

PLURISTEM THERAPEUTICS INC
Form 424B5
April 03, 2019

The information in this preliminary prospectus supplement and the accompanying prospectus, relating to an effective registration statement under the Securities Act of 1933, as amended, is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting an offer to buy these securities in any state or jurisdiction where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-218916

SUBJECT TO COMPLETION, DATED APRIL 3, 2019

PRELIMINARY PROSPECTUS SUPPLEMENT
(to the Prospectus dated June 30, 2017)

Shares of Common Stock

and warrants to purchase shares of Common Stock

We are offering shares of our common stock, par value \$0.00001 per share, and warrants to purchase up to shares of our common stock at an exercise price of \$ per share of common stock. The shares of common stock and warrants will be sold in units, with each unit consisting of one share of common stock and a warrant to purchase shares of common stock, with the shares of common stock and warrants immediately separable upon issuance. Each unit will be sold at a price of \$ per unit.

Our common stock is listed on The Nasdaq Capital Market, or Nasdaq, under the symbol "PSTI" and on the Tel Aviv Stock Exchange, or TASE, under the symbol "PLTR." On April 2, 2019, the last reported sale price for our common stock on Nasdaq was \$0.94 per share.

There is no market through which the warrants may be sold and purchasers may not be able to resell the warrants purchased under this prospectus supplement. This may affect the pricing of the warrants in the secondary market, the transparency and availability of trading prices, the liquidity of such warrants, and the extent of issuer regulation. See "Risk Factors."

Investing in our securities involves significant risks. See "Risk Factors" beginning on page S-5 of this prospectus supplement, and under similar headings in other documents filed after the date hereof and incorporated by reference into this prospectus supplement and the accompanying 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 supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

	Per	Total
Public Offering Price	Unit	
	\$	\$

Underwriting Discounts and Commissions ⁽¹⁾	\$	\$
Proceeds to Pluristem, before expenses	\$	\$

(1) We have agreed to reimburse the underwriters for certain expenses with respect to this offering. See “Underwriting” for additional information regarding underwriter compensation.

Certain of our directors have indicated an interest in purchasing up to an aggregate of approximately \$215,000 of the units sold in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may sell more, less or no units in this offering to any of these persons, or any of these persons may determine to purchase more, less or no units in this offering. The underwriters will receive the same underwriting discounts and commissions on any units purchased by these persons as they will on any other units sold to the public in this offering.

Concurrently with this offering of common stock and warrants, and pursuant to a separate prospectus supplement, we intend to sell up to an aggregate of _____ shares of common stock to certain investors in a registered direct offering at the same price per share as the public offering price set forth in the table above, for aggregate gross proceeds of approximately \$ _____ million, without giving effect to any discounts and commissions, which we refer to herein as our concurrent registered direct offering. Ladenburg Thalmann & Co. Inc. is acting as the Placement Agent for the concurrent registered direct offering.

We have granted the underwriters an option for a period of 30 days to purchase up to additional _____ shares of common stock and/or additional warrants to purchase up to _____ shares of common stock to cover over-allotments, if any, at a price of \$ _____ per share of common stock and/or \$ _____ per warrant. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be \$ _____, and the total proceeds to us, before expenses, will be \$ _____.

Delivery of the units is expected to be made on or about April _____, 2019.

Sole Book-Running Manager

Ladenburg Thalmann

Prospectus Supplement dated April _____, 2019

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PROSPECTUS

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a “shelf” registration statement on Form S-3 (File No. 333-218916) we filed with the Securities and Exchange Commission, or the SEC, on June 23, 2017, and that was declared effective by the SEC on June 30, 2017. Under this “shelf” registration process, we may, from time to time, sell any combination of the securities described in the accompanying prospectus in one or more offerings up to a total amount of \$200,000,000. As of April 3, 2019, prior to the consummation of this offering and the concurrent registered direct offering, we have sold \$72,309,542 of securities under the foregoing “shelf” registration statement.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part is the accompanying prospectus, which gives more general information about the shares of our common stock, the warrants to purchase common stock and other securities we may offer from time to time under our “shelf” registration statement, some of which does not apply to the common stock offered by this prospectus supplement.

Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined together with all documents incorporated by reference. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated by reference therein, on the other hand, you should rely on the information in this prospectus supplement.

You should read this prospectus supplement, the accompanying prospectus, and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus before making an investment decision. You should also read and consider the information in the documents referred to in the sections of this prospectus supplement entitled “Where You Can Find More Information” and “Incorporation of Certain Documents by Reference.”

You should rely only on the information contained in or incorporated by reference into this prospectus supplement or contained in or incorporated by reference into the accompanying prospectus to which we have referred you. Neither we nor the underwriters have authorized anyone to provide you with information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. The information contained in, or incorporated by reference into, this prospectus supplement and contained in, or incorporated by reference into, the accompanying prospectus is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of securities.

We are offering to sell, and are seeking offers to buy, the units only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the units in certain states or jurisdictions or to certain persons within such states and jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about and observe any restrictions relating to the offering of the units and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any state or jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

In this prospectus supplement and the accompanying prospectus, unless otherwise indicated, the terms “Pluristem,” “we,” “us” and “our” mean Pluristem Therapeutics Inc. and its wholly owned Israeli subsidiary, Pluristem Ltd., as required by the context.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The statements contained in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference herein or therein that are not historical facts are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. Such forward-looking statements may be identified by, among other things, the use of forward-looking terminology such as “believes,” “intends,” “plans,” “expects,” “may,” “will,” “should,” or “anticipates” or the negative thereof or other variations thereof, comparable terminology, and similar expressions are intended to identify forward-looking statements. Accordingly, forward-looking statements involve estimates, assumptions and are inherently subject to uncertainties and other factors and involve known and unknown risks that could cause the actual results, performance, levels of activity, or our achievements, or industry results, to be materially different from any future results, performance, levels of activity, achievements or industry results, expressed or implied by such forward-looking statements. Such forward-looking statements include, among other statements, statements regarding the following:

- the expected development and potential benefits from our product candidates in treating various medical conditions;
- the clinical trials to be conducted according to our license agreement with CHA Biotech Co. Ltd.;
- our plan to execute our strategy independently, using our own personnel, and through relationships with research and clinical institutions or in collaboration with other companies;
- the prospects of entering into additional license agreements, or other forms of cooperation with other companies and medical institutions;
- our pre-clinical and clinical trials plans, including timing of initiation, enrollment and conclusion of trials;
- achieving regulatory approvals, including under accelerated paths;
- the expected timing of the release of data from our various studies;
- receipt of future funding from the European Commission, the Israel Innovation Authority, the European Union’s Horizon 2020 program and grants from other independent third parties;
- our marketing plans, including timing of marketing our product candidates, PLX-PAD and PLX-R18;
- developing capabilities for new clinical indications of placenta expanded (PLX) cells and new products;
- the timing and development of our PLX-Immune product candidate;
- our estimations regarding the size of the global market for our product candidates;
- our expectations regarding our production capacity;
- our expectation to demonstrate a real-world impact and value from our pipeline, technology platform and commercial-scale manufacturing capacity;
- our expectations regarding our short- and long-term capital requirements;
- the proposed joint venture to be established with Sosei Corporate Venture Capital Ltd. for the clinical development and commercialization of Pluristem’s PLX-PAD cell therapy product in Japan and the plan to enter into definitive agreements;
- our outlook for the coming months and future periods, including but not limited to our expectations regarding future revenue and expenses; and
 - information with respect to any other plans and strategies for our business.

The factors discussed herein, including those risks described under the heading “Risk Factors” herein, in the accompanying prospectus and in the documents we incorporate by reference could cause actual results and developments to be materially different from those expressed in or implied by such statements. In addition, historic results of scientific research, preclinical studies and clinical trials do not guarantee that the conclusions of future research or trials would not suggest different conclusions. Also, historic results referred to this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference may be interpreted differently in light of additional research, clinical and preclinical trials results. Except as required by law we undertake no obligation to publicly update such forward-looking statements to reflect subsequent events or circumstances.

PROSPECTUS SUPPLEMENT SUMMARY

This summary is qualified in its entirety by, and should be read together with, the more detailed information and financial statements and related notes thereto appearing elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. Before you decide to invest in our securities, you should read this entire prospectus supplement and the accompanying prospectus carefully, including the sections titled “Risk Factors,” and our consolidated financial statements and the related notes and other documents incorporated by reference herein and in the accompanying prospectus.

Our Company

We are a leading developer of placenta-based cell therapy product candidates for the treatment of multiple ischemic, inflammatory and hematologic conditions. Our lead indications are (i) critical limb ischemia, or CLI, (which is a peripheral arterial disease, or PAD), (ii) recovery following surgery for hip fracture (which is an orthopedic disease), and (iii) acute radiation syndrome, or ARS. Each of these indications is a severe unmet medical need.

PLX cells are derived from a class of placental cells that are harvested from donated placenta at the time of full term healthy delivery of a baby. PLX cell products require no tissue matching prior to administration. They are produced using our proprietary three-dimensional expansion technology. Our manufacturing facility complies with the European, Japanese, Israeli and U.S. Food and Drug Administration’s, or FDA’s, current Good Manufacturing Practice requirements and has been approved by the European and Israeli regulators for production of PLX-PAD for late stage trials and marketing. If we obtain FDA and other regulatory approvals to market PLX cells, we expect to have in-house production capacity to grow clinical-grade PLX cells in commercial quantities.

Our goal is to make significant progress with our clinical pipeline and our anticipated pivotal trials in order to ultimately bring innovative, potent therapies to patients who need new treatment options. We expect to demonstrate a real-world impact and value from our pipeline, technology platform and commercial-scale manufacturing capacity. Our business model for commercialization and revenue generation includes, but is not limited to, direct sale of our products, partnerships, licensing deals, and joint ventures with pharmaceutical companies.

We aim to shorten the time to commercialization of our product candidates by leveraging unique accelerated regulatory pathways that exist in the United States, Europe and Japan to bring innovative products that address life-threatening diseases to the market efficiently. We believe that these accelerated pathways create substantial opportunities for us and for the cell therapy industry as a whole.

We are currently conducting a Phase III multinational clinical trial of our PLX-PAD product candidate for the treatment of CLI, a type of PAD. PAD is caused by fatty deposits in leg arteries that obstruct blood flow. Risk factors include smoking, diabetes, obesity, cardiovascular problems and hypertension. Based on our current patient enrollment progress, we expect to complete the follow up of our Phase III trial in CLI in the first half of 2020 with respect to Europe, and in the first half of 2021 with respect to the United States. We expect to release the clinical data shortly after the conclusion of the follow up.

In addition, we concluded a Phase II multinational clinical trial of our PLX-PAD product candidate for the treatment of intermittent claudication, or IC, which is an early stage PAD with symptoms of leg pain and weakness brought on by exercise, with resolution of the symptoms following rest. The findings of our IC Phase II clinical trial include:

Patients treated with PLX-PAD at the optimal dosing regimen showed statistically significant improvement (effect size=42.0%, p=0.043) in maximum walking distance at 52 weeks across all sites (U.S., Europe, Israel and South Korea), nationalities, gender and ethnicity as compared to placebo. These patients also experienced no

revascularization events at 65 weeks as compared to 12% occurrence in the placebo group.

Patients also experienced a statistically significant relative reduction of 7.77 (mmol/mol) in Hemoglobin A1C, or HbA1c, at 65 weeks compared to placebo (p=0.0155). HbA1c measures the amount of blood sugar (glucose) attached to hemoglobin. A reduction in HbA1c indicates better glucose control in patients and is the most commonly used measurement to evaluate treatment efficacy in diabetics.

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We are also currently conducting a Phase III multinational clinical trial of our PLX-PAD product candidate relating to recovery following surgery for hip fracture. Based on our current patient enrollment progress, we expect to complete the follow up of our Phase III trial in recovery following surgery for hip fracture in the second half of 2020. We expect to release the clinical data shortly after the conclusion of the follow ups.

Our second product candidate, PLX-R18, is under development in the United States for ARS via the FDA Animal Rule regulatory pathway, and, based on our assessment, is ready for a pivotal trial, which may also result in approval without the prior performance of human efficacy trials. The National Institutes of Health's National Institute of Allergy and Infectious Diseases has completed a dose selection trial with our PLX-R18 product candidate in the hematologic component of ARS. Assuming we receive a contract from the U.S. government, we expect to initiate an ARS pivotal trial in the second half of 2019.

Corporate Information

We were incorporated as a Nevada corporation in 2001. Pluristem Ltd. is our wholly owned subsidiary in Israel. Our executive offices are located at MATAM Advanced Technology Park, Building No. 5, Haifa, Israel, our telephone number is 011 972 74 7108600 and our website address is www.pluristem.com. This reference to our website is an inactive textual reference only, and is not a hyperlink. The information on our website is not incorporated by reference in this prospectus supplement and should not be considered to be part of this prospectus supplement. You should not consider the contents of our website in making an investment decision with respect to the securities.

THE OFFERING

Common stock and warrants offered by us shares and warrants to purchase up to shares of common stock. This prospectus supplement also covers up to shares of common stock issuable upon exercise of the warrants. The shares and warrants will be sold in units, with each unit consisting of one share of common stock and a warrant to purchase shares of common stock, with the shares of common stock and warrants immediately separable upon issuance.

Price per unit \$

Terms of warrants An exercise price of \$ per share exercisable beginning and expiring on , 20 , the anniversary of the date of the issuance.

Option to purchase additional shares We have granted the underwriters an option for a period of 30 days from the date of this prospectus supplement, to purchase up to an additional shares of our common stock and/or additional warrants to purchase up to shares of common stock to cover over-allotments, if any, at a price of \$ per share of common stock and/or \$ per warrant, less the underwriting discounts and commissions.

Concurrent registered direct offering Concurrently with this offering, we are offering shares of common stock to certain investors in a concurrent registered direct offering, at the same price per share as the public offering price, for aggregate gross proceeds of \$ million, without giving effect to any discounts and commissions. The concurrent registered direct offering is being conducted by means of a separate prospectus supplement and Ladenburg Thalmann & Co. Inc. is acting as Placement Agent.

Common stock to be outstanding immediately after this offering and the concurrent registered direct offering shares, or shares if all of the warrants are exercised (or shares if the underwriters' option to purchase additional shares and warrants is exercised in full).

Use of proceeds We intend to use the net proceeds from this offering and the concurrent registered direct offering for research and product development activities, clinical trial activities, investment in capital equipment and for working capital and other general corporate purposes. See "Use of Proceeds."

Risk factors An investment in our common stock involves a high degree of risk. See "Risk Factors" beginning on page S-5 of this prospectus supplement and on page S-2 of the accompanying prospectus, as well as those risk factors that are incorporated by reference in this prospectus supplement and the accompanying prospectus, for a discussion of factors to consider carefully before deciding to purchase shares of our common stock.

Listing on Nasdaq and TASE Our common stock is listed on Nasdaq under the symbol "PSTI" and on TASE under the symbol "PLTR."

No market for the units or warrants The units will not be certificated, and the securities that are part of such units are immediately separable and will be issued separately in this offering. There is no established public trading market for the warrants to be issued in this offering, and we do not intend to apply to list such securities on any securities exchange or automated quotation system.

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Unless otherwise indicated, all information in this prospectus supplement is based on 116,809,444 shares of common stock outstanding as of December 31, 2018 and excludes as of such date:

985,800 shares of common stock issuable upon the exercise of outstanding stock options as of December 31, 2018 at a weighted-average exercise price of \$0.00001 per share;

3,833,998 shares of common stock reserved for future issuances under our equity compensation plan;

11,700,278 shares of common stock issuable upon the exercise of outstanding warrants as of December 31, 2018 at a weighted-average exercise price of \$1.91 per share;

9,922,569 shares of common stock issuable upon the vesting of outstanding restricted stock and restricted stock units as of December 31, 2018;

the shares of common stock issuable upon the exercise of warrants being issued in this offering; and

the shares of common stock to be issued in the concurrent registered direct offering.

Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding options and warrants listed above and no exercise by the underwriters' of the option to purchase additional shares and/or warrants.

Certain of our directors have indicated an interest in purchasing up to an aggregate of approximately \$215,000 of the units sold in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may sell more, less or no units in this offering to any of these persons, or any of these persons may determine to purchase more, less or no units in this offering. The underwriters will receive the same underwriting discounts and commissions on any units purchased by these persons as they will on any other units sold to the public in this offering.

RISK FACTORS

Investing in our securities involves significant risks. You should carefully consider the risk factors below, in the accompanying prospectus and in our filings with the SEC, including our Annual Report on Form 10-K for the fiscal year ended June 30, 2018, as well as all of the information contained in this prospectus supplement, in the accompanying prospectus and the other documents incorporated by reference herein or therein, before you decide to invest in our securities. Our business, prospects, financial condition and results of operations may be materially and adversely affected as a result of any of such risks. The value of our securities could decline as a result of any of these risks. You could lose all or part of your investment in our securities. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business, prospects, financial condition and results of operations.

Risks Related to this Offering and the Concurrent Registered Direct Offering

If you purchase our units in this offering you will experience immediate and substantial dilution in your investment. You will experience further dilution if we issue additional securities in future financing transactions.

Since the public offering price per share of our common stock being offered in this offering and the concurrent registered direct offering is higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in this offering. As a result, if you purchase units in this offering, you will incur an immediate and substantial dilution of \$ per share, based upon the public offering price of \$ per share and our net tangible book value as of December 31, 2018, after giving effect to this offering and the concurrent registered direct offering. In addition, we have a significant number of stock options and warrants outstanding and additional warrants will be outstanding if this offering is completed. To the extent that outstanding stock options or warrants are exercised, investors purchasing our common stock in this offering and the concurrent registered direct offering may experience further dilution.

In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders or result in downward pressure on the price of our common stock. See the section titled “Dilution” on page S-10 in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase shares of common stock in this offering.

Our management will have broad discretion over the use of the proceeds we receive from this offering and the concurrent registered direct offering and may invest or spend the proceeds of this offering in ways with which you may not agree or in ways which may not yield a significant return, if any.

We intend to use the net proceeds from this offering and the concurrent registered direct offering for research and product development activities, clinical trial activities, investment in capital equipment and for working capital and other general corporate purposes. Our management will have significant flexibility in applying the net proceeds of this offering and the concurrent registered direct offering. The actual amounts and timing of expenditures will vary significantly depending on a number of factors, including the amount of cash used in our operations and our research and development efforts. We might apply these proceeds in ways with which you do not agree, or in ways that do not yield a favorable return. If our management applies these proceeds in a manner that does not yield a significant return, if any, on our investment of these net proceeds, it could compromise our ability to pursue our growth strategy and adversely affect the market price of our common stock.

Future sales of our shares may cause the prevailing market price of our shares to decrease.

We have issued a substantial number of shares issued or issuable upon exercise of warrants and options to purchase our shares that are eligible for, or may become eligible for, unrestricted resale, and additional warrants will be issued if this offering is completed. Any sales or registration of such shares in the public market or otherwise could reduce the prevailing market price for our shares, as well as make future sales of equity securities by us less attractive or even not feasible.

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Investors will have no rights as a stockholder with respect to their warrants until they exercise their warrants and acquire shares of common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to the shares of our common stock underlying such warrants. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

There is no public market for the warrants being offered in this offering.

There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any securities exchange or nationally recognized trading system, including the Nasdaq. Without an active market, the liquidity of the warrants will be limited.

If we fail to continue to meet all applicable Nasdaq requirements, Nasdaq may delist our common stock, which could have an adverse impact on the liquidity and market price of our common stock.

Our common stock is currently listed on Nasdaq, which has qualitative and quantitative listing criteria. If we are unable to meet any of the Nasdaq listing requirements in the future, including, for example, if the closing bid price for our common stock falls below \$1.00 per share for 30 consecutive trading days, Nasdaq could determine to delist our common stock, which could adversely affect the market liquidity of our common stock and the market price of our common stock could decrease.

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USE OF PROCEEDS

We estimate that our net proceeds from this offering and the concurrent registered direct offering will be approximately \$ at a public offering price of \$ per unit (or \$ if the underwriters' option to purchase additional shares and/or warrants is exercised in full) after deducting the underwriting discounts and commissions and the estimated offering expenses that are payable by us. This amount does not include the proceeds which we may receive in connection with the exercise of the warrants issued in this offering.

We intend to use the net proceeds from this offering and the concurrent registered direct offering, to fund our research and product development activities, clinical trial activities, investment in capital equipment and for working capital and other general corporate purposes.

The expected use of the net proceeds from this offering and the concurrent registered direct offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures depend on numerous factors, including the progress of development efforts, the ongoing status of and results from our ongoing clinical trials and other studies and any unforeseen cash needs. As a result, our management will have broad discretion in applying the net proceeds from this offering and the concurrent registered direct offering. Pending the application of the net proceeds, we intend to invest the net proceeds in bank deposits or investment-grade, interest-bearing securities subject to any investment policies our investment committee may determine from time to time.

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DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock. We intend to retain any future earnings to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future. Any dividends paid will be solely at the discretion of our board of directors.

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CAPITALIZATION

The following table sets forth our capitalization as of December 31, 2018:

on an actual basis; and

on an as adjusted basis giving effect to (i) the issuance and sale of units in this offering at a public offering price of \$ per unit (assuming no separate consideration was paid for the warrants issued in this offering), after deducting the estimated underwriting commission and discounts and other estimated offering expenses payable by us and (ii) the issuance and sale of shares of common stock in the concurrent registered direct offering.

You should read this table together with the information contained in this prospectus supplement and the accompanying prospectus and the information incorporated by reference from our Quarterly Report on Form 10-Q for the quarter ended December 31, 2018 and our Annual Report on Form 10-K for the year ended June 30, 2018, including the historical financial statements and related notes included in each of those reports.

	As of December 31, 2018	
	(Actual)	(As Adjusted)
	U.S. dollars in thousands (unaudited)	
Stockholders' equity:		
Common stock, par value \$0.00001 per share – authorized 200,000,000 shares; issued and outstanding 116,809,444 shares (as of December 31, 2018); shares issued and outstanding on an as adjusted basis;	\$ 1	
Preferred stock, par value \$0.00001 per share – authorized 10,000,000 shares, none issued	—	\$
Additional paid-in capital (through December 31, 2018)	248,359	
Accumulated deficit (through December 31, 2018)	(233,166)	
Total stockholders' equity	\$ 15,194	\$

The above discussion and table are based on 116,809,444 shares of common stock outstanding as of December 31, 2018 and excludes the following:

985,800 shares of common stock issuable upon the exercise of outstanding stock options as of December 31, 2018 at a weighted-average exercise price of \$0.000001 per share;

8,833,998 shares of common stock reserved for future issuances under our equity compensation plan;

11,700,278 shares of common stock issuable upon the exercise of outstanding warrants as of December 31, 2018 at a weighted-average exercise price of \$1.91 per share;

9,922,569 shares of common stock issuable upon the vesting of outstanding restricted stock and restricted stock units as of December 31, 2018; and

the shares of common stock issuable upon the exercise of warrants being issued in this offering.

Certain of our directors have indicated an interest in purchasing up to an aggregate of approximately \$215,000 of the units sold in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may sell more, less or no units in this offering to any of these persons, or any of these persons may determine to purchase more, less or no units in this offering. The

underwriters will receive the same underwriting discounts and commissions on any units purchased by these persons as they will on any other units sold to the public in this offering.

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DILUTION

Purchasers of common stock in this offering (either as a component of units or upon warrant exercise) will incur immediate and substantial dilution in the net tangible book value per share of common stock. Our historical net tangible book value as of December 31, 2018 was approximately \$15.2 million, or approximately \$0.13 per share. Net tangible book value per share is equal to total tangible assets minus the sum of total tangible liabilities divided by the total number of shares outstanding.

Dilution in net tangible book value per share represents the difference between the amount per unit paid by purchasers in this offering and the net tangible book value per share of our common stock immediately after this offering and the concurrent registered direct offering. After giving effect to the sale of _____ shares of common stock in this offering at a public offering price of \$ _____ per share (assuming no separate consideration was paid for the warrants issued in this offering), and after deducting the underwriting discounts and commissions and the estimated offering expenses payable by us, as well as the sale of _____ shares of common stock in the concurrent registered direct offering at the public offering price, our as adjusted net tangible book value as of December 31, 2018, would have been approximately \$ _____ per share of common stock. This represents an immediate increase in net tangible book value of \$ _____ per share of common stock to our existing stockholders and an immediate dilution in net tangible book value of \$ _____ per share of common stock to investors participating in this offering and the registered direct offering. The following table illustrates this per share dilution:

Public offering price per unit	\$
Historical net tangible book value per share as of December 31, 2018	\$0.13
Increase in net tangible book value per share attributable to this offering and the concurrent registered direct offering	\$
As adjusted net tangible book value per share after this offering and the concurrent registered direct offering	\$
Dilution per share to new investors in this offering	\$

The table above assumes no exercise of the warrants being issued in this offering or pursuant to the underwriters' option to purchase additional shares and/or warrants.

If the underwriters exercise in full their option to purchase up to _____ additional shares of common stock at the public offering price of \$ _____ per unit, the as adjusted net tangible book value as of December 31, 2018 after this offering and the concurrent registered direct offering would have been \$ _____ per share, representing an increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors purchasing our common stock in this offering at the public offering price.

The foregoing per share dilution does not give effect to the potential exercise of the warrants offered hereby. Assuming the sale of all securities offered hereby and also the exercise of all warrants offered hereby, the per share dilution would be as follows:

After giving effect to the sale of _____ shares of common stock in this offering (inclusive of the warrant shares) at the public offering price of \$ _____ per share (assuming no separate consideration was paid for the warrants issued in this offering), the _____ shares of common stock sold in the concurrent registered direct offering, and assuming an exercise price of \$ _____ per warrant share, and after deducting underwriting discounts and commissions and estimated offering expenses, our net tangible book value as of December 31, 2018, would have been \$ _____ million, or \$ _____ per share. This amount represents an immediate increase in net tangible book value to existing shareholders of \$ _____ per share and an immediate dilution in net tangible book value of \$ _____ per share to purchasers of our shares of common stock in this offering, as illustrated in the following table (without giving effect to the option granted to the underwriters to

purchase additional warrants):

Public offering price per unit	\$
Historical net tangible book value per share as of December 31, 2018	\$0.13
Increase in net tangible book value per share attributable to this offering and the concurrent registered direct offering	\$
As adjusted net tangible book value per share after this offering and the concurrent registered direct offering	\$
Dilution per share to new investors in this offering	\$

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The discussions and tables above are based on 116,809,444 shares outstanding as of December 31, 2018 and exclude as of that date:

985,800 shares of common stock issuable upon the exercise of outstanding stock options as of December 31, 2018 at a weighted-average exercise price of \$0.000001 per share;

3,833,998 shares of common stock reserved for future issuances under our equity compensation plan;

11,700,278 shares of common stock issuable upon the exercise of outstanding warrants as of December 31, 2018 at a weighted-average exercise price of \$1.91 per share; and

9,922,569 shares of common stock issuable upon the vesting of outstanding restricted stock and restricted stock units as of December 31, 2018.

If the underwriters' option to purchase additional shares and/or warrants is exercised in full, and assuming the exercise of all warrants issued in this offering (including the warrants in the underwriters' option to purchase additional shares and/or warrants), our pro forma net tangible book value per share after giving effect to this offering and the concurrent registered direct offering would be \$ per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be \$ per share.

Certain of our directors have indicated an interest in purchasing up to an aggregate of approximately \$215,000 of the units sold in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may sell more, less or no units in this offering to any of these persons, or any of these persons may determine to purchase more, less or no units in this offering. The underwriters will receive the same underwriting discounts and commissions on any units purchased by these persons as they will on any other units sold to the public in this offering.

To the extent that outstanding options or warrants outstanding are exercised, new options or other equity awards are issued under our equity incentive plans, or we issue additional shares of common stock, warrants or other equity or convertible debt securities in the future, there may be further dilution to investors participating in this offering. Moreover, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity, warrants or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

**MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES
TO NON-U.S. HOLDERS OF OUR COMMON STOCK**

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the acquisition, ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax or the alternative minimum tax and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions and published rulings and administrative pronouncements of the Internal Revenue Service, or IRS, all as in effect as of the date of this prospectus supplement. These authorities may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock issued pursuant to this offering and who hold our common stock as a “capital asset” within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to a particular holder in light of such holder’s particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including, without limitation, certain former citizens or long-term residents of the United States, a person who holds or receives our common stock pursuant to the exercise of an employee stock option or otherwise as compensation, partnerships (or arrangements classified as partnerships for U.S. federal income tax purposes) or other pass-through entities and the equity holders therein, “controlled foreign corporations,” “passive foreign investment companies,” corporations that accumulate earnings to avoid U.S. federal income tax, banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities, tax-exempt organizations, tax-qualified retirement plans, persons that own, or have owned, actually or constructively, more than 5% of our common stock (except to the extent specifically set forth below) and persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors as to particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a “U.S. person” or a partnership (including any entity or arrangement treated as a partnership and the equity holders therein) for U.S. federal income tax purposes. A U.S. person is any of the following:

- an individual citizen or resident of the United States;

- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof or the District of Columbia;

an estate, the income of which is subject to U.S. federal income tax regardless of its source; or

a trust (1) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust, or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

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Distributions on Our Common Stock

We have not paid any cash dividends on our common stock and have no present intention of doing so. Our current policy is to retain earnings, if any, for use in our operations and in the development of our business. Our future dividend policy will be determined from time to time by our Board of Directors.

If we make cash or other property distributions on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital to the extent of a holder's tax basis in our common stock and will be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under the section of this prospectus supplement titled "—Gain on Disposition of Our Common Stock" below.

Subject to the discussion below regarding backup withholding and FATCA, dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends, or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish to us or our paying agent a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) including a U.S. taxpayer identification number, if required, and certifying such holder's qualification for the reduced rate. This certification must be provided to us or our paying agent prior to the payment of dividends and must be updated periodically. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our paying agent, either directly or through other intermediaries. Non-U.S. holders that do not timely provide the required certification, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder's U.S. trade or business (and are attributable to such holder's permanent establishment in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish to us or our paying agent a properly executed IRS Form W-8ECI (or applicable successor form).

Any dividends paid on our common stock that are effectively connected with a non-U.S. holder's U.S. trade or business (and if required by an applicable income tax treaty, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States) generally will be subject to U.S. federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized upon the sale or other disposition of our common stock, unless:

the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and if required by an applicable income tax treaty, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States;

the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or

we are, or have been, at any time during the five-year period preceding such sale or other disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation," unless our common stock is regularly traded on an established securities market and the non-U.S. holder holds no more than 5% of our outstanding common stock, directly or indirectly, during the shorter of the 5-year period ending on the date of the taxable disposition or the period that the non-U.S. holder held our common stock.

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Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses.

Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus any of its assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above. If we are a U.S. real property holding corporation and either our common stock is not regularly traded on an established securities market or a non-U.S. holder holds, or is treated as holding, more than 5% of our outstanding common stock, directly or indirectly, during the applicable testing period, such non-U.S. holder will generally be taxed on any gain in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply. If we are a U.S. real property holding corporation and our common stock is not regularly traded on an established securities market, a non-U.S. holder's proceeds received on the disposition of shares will also generally be subject to withholding at a rate of 15%. Prospective investors are encouraged to consult their own tax advisors regarding the possible consequences to them if we are, or were to become, a U.S. real property holding corporation.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of dividends on our common stock paid to such holder and the amount of any tax withheld with respect to those dividends. These information reporting requirements apply even if no withholding was required because the dividends were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on, or the gross proceeds of a disposition of, our common stock provided the non-U.S. holder furnishes the required certification as to its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or certain other requirements are met. Notwithstanding the foregoing, backup withholding may apply if the payor has actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Foreign Entities

Sections 1471 through 1474 of the Code (commonly referred to as FATCA) impose a U.S. federal withholding tax of 30% on payments of dividends and, subject to the discussion of certain proposed Treasury Regulations below, gross proceeds of a disposition of our common stock made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on such dividend and,

subject to the discussion of certain proposed Treasury Regulations below, gross proceeds payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally will impose a U.S. federal withholding tax of 30% on such dividend and, subject to the discussion of certain proposed Treasury Regulations below, gross proceeds payments made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying the direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes.

The U.S. Treasury recently released proposed Treasury Regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30% applicable to the gross proceeds of a sale or other disposition of our common stock. In its preamble to such proposed Treasury Regulations, the U.S. Treasury stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA withholding on their investment in our common stock.

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MATERIAL ISRAELI INCOME TAX CONSEQUENCES

Since we are an Israeli resident company for tax purposes, holders of our common stock may be subject to Israeli tax. The following is a summary of the some of the material Israeli tax consequences to Non-Israeli residents acquiring our common stock in this offering. This summary does not discuss all the aspects of Israeli tax law that may be relevant to a particular investor in light of his or her personal investment circumstances or to some types of investors subject to special treatment under Israeli law. Examples of this kind of investor include, without limitation, residents of Israel, traders in securities or persons that own, directly or indirectly, 10% or more of our outstanding capital stock, all of whom are subject to special tax regimes not covered in this discussion.

We have not paid any cash dividends on our common stock. We intend to retain any future earnings to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future. This summary does not discuss any Israeli tax consequences that may apply to any cash or other distributions that we may make on our common stock in the future, if any.

Some parts of this discussion are based on tax legislation that has not been subject to judicial or administrative interpretation, and we cannot assure you that Israeli governmental and tax authorities or the Israeli courts will accept the views expressed below. The discussion below is subject to amendment under Israeli law or changes to the applicable judicial or administrative interpretations of Israeli law, which could affect the tax consequences described below. The discussion should not be construed as legal or professional tax advice and does not cover all possible tax considerations.

Potential investors are urged to consult their own tax advisors as to the Israeli or other tax consequences of the purchase, ownership and disposition of our common stock, including, in particular, the effect of any foreign, state or local taxes.

Israeli capital gains on sale of our common stock is generally subject to tax at the corporate tax rate of 23% if generated by a company, or at the rate of 25% if generated by an individual, or 30% in the case of sale of shares by a "substantial shareholder" at the time of sale or at any time during the preceding 12-month period. A person is considered to be a substantial shareholder if it holds, directly or indirectly, alone or together with another, 10% or more of a company's means of control, which include, among other things, voting rights, the right to receive profits of the company, the right to receive proceeds upon liquidation and the right to appoint a director.

Notwithstanding the foregoing, under Israeli tax law, non-Israeli residents are generally exempt from Israeli capital gains tax derived from the sale of our common stock, provided that the following conditions are met: (i) the common stock was purchased upon or after the listing of the securities on a recognized stock exchange or been acquired by the foreign resident after January 1, 2009 and (ii) the seller does not have a permanent establishment in Israel to which the derived capital gain is attributable. However, non-Israeli residents that are corporations will not be entitled to the foregoing exemption if an Israeli resident (i) maintains a controlling interest of more than 25% in such corporation, alone or "Together with Another Person," as defined below, or together with another Israeli resident, or (ii) is the beneficiary, or is entitled to, 25% or more of the revenues or profits of such non-Israeli resident corporation, whether directly or indirectly. In addition, under the provisions of an applicable tax treaty, the sale of common stock may be exempt from Israeli capital gains tax.

The term "Together with Another Person" means together with his or her "Relative," as well as with a person who is not his or her Relative but who has a permanent agreement to cooperate with him or her with respect to material matters concerning Pluristem, directly or indirectly. The term "Relative" means any of the following: (i) a spouse, brother, sister, parent, parent of a parent, descendant and descendant of a spouse, and spouse of any of the aforementioned; and (ii) a descendant of a brother or sister and/or a brother or sister of a parent.

Individuals who are subject to tax in Israel, whether an Israeli resident or a non-Israeli resident, are also subject to an additional tax on annual income exceeding a certain threshold (NIS 649,560 in 2019), linked to the Israeli consumer price index, at a rate of 3%, including, but not limited to, dividends, interest and capital gain.

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UNDERWRITING

We are offering the units described in this prospectus supplement through the underwriters named below. Ladenburg Thalmann & Co. Inc. is acting as representative of the underwriters and book-running manager of the offering. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase from us on a firm commitment basis, at the public offering price less the underwriting discount set forth on the cover page of this prospectus supplement, the number of units listed next to its name in the following table:

<u>Underwriter</u>	Number of Units
Ladenburg Thalmann & Co. Inc.	\$
Total	\$

A copy of the underwriting agreement will be filed as an exhibit to a Current Report on Form 8-K filed by us with the SEC in connection with this offering.

The underwriting agreement provides that the underwriters' obligation to purchase the units is subject to conditions contained in the underwriting agreement such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriters are obligated to purchase and pay for all of the units offered by this prospectus supplement other than those covered by the over-allotment option, if any of these shares or warrants are purchased. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act of 1933, as amended, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

No action has been taken by us or the underwriters that would permit a public offering of the units included in this offering in any jurisdiction where action for that purpose is required. None of the units included in this offering may be offered or sold, directly or indirectly, nor may this prospectus supplement or any other offering material or advertisements in connection with the offer and sales of any units be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons who receive this prospectus supplement are advised to inform themselves about and to observe any restrictions relating to this offering and the distribution of this prospectus supplement. This prospectus supplement is neither an offer to sell nor a solicitation of any offer to buy units in any jurisdiction where that would not be permitted or legal.

The underwriters have advised us that they do not intend to confirm sales to any accounts over which they exercise discretionary authority.

Certain of our directors have indicated an interest in purchasing up to an aggregate of approximately \$215,000 of the units sold in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may sell more, less or no units in this offering to any of these persons, or any of these persons may determine to purchase more, less or no units in this offering. The underwriters will receive the same underwriting discounts and commissions on any units purchased by these persons as they will on any other units sold to the public in this offering.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus supplement and to certain dealers, which may

include the underwriters, at that price less a concession not in excess of \$ per share of common stock. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representative. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus supplement.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares and warrants.

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	Per Unit Without Option to Purchase Additional Shares/Warrants	With Option to Purchase Additional Shares/Warrants	Total Without Option to Purchase Additional Units	With Option to Purchase Additional Shares/Warrants
Public offering price	\$	\$	\$	\$
Underwriting discounts and commissions paid by us	\$	\$	\$	\$
Proceeds to us, before expenses ⁽¹⁾	\$	\$	\$	\$

We estimate that our total expenses of this offering, excluding the underwriting discount, will be approximately \$255,000. This amount excludes an additional fee we may elect to pay the underwriters based on their efforts and results of the offering of up to 0.5% of the aggregate gross proceeds raised in the offering but only with respect to investments made by investors other than those investors identified by the Israeli financial advisors referenced (1) below. Banks and brokers and certain other parties in non-U.S. jurisdictions who raise capital in connection with this offering in such non-U.S. jurisdictions may be paid up to 4.0% from amounts received due to their efforts. Such amounts will be deducted from the above total underwriting discounts and commissions. In addition to the underwriting discounts and commissions, we have agreed to pay up to \$65,000 of the fees and expenses of the underwriters, which may include the fees and expenses of counsel to the underwriters.

The underwriters do not have any right of first refusal or any similar rights with respect to the provision of services to us in the future. The underwriters and their respective affiliates may, from time to time, engage in transactions with or perform services for us in the ordinary course of their business.

Leader Underwriters (1993) Ltd., or Leader, and Rosario Capital Ltd., or Rosario, acted as our financial advisors in Israel in connection with this offering. The expenses of this offering include a fee to be paid to Leader and Rosario for services rendered as our financial advisors in connection with this offering.

Over-allotment option

We have granted the underwriters an option to purchase up to additional shares of common stock at a price of \$ per share and/or warrants to purchase up to shares of common stock at a price of \$ per warrant from us. The underwriters may exercise this option at any time and from time to time during the 30-day period from the date of this prospectus supplement. To the extent any shares and/or warrants are purchased with this option, each underwriter will be obligated, subject to specific conditions, to purchase a number of additional shares and/or warrants in approximately the same proportion as shown in the table above. The representative, in its sole discretion, shall determine the allocation and distribution of the option shares/warrants.

Listing

Our shares of common stock are listed on The Nasdaq Capital Market under the trading symbol "PSTI" and on the Tel Aviv Stock Exchange under the trading symbol "PLTR."

Determination of offering price

The public offering price of the units was negotiated between us and the underwriters, based on the trading of our common stock prior to the offering, among other things. Other factors considered in determining the public offering

price of the units include the history and prospects of the Company, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

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Lock-up Agreements

Our officers and directors have agreed with the underwriters to be subject to a lock-up period of 90 days following the date of this prospectus supplement, subject to certain limited exceptions. This means that during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, or exercisable or exchangeable for, shares of our common stock. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. We have also agreed, in the underwriting agreement, to similar lock-up restrictions on the issuance and sale of our securities for 90 days following the date of this prospectus supplement, although we will be permitted to (a) issue the shares of common stock by us in the concurrent registered direct offering, (b) issue stock options, restricted stock grants and restricted stock units to directors, officers, employees and consultants under our existing plans, (c) issue securities in the context of certain strategic transactions and (d) conduct sales under our Open Market Sales Agreement with Jefferies LLC dated February 6, 2019 beginning 45 days after the date of this prospectus. The representative may, in its sole discretion and without notice, waive the terms of any of these lock-up agreements.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. American Stock Transfer & Trust Company, LLC will also act as warrant agent for the warrants to be issued in this offering

Stabilization, short positions and penalty bids

To facilitate the offering, the underwriters may engage in over-allotment, syndicate covering transactions, stabilizing transactions and penalty bids or purchases for the purpose of pegging, fixing or maintaining the price of our common stock:

Over-allotment involves sales by the underwriters of shares and/or warrants in excess of the number of shares and warrants the underwriters are obligated to purchase from us in the offering, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriters is not greater than the number of shares that they may purchase in the over-allotment option. In a naked short position, the number of shares involved is greater than the number of shares in the over-allotment option. The underwriters may close out any short position by exercising their over-allotment option, in whole or in part, or purchasing shares in the open market.

Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of securities needed to close out the short position, the underwriters will consider, among other things, the price of the securities available for purchase in the open market as compared to the price at which they may purchase the securities through the over-allotment option. If the underwriters sell more securities than could be covered by the over-allotment option known as, a naked short position, the position can only be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specific maximum.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member or other broker-dealer participating in the offering when the securities originally sold by that syndicate member or other broker-dealer are purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These syndicate covering transactions, stabilizing transactions and penalty bids may have the effect of raising or maintaining the market prices of our securities or preventing or retarding a decline in the market prices of our securities. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the Nasdaq Capital Market, in the over-the-counter market or on any other trading market and, if commenced, may be discontinued at any time.

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In connection with this offering, the underwriters also may engage in passive market making transactions in our common stock on the Nasdaq Capital Market in accordance with Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of the distribution. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specific purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the prices of our securities. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these transactions or that any transactions, once commenced, will not be discontinued without notice.

Electronic offer, sale and distribution of shares

A prospectus in electronic format may be made available on the web sites maintained by the underwriters, or selling group members, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectuses electronically. The representative may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations.

Other Activities and Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses. For example, Ladenburg Thalmann & Co. Inc. is acting as placement agent in connection with the concurrent registered direct offering.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the securities offered hereby. Any such short positions could adversely affect future trading prices of the securities offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Offer Restrictions Outside the United States

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968, or the Securities Law, and has not been filed with or approved by the Israel Securities Authority. In Israel, this prospectus is being distributed only to, and is directed only at, and any offer of the securities is directed only at, (i) a limited number of persons in accordance with the Securities Law and (ii) investors listed in the first addendum, or the Addendum, to the Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and “qualified individuals,” each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case, purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors are required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it.

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DESCRIPTION OF WARRANTS

The following summary of certain terms and provisions of the warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of a warrant agent agreement. Prospective investors should carefully review the terms and provisions of the form of warrant agent agreement for a complete description of the terms and conditions of the warrants.

Each warrant to be issued in this offering represent the right to purchase up to _____ shares of common stock at an initial exercise price of \$ _____ per share. Each warrant may be exercised at any time and from time to time on or after _____, 2019 and through and including _____, 202 .

Book-entry Form

Pursuant to a warrant agent agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the warrants will be issued in book-entry form and shall initially be represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

The warrants issued in this offering will be governed by the terms of a global warrant held in book-entry form. The holder of a warrant will not be deemed a holder of our underlying common stock until the warrant is exercised, except as set forth in the warrant.

The warrants will be issued separately from the common stock, and may be transferred separately immediately thereafter.

Exercise

Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain rescission, compensation and buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the second trading day after delivery to us of the exercise notice. With respect to the rescission rights, the holder has the right to rescind the exercise. The buy-in rights apply if after such second trading day the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, we will:

pay cash to the holder in an amount equal to the excess (if any) of the buy-in price over the product of (A) such § number of shares of common stock, times (B) the price at which the sell order giving rise to holder's purchase obligation was executed; and

at the election of holder, either (A) reinstate the portion of the warrant as to such number of shares of common § stock, or (B) deliver to holder the number of shares of common stock that would have been issued had we timely complied with its exercise and delivery obligations under the warrant.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at the time of exercise of the warrant, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares of common stock underlying the warrants. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be

determined by a formula based on the total number of shares with respect to which the warrant is being exercised, the volume weighted average of the prices per share of our common stock on the trading date immediately prior to the date of exercise and the applicable exercise price of the warrants.

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The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Delivery of Certificates

Upon the holder's exercise of a warrant, we will promptly, but in no event later than two trading days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant. In addition, we will, if the holder provides the necessary information to us, issue and deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

Certain Adjustments

The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of the following events:

Stock Dividends and Splits

If, at any time while the warrant is outstanding, we (i) pay a stock dividend or otherwise make a distribution on shares of common stock or any other equity or equity equivalent securities payable in shares of common stock, (ii) subdivide outstanding shares of common stock into a larger number of shares, (iii) combine outstanding shares of common stock into a smaller number of shares, or (iv) issue by reclassification of common stock any shares of capital stock, then in each such case the exercise price of the warrant shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding immediately after such event, and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Subsequent Rights Offerings

If, at any time while the warrant is outstanding, we grant, issue or sell any common stock equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of common stock, or the Purchase Rights, then the warrant holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the warrant holder could have acquired if the warrant holder had held the number of shares of common stock acquirable upon complete exercise of the warrant (without regard to any limitations on exercise hereof, including without limitation, the beneficial ownership limitation set forth in the warrant, or the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of common stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the warrant holder's right to participate in any such Purchase Right would result in the warrant holder exceeding the Beneficial Ownership Limitation, then the warrant holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of common stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the warrant holder until such time, if ever, as its right thereto would not result in the warrant holder exceeding the Beneficial Ownership Limitation).

Pro Rata Distributions

If, at any time while the warrant is outstanding, we declare or make any dividend or other distribution of our assets (or rights to acquire its assets) to holders of shares of common stock, by way of return of capital or otherwise (including,

without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a “Distribution”), at any time after the issuance of the warrant, then, in each such case, the warrant holder will be entitled to participate in such Distribution to the same extent that the warrant holder would have participated therein if the warrant holder had held the number of shares of common stock acquirable upon complete exercise of the warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of common stock are to be determined for the participation in such Distribution (provided, however, to the extent that the warrant holder’s right to participate in any such Distribution would result in the warrant holder exceeding the Beneficial Ownership Limitation, then the warrant holder will not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of common stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the warrant holder until such time, if ever, as its right thereto would not result in the warrant holder exceeding the Beneficial Ownership Limitation).

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Fundamental Transactions

If, at any time while the warrant is outstanding, we (i) consolidate or merge with or into another corporation, (ii) sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets, (iii) are subject to or complete a tender or exchange offer pursuant to which holders of our common stock are permitted to tender or exchange their shares for other securities, cash or property which has been accepted by 50% or more of the outstanding common stock, (iv) effect any reclassification, reorganization or recapitalization of the our common stock or any compulsory share exchange pursuant to which our common stock is effectively converted into or exchanged for other securities, cash or property, (v) or we, directly or indirectly, in one or more related transactions consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another person or group of persons whereby such other person or group acquires more than 50% of the outstanding shares of our common stock (not including any shares of common stock held by the other person(s) making or party to, or associated or affiliated with the other persons making or party to, such stock or share purchase agreement or other business combination), each, a Fundamental Transaction, then the holders shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant, which we refer to in this prospective supplement as Alternate Consideration. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any successor entity shall, at the warrant holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase the warrant from the warrant holder by paying to the warrant holder an amount of cash equal to the Black Scholes Value of the remaining unexercised portion of the warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, the warrant holder shall only be entitled to receive from the Company or any successor entity, as of the date of consummation of such Fundamental Transaction, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of the warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of common stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction.

Notice of Corporate Action

We will provide notice to holders of the warrants to provide such holders with an opportunity to exercise their warrants and hold common stock in order to participate in or vote on the following corporate events if we (i) declare a dividend on the common stock, (ii) declare a special nonrecurring cash dividend on or a redemption of the common stock, (iii) authorize the granting to all holders of the common stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (iv) require the approval of any stockholders in connection with any reclassification of the common stock, any consolidation or merger to which we are a party, any sale or transfer of all or substantially all of our assets, any compulsory share exchange whereby the common stock is converted into other securities, cash or property, or (v) authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company.

Limitations on Exercise

The number of warrant shares that may be acquired by the holder upon any exercise of the warrant shall be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act, does not exceed 4.99% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise), which we refer to as the Beneficial Ownership Limitation. The holder may elect to change the Beneficial Ownership Limitation from 4.99% to 9.99% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise) upon 61 days' prior written notice.

Exchange Listing

We do not plan on applying to list the common warrants on The Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

Additional Provisions

The above summary of certain terms and provisions of the warrants is qualified in its entirety by reference to the detailed provisions of the warrants, the form of which will be filed as an exhibit to a current report on Form 8-K that is incorporated herein by reference. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a stockholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

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LEGAL MATTERS

The validity of the common stock and warrants offered hereby and certain other legal matters will be passed upon for us by Zysman, Aharoni, Gayer and Sullivan & Worcester LLP, New York, New York. Certain legal matters related to the offering will be passed upon for the underwriters by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., New York, New York.

EXPERTS

The consolidated financial statements of Pluristem appearing in our Annual Report on Form 10-K for the fiscal year ended June 30, 2018, and the effectiveness of the internal control over financial reporting of Pluristem as of June 30, 2018, have been audited by Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global, independent registered public accounting firm, as set forth in their reports thereon, which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1(b) to the consolidated financial statements, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.pluristem.com. Our website is not a part of this prospectus supplement and is not incorporated by reference in this prospectus supplement. This reference to the websites is an inactive textual reference only, and is not a hyperlink.

This prospectus is part of a registration statement we filed with the SEC. This prospectus supplement and the accompanying prospectus omit some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information on us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus supplement and the accompanying prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements. You can obtain a copy of the registration statement from the SEC's website.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

We are “incorporating by reference” certain documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information in the documents incorporated by reference is considered to be part of this prospectus supplement. Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus supplement will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus supplement, to the extent the new information differs from or is inconsistent with the old information.

We have filed or may file the following documents with the SEC. These documents are incorporated herein by reference as of their respective dates of filing:

- (a) Our Annual Report on Form 10-K for the year ended June 30, 2018, as filed with the SEC on September 12, 2018;
- (b) Our Quarterly Reports on Form 10-Q for the quarters ended September 30, 2018 and December 31, 2018, as filed with the SEC on November 7, 2018 and February 6, 2019, respectively;
- (c) Our Current Report on Form 8-K as filed with the SEC on March 18, 2019; and
- (d) The description of our common stock contained in the Registration Statement on Form 8-A filed on December 10, 2007, under the Exchange Act, including any amendment or report filed or to be filed for the purpose of updating such description.

All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until all of the securities to which this prospectus supplement relates has been sold or the offering is otherwise terminated, except in each case for information contained in any such filing where we indicate that such information is being furnished and is not to be considered “filed” under the Exchange Act, will be deemed to be incorporated by reference in this prospectus supplement and the accompanying prospectus and to be a part hereof from the date of filing of such documents.

We will provide a copy of the documents we incorporate by reference, at no cost, to any person who receives this prospectus supplement. To request a copy of any or all of these documents, you should write or telephone us at MATAM Advanced Technology Park, Building No. 5, Haifa, L3 3508409, Israel, Attention: Chen Franco-Yehuda

PROSPECTUS
SUPPLEMENT

\$200,000,000
Common Stock
Preferred Stock
Warrants
Units

We may from time to time sell common stock, preferred stock and warrants to purchase common stock, and units of two or more of such securities, in one or more offerings for an aggregate initial offering price of \$200,000,000. We refer to the common stock, the preferred stock, the warrants to purchase common stock and the units collectively as the securities. This prospectus describes the general manner in which our securities may be offered using this prospectus. Other than in connection with the exercise of certain outstanding warrants, we will specify in an accompanying prospectus supplement the terms of the securities to be offered and sold. We may sell these securities to or through underwriters or dealers, directly to purchasers or through agents. We will set forth the names of any underwriters, dealers or agents in an accompanying prospectus supplement. You should carefully read this prospectus and any accompanying supplements before you decide to invest in any of these securities.

Our common stock is traded on the NASDAQ Capital Market, or Nasdaq, under the symbol "PSTI" and on the Tel Aviv Stock Exchange under the symbol "PLTR."

Investing in our securities involves risks. See "Risk Factors" on page 2 of this prospectus.

Neither the Securities and Exchange Commission, or the SEC, 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 June 30, 2017.

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You should rely only on the information contained in this prospectus, any prospectus supplement and the documents incorporated by reference herein or therein, or to which we have referred you. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus and any prospectus supplement do not constitute an offer to sell, or a solicitation of an offer to purchase, the securities offered by this prospectus and any prospectus supplement in any jurisdiction to or from any person to whom or from whom it is unlawful to make such offer or solicitation of an offer in such jurisdiction. You should not assume that the information contained in this prospectus, any prospectus supplement or any document incorporated by reference is accurate as of any date other than the date indicated in the applicable document.

Neither the delivery of this prospectus nor any distribution of securities pursuant to this prospectus shall, under any circumstances, create any implication that there has been no change in the information set forth or incorporated by reference into this prospectus or in our affairs since the date of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

Our name and logo and the names of our products are our trademarks or registered trademarks. Unless the context otherwise requires, references in this prospectus to “Pluristem,” “we,” “us,” and “our” refer to Pluristem Therapeutics Inc. and its subsidiary as required by the context.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the SEC using a “shelf” registration process. Under this shelf registration process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of \$200,000,000. This prospectus describes the securities we may offer and the general manner in which our securities may be offered by this prospectus. Each time we sell securities (other than in connection with the exercise of certain outstanding warrants), we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date - for example, a document incorporated by reference in this prospectus or any prospectus supplement - the statement in the document having the later date modifies or supersedes the earlier statement.

OUR COMPANY

This summary highlights information contained in the documents incorporated herein by reference. Before making an investment decision, you should read the entire prospectus, and our other filings with the SEC, including those filings incorporated herein by reference, carefully, including the sections entitled “Risk Factors” and “Cautionary Note Regarding Forward-Looking Statements.”

We are a leading developer of placenta-based cell therapy product candidates for the treatment of multiple ischemic, inflammatory and hematologic conditions. Our lead indications are critical limb ischemia, or CLI, recovery after surgery for femoral neck fracture, and acute radiation syndrome, or ARS. Pivotal, multinational clinical trials are planned for our PLX-PAD product candidate in CLI and femoral neck fracture, and for our PLX-R18 product candidate in the hematologic component of ARS. Each of these indications is a severe unmet medical need.

PLX cells are derived from a class of placental cells that are harvested from donated placentas at the time of full term delivery of a live baby. PLX cell products require no tissue matching prior to administration. They are produced using our proprietary three-dimensional expansion technology. Our manufacturing facility complies with the U.S. Food and Drug Administration’s, or FDA’s current Good Manufacturing Practice requirements and has been approved by the European, Japanese and Israeli regulatory authorities for production of PLX-PAD for late stage trials and marketing. We expect to have in-house production capacity to grow clinical-grade PLX cells in commercial quantities.

Our goal is to make significant progress with our robust clinical pipeline and our anticipated pivotal trials in order to ultimately bring innovative, potent therapies to patients who need new treatment options. We intend to shorten the time to commercialization of our first product candidate, PLX-PAD, by leveraging the unique accelerated regulatory pathways that exist in Europe and Japan to bring innovative products that address life-threatening diseases to the market efficiently. We believe that these accelerated pathways create substantial opportunities for us and for the cell therapy industry as a whole. We are pursuing these accelerated pathways for PLX-PAD in CLI and femoral neck fracture. Our second product candidate, PLX R18, is under development in the United States for ARS via the Animal Rule regulatory pathway, which may result in approval without the prior performance of human efficacy trials. We expect to demonstrate a real-world impact and value from our pipeline, technology platform and commercial-scale manufacturing capacity.

We were incorporated as a Nevada corporation in 2001. We have a wholly owned subsidiary in Israel called Pluristem Ltd. Our executive offices are located at MATAM Advanced Technology Park, Building No. 5, Haifa, Israel, our telephone number is 011 972 74 710 8759 and our website address is www.pluristem.com. This reference to our website is an inactive textual reference only, and is not a hyperlink. The information on our website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. You should not

consider the contents of our website in making an investment decision with respect to the securities.

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RISK FACTORS

An investment in our securities involves significant risks. You should carefully consider the risk factors below as well as risk factors contained in any prospectus supplement and in our filings with the SEC, including our Annual Report on Form 10-K for the fiscal year ended June 30, 2016 as well as all of the information contained in this prospectus, any prospectus supplement and the other documents incorporated by reference herein or therein, before you decide to invest in our securities. Our business, prospects, financial condition and results of operations may be materially and adversely affected as a result of any of such risks. The value of our securities could decline as a result of any of these risks. You could lose all or part of your investment in our securities. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business, prospects, financial condition and results of operations.

Although we have entered into a term sheet with Innovative Medical Management Co. Ltd., there can be no assurance that a definitive agreement will be signed or that such proposed investment will be made.

We have signed a binding term sheet with Innovative Medical Management Co. Ltd., or Innovative Medical, related to Innovative Medical's proposed investment of approximately \$30,000,000. Although the term sheet provided that definitive agreements would be executed by December 26, 2016, we announced on December 23, 2016, that, due to a recently adopted Chinese policy relating to outbound investments by Chinese companies, we agreed to extend the time of execution of the definitive agreements relating to Innovative Medical's proposed investment. As a result of this recently adopted Chinese policy, we now plan to continue the discussions with respect to the definitive agreements until we have received further clarification about such policies, which we initially expected to receive during the first half of 2017. We now do not expect the needed clarifications regarding the agreement with Innovative Medical to be provided by the end of the first half of 2017. Thus, it is possible that the definitive agreements will not be executed, or that they may be executed on terms and conditions that are materially different than those set forth in the term sheet. There can be no assurance that we will execute the definitive agreements or that Innovative Medical's proposed investment will be made.

Although we have entered into a term sheet with Sosei Corporate Venture Capital Ltd. there can be no assurance that a definitive agreement will be signed or that such proposed joint venture will be formed.

We have signed a binding term sheet with Sosei Corporate Venture Capital Ltd., or Sosei CVC, for the establishment of for the establishment of a new Japanese corporation, or NewCo, for the clinical development and commercialization of our PLX-PAD cell therapy product in Japan. While the parties have executed a term sheet and we believe such definitive agreements will be finalized in the coming months, there is no guarantee that we will be successful in executing agreements by then. It is possible that the definitive agreements will not be executed, or that they may be executed on terms and conditions that are materially different than those set forth in the term sheet. There can be no assurance that we will execute the definitive agreements or that the proposed joint venture with Sosei CVC will be completed.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

The statements contained in this prospectus, any prospectus supplement and the documents we incorporate by reference herein or therein that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. Such forward-looking statements may be identified by, among other things, the use of forward-looking terminology such as "believes," "intends," "plans," "expects," "may," "will," "should," or "anticipates" or the negative thereof or other variations thereon or comparable terminology, and similar expressions are intended to identify forward-looking statements. We remind readers that forward-looking statements are merely predictions and therefore inherently subject to uncertainties and other factors and involve known and unknown risks that could cause the actual results, performance, levels of activity, or our achievements, or industry results, to be materially different from any future results, performance, levels of activity,

achievements or industry results, expressed or implied by such forward-looking statements. The factors discussed herein, including those risks described under the heading “Risk Factors” herein and in the documents we incorporate by reference, as well as those discussed elsewhere in this prospectus and any prospectus supplement could cause actual results and developments to be materially different from those expressed in or implied by such statements. In addition, historic results of scientific research, clinical and preclinical trials do not guarantee that the conclusions of future research or trials would not suggest different conclusions. Also, historic results referred to this prospectus, any prospectus supplement and the documents we incorporate by reference may be interpreted differently in light of additional research, clinical and preclinical trials results. Except as required by law we undertake no obligation to publicly update such forward-looking statements to reflect subsequent events or circumstances.

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USE OF PROCEEDS

Unless we otherwise indicate in an applicable prospectus supplement, we currently intend to use the net proceeds from the sale of the securities for research and product development activities, clinical trial activities, investment in capital equipment and for working capital and other general corporate purposes.

We may set forth additional information on the use of net proceeds from the sale of securities we offer under this prospectus in a prospectus supplement relating to the specific offering. Pending the application of the net proceeds, we intend to invest any proceeds in a variety of capital preservation instruments such as bank deposits or investment-grade, interest-bearing securities subject to any investment policies our investment committee may determine from time to time.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with any applicable prospectus supplement, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in any applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in any applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We may also include in any prospectus supplement information, where applicable, about material U.S. federal income tax consequences relating to the securities, and the securities exchange or market, if any, on which the securities will be listed.

We may sell from time to time, in one or more offerings, one or more of the following securities:

- common stock;
- preferred stock;
- warrants to purchase common stock; and
- units of two or more of the securities mentioned above.

The total initial offering price of all securities that we may issue in these offerings will not exceed \$200,000,000.

DESCRIPTION OF CAPITAL STOCK

The following summary is a description of the material terms of our share capital. We encourage you to read our Certificate of Incorporation, as amended, and Amended and Restated By-laws which have been filed with the SEC, as well as the applicable provisions of the Nevada Revised Statutes.

Our authorized capital stock currently consists of 200,000,000 shares of common stock, of which there were 96,171,868 shares outstanding as of March 31, 2017, and 10,000,000 shares of “blank check” preferred stock, none of which are outstanding. The following statements set forth the material terms of our capital stock; however, reference is made to the more detailed provisions of, and these statements are qualified in their entirety by reference to, our Articles of Incorporation and Bylaws, copies of which are referenced as exhibits herein, and the provisions of Nevada General Corporation Law. Except for our ability to issue additional securities, including preferred stock with terms that may be determined at a later date by our Board, there are no provisions in our Articles of Incorporation or Bylaws that would delay, defer or prevent a change in our control.

Common Stock

Except as otherwise required by applicable law and subject to the preferential rights of any outstanding preferred stock, all voting rights are vested in and exercised by the holders of common stock with each share of our common stock being entitled to one vote. In the event of liquidation, holders of the common stock are entitled to share ratably in the distribution of assets remaining after payment of liabilities, if any. Holders of the common stock have no cumulative voting rights and no preemptive or other rights to subscribe for shares. Holders of common stock are entitled to such dividends as may be declared by the Board of Directors out of funds legally available therefor.

Blank Check Preferred Stock

Our Board of Directors is empowered, without further action by stockholders, to issue from time to time one or more series of preferred stock, with such designations, rights, preferences and limitations as the Board may determine by resolution. The rights, preferences and limitations of separate series of preferred stock may differ with respect to such matters among such series as may be determined by the Board, including, without limitation, the rate of dividends, method and nature of payment of dividends, terms of redemption, amounts payable on liquidation, sinking fund provisions (if any), conversion rights (if any) and voting rights. Certain issuances of preferred stock may have the effect of delaying or preventing a change in control of our company that some stockholders may believe is not in their interest.

Transfer Agent

American Stock Transfer and Trust Company, LLC is the registrar and transfer agent for our common shares. Their address is 6201 15th Avenue, 2nd Floor, Brooklyn, NY 11219, telephone: (718) 921-8261, (800) 937-5449.

Nevada Anti-Takeover Law

Nevada revised statutes sections 78.378 to 78.3793 provide state regulation over the acquisition of a controlling interest in certain Nevada corporations unless the articles of incorporation or bylaws of the corporation provide that the provisions of these sections do not apply. This statute currently does not apply to our Company because in order to be applicable we would have to have as shareholders a specified number of Nevada residents and we would have to do business in Nevada directly or through an affiliate.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants (and any securities issuable upon exercise of such warrants) in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms we describe below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement.

General

We may issue warrants for the purchase of common stock in one or more series. We may issue warrants independently or together with common stock, and the warrants may be attached to or separate from the common stock.

We will evidence each series of warrants by warrant certificates that we will issue under a separate agreement or by warrant agreements that we will enter into directly with the purchasers of the warrants. If we evidence warrants by warrant certificates, we will enter into a warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent, if any, in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased or exercised;
- if applicable, the terms of the common stock with which the warrants are issued and the number of warrants issued with such common stock;
- if applicable, the date on and after which the warrants and the related common stock will be separately transferable;
- the number of shares of common stock or other securities purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the manner in which the warrants may be exercised, which may include by cashless exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of shares of common stock issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreement and warrants may be modified;
- the material United States federal income tax consequences of holding or exercising the warrants;
- the terms of the common stock issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the common stock purchasable upon such exercise, including the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the number of shares of common stock that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to 5:00 P.M., Eastern U.S. time, on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering to the warrant agent or us the warrant certificate or warrant agreement representing the warrants to be exercised together with specified information, and by paying the required amount to the warrant agent or us in immediately available funds, as provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate or in the warrant agreement and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent or us in connection with such exercise.

Upon receipt of the required payment and the warrant certificate or the warrant agreement, as applicable, properly completed and duly executed at the corporate trust office of the warrant agent, if any, at our offices or at any other office indicated in the applicable prospectus supplement, we will issue and deliver the common stock or other securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate or warrant agreement are exercised, then we will issue a new warrant certificate or warrant agreement for the remaining amount of warrants.

Enforceability of Rights by Holders of Warrants

If we appoint a warrant agent, any warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

Outstanding Warrants

The shares of common stock registered under the registration statement of which this prospectus is a part include 3,219,983 shares of common stock issuable upon exercise of warrants that were issued under our registration statement on Form S-3 declared effective on October 20, 2011 (Registration No. 333-177009). Such warrants were issued on September 19, 2012, have an exercise price of \$5.00 per share and expire on September 19, 2017.

No prospectus supplement will be delivered in connection with the issuance of these shares of common stock pursuant to the exercise of such warrants.

DESCRIPTION OF UNITS

We may issue, in one or more series, units consisting of common stock, preferred stock and/or warrants for the purchase of common stock and/or preferred stock, in any combination. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to a prospectus supplement, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplement related to the particular series of units that we may offer under this prospectus and the complete unit agreement and any supplemental agreements that contain the terms of the units.

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Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units, including:

- the designation and terms of the units, including whether and under what circumstances the securities comprising the units may be held or transferred separately; and

- any provisions for the issuance, payment, settlement, transfer or exchange of the units or the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock” and “Description of Warrants” will apply to each unit and to any common stock, preferred stock or warrant included in each unit, respectively.

We may issue units in such amounts and in such distinct series as we determine.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

- through agents to the public or to investors;
- to one or more underwriters or distributors for resale to the public or to investors;
- in “at the market offerings,” within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
- directly to investors in privately negotiated transactions;
- directly to a purchaser pursuant to what is known as an “equity line of credit” as described below;
- through a combination of these methods of sale; or
- upon exercise of outstanding warrants.

The securities that we distribute by any of these methods may be sold, in one or more transactions, at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to prevailing market prices; or
- negotiated prices.

The accompanying prospectus supplement will describe the terms of the offering of our securities, including:

- the name or names of any agents or underwriters;
- any securities exchange or market on which the common stock may be listed;
- the purchase price and commission, if any, to be paid in connection with the sale of the securities being offered and the proceeds we will receive from the sale;
- any over-allotment options pursuant to which underwriters may purchase additional securities from us;
- any underwriting discounts or agency fees and other items constituting underwriters' or agents' compensation;
- any public offering price; and
- any discounts or concessions allowed or reallocated or paid to dealers.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of the sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all the securities offered by the prospectus supplement. We may change from time to time the public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

If we use a dealer in the sale of the securities being offered pursuant to this prospectus or any prospectus supplement, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

We may sell the securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, any agent will act on a best-efforts basis for the period of its appointment.

We may also sell securities pursuant to an "equity line of credit". In such event, we will enter into a common stock purchase agreement with the purchaser to be named therein, which will be described in a Current Report on Form 8-K that we will file with the SEC. In that Form 8-K, we will describe the total amount of securities that we may require the purchaser to purchase under the purchase agreement and the other terms of purchase, and any rights that the purchaser is granted to purchase securities from us. In addition to our issuance of shares of common stock to the equity line purchaser pursuant to the purchase agreement, this prospectus (and the applicable prospectus supplement or post-effective amendment) also covers the resale of those shares from time to time by the equity line purchaser to the public. The equity line purchaser will be considered an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act. Its resales may be effected through a number of methods, including without limitation, ordinary brokerage transactions and transactions in which the broker solicits purchasers and block trades in which the broker or dealer so engaged will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction. The equity line purchaser will be bound by various anti-manipulation rules of the SEC and may not, for example, engage in any stabilization activity in connection with its resales of our securities and may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities other than as permitted under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

We may sell our securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of our common stock, and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may provide underwriters and agents with indemnification against civil liabilities related to offerings pursuant to this prospectus, including liabilities under the Securities Act, or contribution with respect to payments that the underwriters or agents may make with respect to these liabilities. Underwriters and agents may engage in transactions with, or perform services for, us in the ordinary course of business. We will describe such relationships in the prospectus supplement naming the underwriter or agent and the nature of any such relationship.

Rules of the SEC may limit the ability of any underwriters to bid for or purchase securities before the distribution of the shares of common stock is completed. However, underwriters may engage in the following activities in accordance with the rules:

Stabilizing transactions — Underwriters may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.

Options to purchase additional stock and syndicate covering transactions — Underwriters may sell more shares of our common stock than the number of shares that they have committed to purchase in any underwritten offering. This creates a short position for the underwriters. This short position may involve either “covered” short sales or “naked” short sales. Covered short sales are short sales made in an amount not greater than the underwriters’ option to purchase additional shares in any underwritten offering. The underwriters may close out any covered short position either by exercising their option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through their option. Naked short sales are short sales in excess of the option. The underwriters must close out any naked position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in the offering.

Penalty bids — If underwriters purchase shares in the open market in a stabilizing transaction or syndicate covering transaction, they may reclaim a selling concession from other underwriters and selling group members who sold those shares as part of the offering.

Similar to other purchase transactions, an underwriter’s purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of shares if it discourages resales of the shares.

If commenced, the underwriters may discontinue any of these activities at any time.

Our common stock is traded on the NASDAQ Capital Market and on the Tel Aviv Stock Exchange. One or more underwriters may make a market in our common stock, but the underwriters will not be obligated to do so and may discontinue market making at any time without notice. We cannot give any assurance as to liquidity of the trading market for our common stock.

Any underwriters who are qualified market makers on the NASDAQ Capital Market may engage in passive market making transactions in that market in the common stock in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock.

Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

Exercise of Outstanding Warrants

We will sell and deliver shares of our common stock directly to those holders who validly exercise certain warrants that were registered under a previous registration statement. No prospectus supplement will be delivered in connection with such transactions. See “Description of Warrants – Outstanding Warrants” on page 5 of this prospectus.

VALIDITY OF THE SECURITIES

Zysman, Aharoni, Gayer and Sullivan & Worcester LLP, New York, New York, passed upon the validity of the securities offered hereby.

EXPERTS

The consolidated financial statements of Pluristem Therapeutics Inc. appearing in our Annual Report on Form 10-K for the fiscal year ended June 30, 2016 and the effectiveness of the internal control over financial reporting of Pluristem Therapeutics Inc. as of June 30, 2016, have been audited by Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the reporting and information requirements of the Exchange Act and as a result file periodic reports and other information with the SEC. These periodic reports and other information will be available for inspection and copying at the SEC’s public reference room and the website of the SEC referred to below.

We have filed a registration statement on Form S-3 under the Securities Act with the SEC with respect to the shares of our common stock, warrants, preferred stock and units offered through this prospectus. This prospectus is filed as a part of that registration statement and does not contain all of the information contained in the registration statement and exhibits. We refer you to our registration statement and each exhibit attached to it for a more complete description of matters involving us, and the statements we have made in this prospectus are qualified in their entirety by reference to these additional materials.

You may read and copy the reports and other information we file with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington D.C. 20549. You may also obtain copies of this information by mail from the public reference section of the SEC, 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. You may obtain information regarding the operation of the public reference room by calling the SEC at 1 (800) SEC-0330. The SEC also maintains a website that contains reports and other information about issuers, like us, who file electronically with the SEC. The address of that website is <http://www.sec.gov>. This reference to the SEC’s website is an inactive textual reference only, and is not a hyperlink.

INCORPORATION OF DOCUMENTS BY REFERENCE

We are “incorporating by reference” certain documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information in the documents incorporated by reference is considered to be part of this prospectus. Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus, to the extent the new information differs from or is inconsistent with the old information.

We have filed or may file the following documents with the SEC. These documents are incorporated herein by reference as of their respective dates of filing:

(a) Our Annual Report on Form 10-K for the year ended June 30, 2016 filed with the SEC on September 7, 2016;

(b) Our Quarterly Reports on Form 10-Q for the quarters ended September 30, 2016, December 31, 2016 and March 31, 2017, as filed with the SEC on November 7, 2016, February 8, 2017 and May 8, 2017, respectively;

(c) Our Current Reports on Form 8-K filed with the SEC on October 25, 2016, November 10, 2016, December 20, 2016, December 23, 2016, January 11, 2017, January 17, 2017, January 20, 2017, March 29, 2017, March 30, 2017, May 3, 2017, May 25, 2017, June 20, 2017 and June 23, 2017; and

(d) The description of our common stock contained in the Registration Statement on Form 8-A filed on December 10, 2007, under the Exchange Act, including any amendment or report filed or to be filed for the purpose of updating such description.

All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until all of the securities to which this prospectus relates has been sold or the offering is otherwise terminated, except in each case for information contained in any such filing where we indicate that such information is being furnished and is not to be considered “filed” under the Exchange Act, will be deemed to be incorporated by reference in this prospectus and any accompanying prospectus supplement and to be a part hereof from the date of filing of such documents.

We will provide a copy of the documents we incorporate by reference, at no cost, to any person who receives this prospectus. To request a copy of any or all of these documents, you should write or telephone us at MATAM Advanced Technology Park, Building No. 5, Haifa, L3 31905, Israel, Attention: Erez Egozi.

Shares of Common Stock

and warrants to purchase shares of Common Stock

PROSPECTUS SUPPLEMENT

Sole Book-Running Manager

Ladenburg Thalmann

April , 2019
