clinical trials;
- our expectations regarding the size of the patient populations for RP1, RP2 and/or any other product candidates from our RPx platform if approved for commercial use;
- our ability to successfully qualify, obtain approval for, and maintain successful operation, approval and qualification of our in-house manufacturing operations;
- our ability to obtain and maintain sufficient quantities of raw material supplies or access single or limited sources of goods or services needed to build or maintain our product candidate supplies or otherwise operate our in-house manufacturing facility;
- the costs of operating our in-house manufacturing facility;
- our estimates regarding expenses and capital requirements;
- the implementation of our business model and our strategic plans for our business, RP1 and our other product candidates;
- the rate and degree of market acceptance and clinical utility of RP1 and our other product candidates;
- the potential benefits of and our ability to establish or maintain future collaborations or strategic relationships;

- our ability to retain the continued service of our key professionals and to identify, hire and retain additional qualified professionals;
- our intellectual property position, including the scope of protection we are able to establish and maintain for intellectual property rights covering RP1 and our other product candidates, claims others may make regarding rights in our intellectual property, and any potential infringement, misappropriation or other violation of any third-party intellectual property rights;
- our competitive position, and developments and projections relating to our competitors and our industry;
- negative developments in the fields of immuno-oncology or oncolytic immunotherapy;
- the impact of laws and regulations; and
- the other risks and uncertainties described under "Risk factors" of our Annual Report on Form 10-K for the year ended March 31, 2026 and our subsequent filings which are incorporated by reference into this prospectus.

The forward-looking statements made in this prospectus, any applicable prospectus supplement and the documents that we incorporate by reference herein and therein relate only to events as of the date on which the statements are made. These factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements that are included in this prospectus, any applicable prospectus supplement and the documents that we incorporate by reference herein and therein. Moreover, we operate in a competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this prospectus, any applicable prospectus supplement and the documents that we incorporate by reference herein and therein. We undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise, except to the extent required by applicable law. You should not rely on forward-looking statements as predictions of future events. We may not actually achieve the plans, intentions, or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements.

USE OF PROCEEDS

We will not receive any proceeds from the sale of our common stock by the selling stockholders.

We may receive proceeds from the nominal exercise price of the Pre-Funded Warrants. There can be no assurance that any of the Pre-Funded Warrants will be exercised. We intend to use the net proceeds from any exercise of the Pre-Funded Warrants for general corporate purposes, including working capital requirements and operating expenses.

SELLING STOCKHOLDERS

This prospectus covers the offer and resale by the selling stockholders from time to time of the Shares, which consists of (i) 11,045,336 shares of our common stock collectively held by the selling stockholders, and (ii) 14,058,153 shares of common stock issuable upon the exercise of the Pre-Funded Warrants. We are registering the offer and resale of the Shares to satisfy certain registration rights we have granted to the selling stockholders under the Affiliate Registration Rights Agreement. The selling stockholders may from time to time offer and sell any or all of the Shares registered hereunder pursuant to this prospectus and any accompanying prospectus supplement.

The following table sets forth the number and percentage of shares of our common stock beneficially owned by the selling stockholders as of March 31, 2026, taking into account the number of shares that may be offered under this prospectus and the number and percentage of shares of our common stock beneficially owned by the selling stockholders assuming all of the shares offered under this prospectus are sold, including the shares of our common stock issuable upon the exercise of the Pre-Funded Warrants. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to shares of our common stock. Generally, a person "beneficially owns" shares of our common stock if the person has or shares with others the right to vote those shares or to dispose of them, or if the person has the right to acquire voting or disposition rights within 60 days. Notwithstanding the foregoing, although none of the Pre-Funded Warrants are currently exercisable by the selling stockholders and, accordingly, the underlying shares of our common stock issuable upon the exercise of the Pre-Funded Warrants are not beneficially owned by the selling stockholders, the information in the table below assumes that the selling stockholders beneficially own all of the Shares.

The percentage of shares of our common stock owned is based on 82,716,923 shares of our common stock issued and outstanding as of March 31, 2026. Unless otherwise indicated in the footnotes to this table, we believe that the selling stockholders have sole voting and investment power with respect to the shares of our common stock indicated as beneficially owned.

As used in this prospectus, the term "selling stockholder" includes the selling stockholders named below and any donees, pledgees, transferees or other successors-in-interest selling shares of our common stock received after the date of this prospectus from the selling stockholders as a gift, pledge, or other non-sale related transfer.

	Shares of Common Stock Beneficially Owned Prior to the Offering		Shares of Common Stock Being Offered[1]	Shares of Common Stock Beneficially Owned After the Offering[2]	
Name of Selling Stockholder	Number	Percentage	Number	Number	Percentage (%)
Entities affiliated with Baker Bros. Advisors LP	25,103,489[3]	25.94%	25,103,489	—	—

(1) The number of shares of our common stock in the column "Shares of Common Stock Being Offered" represents all of the shares of our common stock that a selling stockholder may offer and sell from time to time under this prospectus, including, for the avoidance of doubt, all shares of our common stock issuable upon exercise of the Pre-Funded Warrants.

(2) We do not know when or in what amounts a selling stockholder may offer shares of our common stock for sale, if at all. The selling stockholders may never exercise the Pre-Funded Warrants. Even if the selling stockholders exercise the Pre-Funded Warrants owned by them, the selling stockholders might not sell any or might sell all of the shares of our common stock offered by this prospectus. Because the selling stockholders may offer all or some of the shares of our common stock pursuant to this offering, and because, except as set forth elsewhere in this prospectus, there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares of our common stock, we cannot estimate the number of the shares that will be held by the selling stockholders after completion of the offering.

(3) Consists of (i) 10,116,095 shares of our common stock held by Baker Brothers Life Sciences, L.P. ("Baker Brothers Life Sciences"), and (ii) 929,241 shares of our common stock held by 667, L.P. ("667" and, together with Baker Brothers Life Sciences, the "BBA Funds"). The table above also takes into account the 14,058,153 shares of common stock that are issuable to the BBA Funds upon the exercise

of the Pre-Funded Warrants. Baker Bros. Advisors LP ("BBA") is the management company and investment advisor to the BBA Funds and has sole voting and investment power with respect to these securities. Baker Bros. Advisors (GP) LLC (the "GP") is the sole general partner of BBA. Julian C. Baker and Felix J. Baker are managing members of the GP. The GP, Julian C. Baker, Felix J. Baker and BBA may be deemed to be beneficial owners of the securities directly held by the BBA Funds. Julian C. Baker, Felix J. Baker, BBA, and the GP disclaim beneficial ownership of all securities held by the BBA Funds, except to the extent of their indirect pecuniary interest therein. The business address of BBA, GP, Julian C. Baker and Felix J. Baker is 860 Washington Street, 3rd Floor, New York, NY 10014.

Relationship with the Selling Stockholders

Except as described below, none of the selling stockholders has held any position or office with us or our affiliates within the last three years or has had a material relationship with us or any of our predecessors or affiliates within the past three years.

Board of Directors

On March 5, 2025, our Board of Directors, or the Board, upon the recommendation of the Board's Nominating and Corporate Governance Committee, appointed Michael Goller to the Board, effective immediately. Mr. Goller is an employee of Baker Bros. Advisors LP, the investment adviser of the BBA Funds.

Affiliate Registration Rights Agreement

In connection with the appointment of Mr. Goller to the Board, we entered into the Affiliate Registration Rights Agreement with the BBA Funds. Pursuant to the Affiliate Registration Rights Agreement, the BBA Funds are entitled to certain resale registration rights with respect to shares of our common stock issued or issuable upon the exercise or conversion of any other securities (whether equity, debt or otherwise) now owned or subsequently acquired by the BBA Funds, subject to certain specified exceptions, conditions and limitations as set forth in the Affiliate Registration Rights Agreement.

The Affiliate Registration Rights Agreement, among other things, provides the BBA Funds with certain "resale" registration rights. In particular, the Affiliate Registration Rights Agreement provides for the following registration rights:

- *Demand registration rights*. We are required, upon the written request of the BBA Funds, to file a registration statement covering the resale of the registrable securities held by the BBA Funds and to use our reasonable best efforts to effect the registration of all or part of the BBA Funds' registrable securities. We are required to effect only one registration in any twelve-month period pursuant to this provision of the Registration Rights Agreement.
- *Expenses and indemnification*. All fees, costs and expenses of underwritten registrations will be borne by us and underwriting discounts and selling commissions will be borne by the holders of the shares being registered. The Registration Rights Agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and holders of registrable securities are obligated to indemnify us for material misstatements or omissions attributable to them.
- *Registrable Securities*. The registrable securities cease to be registrable securities upon the earliest to occur of the following events: (i) such registrable securities have been sold pursuant to an effective registration statement, (ii) such registrable securities have been sold by the BBA Funds pursuant to Rule 144 (or other similar rule), (iii) such registrable securities may be resold by the BBA Funds holding such registrable securities without limitations as to volume or manner of sale pursuant to Rule 144; and (iv) ten (10) years after the date of this Registration Rights Agreement.
- *Lock-up*. In connection with any registration pursuant to any of the registration rights described above that is conducted as an underwritten public offering, the BBA Funds, we and our directors and officers will, if reasonably requested, execute and deliver a customary lock-up agreement with the underwriter(s) of such underwritten public offering, subject to certain customary exceptions.

DESCRIPTION OF CAPITAL STOCK

The following is a description of certain provisions of our certificate of incorporation and bylaws, and certain provisions of the Delaware General Corporation Law, or DGCL. The following description does not purport to be complete and is subject to, and qualified in its entirety by reference to, our certificate of incorporation and bylaws, each filed as exhibits to the registration statement of which this prospectus forms a part, and the terms and provisions of the DGCL. For more complete information, you should carefully review our certificate of incorporation and bylaws, which have been filed with the SEC as exhibits to our registration statement of which this prospectus forms a part and which may be obtained as described below under "Where You Can Find More Information."

Our authorized capital stock consists of 150 million shares of common stock, par value $0.001 per share, and 10 million shares of undesignated preferred stock, par value $0.001 per share.

Common Stock

Subject to any preferential rights that may be applicable to any outstanding shares of preferred stock from time to time, the holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. The holders of our common stock do not have any cumulative voting rights. The holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights or other subscription rights or redemption or sinking fund provisions.

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock.

Preferred stock

Pursuant to our certificate of incorporation, our board of directors has the authority, without further action by our stockholders, to issue up to 10 million shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions, as well as the number of shares constituting and the designation of any series, thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences or sinking fund terms any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action. There are currently no shares of preferred stock outstanding, and we have no present plan to issue any shares of preferred stock.

The DGCL provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Pre-funded Warrants

We have outstanding pre-funded warrants to purchase shares of our common stock consisting of pre-funded warrants to purchase an aggregate of:

- 217,391 shares of our common stock at an exercise price of $0.0001 per share, which were issued in June 2020 in an underwritten public offering;
- 125,000 shares of our common stock at an exercise price of $0.0001 per share, which were issued in October 2020 in an underwritten public offering;
- 4,200,000 shares of our common stock at an exercise price of $0.0001 per share, which were issued in December 2022 in an underwritten public offering;

- 5,669,578 shares of our common stock at an exercise price of $0.001 per share, which were issued in June 2024 in a private placement, or the June 2024 Pre-Funded Warrants; and
- 3,846,184 shares of our common stock at an exercise price of $0.0001 per share, which were issued in December 2024 in an underwritten public offering, or the December 2024 Pre-Funded Warrants.

Each pre-funded warrant entitles the holder to purchase one share of our common stock at the applicable per share exercise price. The pre-funded warrants do not expire and may be exercised by the holder at any time after their original issuance. Unless otherwise modified by a holder of a pre-funded warrant, no holder may exercise a pre-funded warrant (i) if such holder, together with its affiliates, would beneficially own more than 9.99% (or, in the case of the December 2024 Pre-Funded Warrants, 4.99%) of the number of shares of our common stock outstanding immediately after giving effect to such exercise, or (ii) if the combined voting power of our securities beneficially owned by such holder, together with its affiliates, would exceed 9.99% (or, in the case of the December 2024 Pre-Funded Warrants, 4.99%) of the combined voting power of all of our securities then outstanding immediately after giving effect to the exercise of such pre-funded warrants, as such percentage ownership is determined in accordance with the terms of the pre-funded warrants. However, a holder of a pre-funded warrant may increase or decrease this percentage to any other percentage not in excess of 19.99% or, in the case of the June 2024 Pre-Funded Warrants, 9.99%, by providing us with at least 61 days' prior notice. The exercise price of the pre-funded warrants and the number of shares of our common stock issuable upon exercise of the pre-funded warrants are subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distributions of assets, including cash, stock or other property to our stockholders.

Anti-takeover effects of provisions of Delaware law and our certificate of incorporation and bylaws

Requirements for advance notification of stockholder meetings, nominations and proposals

Our certificate of incorporation provides that special meetings of the stockholders may be called only by or at the direction of our board of directors. Our bylaws prohibit the conduct of any business at a special meeting other than as specified in the notice for such meeting. These provisions may have the effect of deferring, delaying or discouraging hostile takeovers, or changes in control or management of our company.

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 our board of directors. In order for any matter to be "properly brought" before a meeting, a stockholder will have to comply with advance notice requirements and provide us with certain information. Additionally, vacancies and newly created directorships may be filled only by a vote of a majority of the directors then in office, even if less than a quorum, and not by the stockholders. Our bylaws allow the presiding officer at a meeting of the stockholders to adopt rules and regulations for the conduct of meetings which may have the effect of precluding the conduct of certain business at a meeting if the rules and regulations are not followed. These provisions may also defer, delay or discourage a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

Our certificate of incorporation provides that our board of directors is expressly authorized to adopt, amend or repeal our bylaws.

No cumulative voting

The DGCL provides that stockholders are not entitled to cumulate votes in the election of directors unless our certificate of incorporation provides otherwise. Our certificate of incorporation does not expressly provide for cumulative voting.

Amendments to certificate of incorporation and bylaws

The DGCL provides that, unless a corporation's certificate of incorporation provides otherwise, the affirmative vote of the holders of a majority of the outstanding shares entitled to vote is required to approve certain amendments to the certificate of incorporation.

Our certificate of incorporation provides that the affirmative vote of holders of at least 75% of the outstanding shares of capital stock, voting together as a single class, and entitled to vote in the election of directors will be required to amend, alter, change or repeal certain provisions of our certificate of incorporation and bylaws. This requirement of a supermajority vote to approve certain amendments to our certificate of incorporation and bylaws allows a minority of our stockholders to exercise veto power over such amendments.

Forum selection clause

Our certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers or other employees to us or our stockholders; (iii) any action asserting a claim against us or any director or officer or other employee of ours arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws; or (iv) any action asserting a claim against us or any director or officer or other employee of ours governed by the internal affairs doctrine. This exclusive forum provision would not apply to suits brought to enforce any liability or duty created by the Securities Act or the Exchange Act or any other claim to the extent the federal courts have exclusive jurisdiction. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. Our certificate of incorporation further provides that any person or entity that acquires any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions described above.

Staggered board

Our certificate of incorporation provides that our board of directors is divided into three classes of directors, with the directors in each class serving staggered three-year terms and with the number of directors in each class to be as nearly equal as possible.

Stockholder action by written consent

Pursuant to Section 228 of the DGCL, any action required to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares of our stock entitled to vote thereon were present and voted, unless the corporation's certificate of incorporation provides otherwise. Our certificate of incorporation prohibits the taking of any action of our stockholders by written consent without a meeting.

Delaware anti-takeover statute

We have not opted out of, and therefore are subject to, Section 203 of the DGCL. Section 203 provides that, subject to certain exceptions specified in the law, a publicly-held Delaware corporation shall not engage in certain "business combinations" with any "interested stockholder" for a three-year period after the date of the transaction in which 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 that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the 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 number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned under 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

- on or subsequent to the date of the transaction, the business combination is approved by the board 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 or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. Since Section 203 will apply to us, we expect that it would have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. In such event, we would also anticipate that Section 203 could discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders. Under certain circumstances, Section 203 makes it more difficult for a person who would be an "interested stockholder" to effect various business combinations with a corporation for a three-year period. The provisions of Section 203 may encourage companies interested in acquiring our company to negotiate in advance with our board of directors because the stockholder approval requirement would be avoided if our board of directors approves either the business combination or the transaction that results in the stockholder becoming an interested stockholder. These provisions also may make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Authorized but unissued capital stock

The DGCL does not require stockholder approval for any issuance of authorized shares. However, the listing requirements of the Nasdaq Global Select Market, which apply to us so long as our common stock remains listed on the Nasdaq Global Select Market, require stockholder approval of certain issuances equal to or exceeding 20% of the then outstanding voting power or then outstanding number of shares of common stock. These additional shares may be used for a variety of corporate purposes, including future public offerings, to raise additional capital or to facilitate acquisitions.

One of the effects of the existence of unissued and unreserved common stock or preferred stock may be to enable our board of directors to issue shares to persons friendly to current management, which issuance could render more difficult or discourage an attempt to obtain control of our company by means of a merger, tender offer, proxy contest or otherwise, and thereby protect the continuity of our management and possibly deprive our investors of opportunities to sell their shares of common stock at prices higher than prevailing market prices.

Registration rights

Certain of the holders of our common stock, or their transferees, are entitled to registration rights with respect to the registration of the resale of such shares under the Securities Act.

On June 14, 2024, in connection with the closing of a private placement we entered into a registration rights agreement, or the Registration Rights Agreement, pursuant to which certain holders of our common stock have certain registration rights in respect of the securities acquired in connection with the private placement, subject to customary conditions.

On March 5, 2025, we entered into a registration rights agreement, or the Affiliate Registration Rights Agreement, with 667, L.P. and Baker Brothers Life Sciences, L.P., which we refer to as the BBA Funds. Pursuant to the Affiliate Registration Rights Agreement, the BBA Funds are entitled to certain resale registration rights with respect to shares of our common stock issued or issuable upon the exercise or conversion of any other securities (whether equity, debt or otherwise) now owned or subsequently acquired by the BBA Funds, subject to certain specified exceptions, conditions and limitations as set forth in the Affiliate Registration Rights Agreement.

Limitations of liability and indemnification

Our certificate of incorporation limits the liability of directors to the fullest extent permitted by Delaware law. The effect of these provisions is to eliminate our rights and the rights of our stockholders,

through stockholders' derivative suits on our behalf, to recover monetary damages from a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, exculpation does not apply to any director if the director has acted in bad faith, knowingly or intentionally violated the law, authorized illegal dividends or redemptions or derived an improper benefit from his or her actions as a director.

In addition, our certificate of incorporation and bylaws provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. We also expect to continue to maintain directors' and officers' liability insurance. We believe that these indemnification provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability and indemnification provisions in our certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions may also have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders.

In addition to the indemnification required in our certificate of incorporation and bylaws, we enter into indemnification agreements with each of our directors and executive officers. These agreements provide for the indemnification of our directors and executive officers for all reasonable expenses and liabilities incurred in connection with any action or proceeding brought against them by reason of the fact that they are or were our agents. We believe that these provisions and indemnification agreements, as well as maintaining directors' and officers' liability insurance, help to attract and retain qualified persons as directors and officers.

Market listing

Our common stock is listed on the Nasdaq Global Select Market under the symbol "REPL."

Transfer agent and registrar

The transfer agent and registrar for our common stock is Computershare Trust Company N.A.

PLAN OF DISTRIBUTION

The selling stockholders, including their pledgees, donees, transferees, distributees, beneficiaries or other successors in interest, may from time to time offer some or all of the shares of our common stock offered under this prospectus. We will not receive any of the proceeds from the sale of the shares of our common stock offered under this prospectus by the selling stockholders. We will bear all fees and expenses incident to our obligation to register the shares of our common stock offered under this prospectus.

The selling stockholders may sell all or a portion of the shares of our common stock ck beneficially owned by them and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. If the shares of our common stock are sold through underwriters or broker-dealers, the selling stockholders will be responsible for underwriting discounts or commissions or agent's commissions. The shares of our common stock may be sold on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale, in the over-the-counter market or in transactions otherwise than on these exchanges or systems or in the over-the-counter market and in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at privately negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions.

The selling stockholders may use any one or more of the following methods when disposing of shares of our common stock or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell shares of our common stock as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an over-the-counter distribution;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the effective date of the registration statement of which this prospectus forms a part;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of our common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of our common stock , from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee, or other successors in interest as selling stockholder under this prospectus. The selling stockholders also may transfer the shares of our common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of shares of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of shares of our common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock and deliver these securities to close out its short positions, or loan or pledge the shares of our common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or

other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares of our common stock offered under this prospectus, which shares of our common stock such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

Broker-dealers engaged by the selling stockholders may arrange for other broker-dealers to participate in sales. If the selling stockholders effect certain transactions by selling shares of our common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents may receive commissions in the form of discounts, concessions or commissions from the selling stockholders or commissions from purchasers of the shares of our common stock for whom they may act as agent or to whom they may sell as principal. Such commissions will be in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction will not be in excess of a customary brokerage commission in compliance with applicable rules of the Financial Industry Regulatory Authority, Inc., or FINRA; and in the case of a principal transaction a markup or markdown in compliance with applicable FINRA rules.

The aggregate proceeds to the selling stockholders from the sale of the shares of our common stock offered under this prospectus will be the purchase price of the shares of common stock less discounts or commissions, if any. The selling stockholders reserve the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of shares of our common stock to be made directly or through agents. We will not receive any of the proceeds from the offering of common stock under this prospectus.

The selling stockholders also may resell all or a portion of the shares of our common stock offered under this prospectus in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conforms to the requirements of that rule.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the shares of our common stock or interests therein may be deemed to be “underwriters” within the meaning of Section 2(a)(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares of our common stock may be underwriting discounts and commissions under the Securities Act. Each selling stockholder has informed us that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities. The selling stockholders are subject to the prospectus delivery requirements of the Securities Act.

To the extent required pursuant to Rule 424(b) under the Securities Act, the shares of our common stock to be sold, the name of the selling stockholders, the purchase price and public offering price, the names of any agents, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

We have agreed to keep this prospectus effective until the earliest to occur of the following events: (i) the date on which the selling stockholders shall have resold all the Securities covered hereby; and (ii) the date on which the Securities cease to be “Registrable Securities” as such term is defined in the Registration Rights Agreement. In order to comply with the securities laws of some states, if applicable, the shares of our common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the shares of our common stock may not be sold unless the shares been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

The selling stockholders and any other person participating in a sale of shares of our common stock registered under this prospectus will be subject to applicable provisions of the Exchange Act, and the rules and regulations thereunder, including, without limitation, to the extent applicable, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the shares of our common stock by the selling stockholders and any other participating person. All of the foregoing may affect the marketability of the shares of our common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of our common stock. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for

the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares of our common stock against certain liabilities, including liabilities arising under the Securities Act.

LEGAL MATTERS

Certain legal matters, including the validity of the issuance of the securities offered, will be passed upon for us by Morgan, Lewis & Bockius LLP, New York, New York. Additional legal matters may be passed upon by us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended March 31, 2026 have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act, and in accordance with the Exchange Act, file annual, quarterly and special reports, proxy statements and other information with the SEC. These documents may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov). Our corporate website address is www.replimune.com. Information contained on or accessible through our website is not a part of this prospectus supplement, and the inclusion of our website address in this prospectus supplement is an inactive textual reference only.

This prospectus is part of a shelf registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus the information contained in documents that we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC before the date of this prospectus, while information that we file later with the SEC will automatically update and supersede prior information. Any information so updated and superseded shall not be deemed, except as so updated and superseded, to constitute a part of this prospectus. We incorporate by reference the documents listed below and any future filings we will make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the filing of the registration statement and prior to the effectiveness of the registration statement, and prior to the termination of the offering:

- our Annual Report on Form 10-K for the fiscal year ended March 31, 2026, filed with the SEC on June 29,2026;
- Our Current Report on Form 8-K filed with the SEC on April 13, 2026 (with respect to Item 8.01 only); and
- our description of our Common Stock contained in the registration statement on Form 8-A, filed on July 17, 2018, as the description therein has been updated and superseded by the description of our capital stock contained in Exhibit 4.3 to our Annual Report on Form 10-K for the fiscal year ended March 31, 2026, as filed with the SEC on June 29, 2026, and including any amendments and reports filed for the purpose of updating such description.

Notwithstanding the foregoing, unless specifically stated to the contrary, none of the information that is not deemed "filed" with the SEC, including information furnished under Items 2.02 or 7.01 of any Current Report on Form 8-K, will be incorporated by reference into, or otherwise included in, this prospectus.

We make available, free of charge, through our website at www.replimune.com under "Investor and Media" our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information contained on our website is not incorporated by reference into this prospectus and should not be considered part of this prospectus or any applicable prospectus supplement. In addition, the SEC maintains an Internet website that contains reports, proxy and information statements, and other information that we file with the SEC at www.sec.gov. You may also obtain, free of charge, a copy of any of these documents (other than exhibits to these documents unless the exhibits are specifically incorporated by reference into these documents or referred to in this prospectus) by writing or calling us at the following address and telephone number:

Replimune Group, Inc.
Attention: Investor Relations
500 Unicorn Park, Suite 303
Woburn MA 01801
+1-(781) 222-9600

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

25,103,489 Shares of common stock
Offered by the Selling Stockholders

PROSPECTUS

July 24, 2026

We have not authorized any dealer, salesperson or other person to give any information or represent anything not contained in this prospectus. You must not rely on any unauthorized information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not offer to sell any securities in any jurisdiction where it is unlawful. Neither the delivery of this prospectus, nor any sale made hereunder, shall create any implication that the information in this prospectus is correct after the date hereof.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the sale and distribution of the securities being registered hereby, all of which will be borne by Replimune Group, Inc. (other than commissions and discounts and similar selling expenses). All amounts shown are estimates except the SEC registration fee:

Item	Amount
SEC Registration Fee	$ 27,210[(1)]
Accounting Fees and Expenses	25,000[(1)]
Legal Fees and Expenses	75,000[(1)]
Miscellaneous Fees and Expenses	10,000[(1)]
Total	$137,210[(1)]

(1) Previously paid.

Item 15. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a corporation's board of directors to grant, and authorizes a court to award, indemnity to officers, directors, and other corporate agents.

As permitted by Delaware law, our certificate of incorporation provides that, to the fullest extent permitted by Delaware law, no director will be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director. Pursuant to Delaware law such protection would be not available for liability:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- an act or omission for which the liability of a director is expressly provided by an applicable statute, including unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the DGCL; or
- any transaction from which the director derived an improper personal benefit.

Our certificate of incorporation also provides that if Delaware law is amended after the approval by our stockholders of the certificate of incorporation to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law.

Our bylaws further provide that we must indemnify our directors and officers to the fullest extent permitted by Delaware law. Our bylaws also authorize us to indemnify any of our employees or agents and permit us to secure insurance on behalf of any officer, director, employee or agent for any liability arising out of his or her action in that capacity, whether or not Delaware law would otherwise permit indemnification.

In addition, our bylaws also provide that we are required to advance expenses to our directors and officers as incurred in connection with legal proceedings against them for which they may be indemnified and that the rights conferred in the bylaws are not exclusive.

We have entered into indemnification agreements with each of our directors and executive officers.

These agreements, among other things, require us to indemnify each director and officer to the fullest extent permitted by Delaware law, the certificate of incorporation and bylaws, for expenses such as, among

other things, attorneys' fees, judgments, fines, and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action by or in our right, arising out of the person's services as our director or executive officer or as the director or executive officer of any subsidiary of ours or any other company or enterprise to which the person provides services at our request. We also have directors' and officers' liability insurance.

The SEC has taken the position that personal liability of directors for violation of the federal securities laws cannot be limited and that indemnification by us for any such violation is unenforceable. The limitation of liability and indemnification provisions in our certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions.

Item 16. Exhibits.

Exhibit Number	Description
3.1	Third Amended and Restated Certificate of Incorporation of Replimune Group, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K, as filed on June 3, 2020)
3.2	Amended and Restated Bylaws of Replimune Group, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K, as filed on July 24, 2018)
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Registration Statement on Form S-1/A, as filed on July 10, 2018)
4.2	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed on November 18, 2019)
4.3	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed on June 10, 2020)
4.4	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed on December 12, 2022)
4.5	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed on June 13, 2024)
4.6	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K/A, as filed on December 4, 2024)
4.7	Form of Registration Rights Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on March 7, 2025)
5.1*	Opinion of Morgan, Lewis & Bockius LLP
23.1*	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm
23.2*	Consent of Morgan, Lewis & Bockius LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on the signature page to the Form S-3 filed with the SEC on May 23, 2025)
107	Filing Fee Table (incorporated by reference to Exhibit 107 to the Form S-3 filed with the SEC on May 23, 2025)

* Filed herewith.

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 of 1933;

(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 Securities and Exchange 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;

(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 the undertakings set forth in paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section 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 Securities and Exchange Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 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 of 1933, 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 of 1933 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 of 1933 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 of 1933 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.

(b) The undersigned registrant hereby undertakes 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.

(c) 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 informed 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 Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Woburn, Commonwealth of Massachusetts, on this 24th day of July, 2026.

REPLIMUNE GROUP, INC.

By: /s/ Sushil Patel

Sushil Patel
Chief Executive Officer and Director

Pursuant to the requirements of the Securities Act of 1933, this Amendment No. 1 to the Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
/s/ Sushil Patel Sushil Patel	Chief Executive Officer and Director (Principal Executive Officer)	July 24, 2026
/s/ Emily Hill Emily Hill	Chief Financial Officer (Principal Financial Officer)	July 24, 2026
/s/ Andrew Schwendenman Andrew Schwendenman	Chief Accounting Officer (Principal Accounting Officer)	July 24, 2026
* Madhavan Balachandran	Director	July 24, 2026
* Veleka Peeples-Dyer	Director	July 24, 2026
* Kapil Dhingra	Director	July 24, 2026
* Michael Goller	Director	July 24, 2026
* Christy Oliger	Director	July 24, 2026
* Paolo Pucci	Director	July 24, 2026
* Joseph Slattery	Director	July 24, 2026
* Philip Astley-Sparke	Director	July 24, 2026

Name	Title	Date
*	Director	July 24, 2026
Dieter Weinand		

By: /s/ Shawn Glidden
Shawn Glidden
Attorney-in-Fact

Exhibit 5.1

Morgan Lewis

July 24, 2026

Replimune Group, Inc.
500 Unicorn Park Drive
Suite 303
Woburn, MA 01801

Re: Replimune Group, Inc. Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Replimune Group, Inc., a Delaware corporation (the "Company"), in connection with its filing of Amendment No. 1 to the Registration Statement on Form S-3 (File No. 333-287537) (as amended, the "Registration Statement") with the Securities and Exchange Commission (the "SEC") under the Securities Act of 1933, as amended (the "Securities Act") on the date hereof. Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Registration Statement.

The Registration Statement relates to the proposed offer and resale by the selling stockholders identified in the Registration Statement (the "Selling Stockholders") of up to an aggregate of 25,103,489 shares of the Company's common stock, par value $0.001 per share (the "Shares"), which consist of (i) 11,045,336 shares of the Company's common stock (the "Initial Shares") held by the selling stockholders, and (ii) 14,058,153 shares of the Company's common stock (the "Pre-Funded Warrant Shares") that are issuable upon the exercise of pre-funded warrants held by the selling stockholders (the "Pre-Funded Warrants").

In connection with this opinion letter, we have examined the Registration Statement and originals, or copies certified or otherwise identified to our satisfaction, of the Third Amended and Restated Articles of Incorporation, as amended through the date hereof, and the Amended and Restated By-laws, as in effect on the date hereof, of the Company, certain resolutions of the Company's Board of Directors relating to the Registration Statement, and such other documents, records and other instruments as we have deemed appropriate for purposes of the opinion set forth herein.

We have assumed the genuineness of all signatures, the legal capacity of all natural persons, the authenticity of the documents submitted to us as originals, the conformity with the originals of all documents submitted to us as certified, facsimile or photostatic copies and the authenticity of the originals of all documents submitted to us as copies.

We have also assumed that (i) the Registration Statement and any amendments thereto will have become effective and comply with all applicable laws and no stop order suspending the Registration Statement's effectiveness will have been issued and remain in effect, in each case, at the time that any of the Shares are offered and sold as contemplated by the Registration Statement, and (ii) all of the Shares will be offered and sold in compliance with applicable federal and state securities laws and in the manner stated in the Registration Statement and any applicable prospectus supplement.

Based upon the foregoing and subject to the qualifications and assumptions stated herein, we are of the opinion that (i) the Initial Shares have been duly authorized, validly issued, fully paid and non-assessable, and (ii) the Pre-Funded Warrant Shares, when duly issued and delivered in accordance with the terms of the Pre-Funded Warrants (including the payment of the applicable exercise price), and provided that a sufficient number of authorized but unissued shares of common stock are available at the time of such exercise, will be validly issued, fully paid and non-assessable.

Morgan, Lewis & Bockius LLP

101 Park Avenue
New York, New York 10178-0060
United States

T +1.212.309.6000
F +1.212.309.6001

We do not express any opinion with respect to the effect on the opinions stated herein of any bankruptcy, insolvency, reorganization, moratorium, fraudulent transfer, preference and other similar laws affecting creditors' rights generally, and the opinions stated herein are limited by such laws and by general principles of equity (regardless of whether enforcement is sought in equity or at law).

The opinions expressed herein are limited to the laws of the State of Delaware and the federal securities laws of United States.

We hereby consent to the use of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to us under the caption "Legal Matters" in the prospectus included in the Registration Statement. In giving such consent, we do not hereby admit that we are acting within the category of persons whose consent is required under Section 7 of the Securities Act or the rules or regulations of the SEC thereunder.

Very truly yours,

/s/ Morgan, Lewis & Bockius LLP

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of Replimune Group, Inc. of our report dated June 29, 2026 relating to the financial statements, which appears in Replimune Group, Inc.'s Annual Report on Form 10-K for the year ended March 31, 2026. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP

Florham Park, New Jersey
July 24, 2026