

## FORM 4

UNITED STATES SECURITIES AND EXCHANGE  
COMMISSION

Washington, D.C. 20549

## OMB APPROVAL

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Check this box if no longer  
 subject to Section 16. Form 4  
 or Form 5 obligations may  
 continue. See Instruction 1  
 (b).

STATEMENT OF CHANGES IN BENEFICIAL  
OWNERSHIP

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,  
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the  
 Investment Company Act of 1940

|                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Name and Address of Reporting Person*<br><b>SHORRER DORON 0001268788</b><br><hr/> (Last) (First) (Middle)<br><b>333 KHORE HADOROT ST</b><br><hr/> (Street)<br><b>JERUSALEM L3 93393</b><br><hr/> (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol<br><b>PLURISTEM THERAPEUTICS<br/>         INC [ PSTI ]</b><br><hr/> 3. Date of Earliest Transaction (Month/Day/Year)<br><b>12/21/2011</b><br><hr/> 4. If Amendment, Date of Original Filed<br>(Month/Day/Year) | 5. Relationship of Reporting Person(s) to Issuer<br>(Check all applicable)<br><input checked="" type="checkbox"/> Director 10% Owner<br>Officer (give title below) Other (specify below)<br><hr/> 6. Individual or Joint/Group Filing (Check<br>Applicable Line)<br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br>Form filed by More than One Reporting<br>Person |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Table I – Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of<br>Security (Instr.<br>3) | 2. Transaction Date<br>(Month/Day/Year) | 2A. Deemed Execution<br>Date, if any<br>(Month/Day/Year) | 3. Transaction<br>Code (Instr. 8) |   | 4. Securities Acquired (A) or<br>Disposed Of (D) (Instr. 3, 4<br>and 5) |               |       | 5. Amount of Securities<br>Beneficially Owned<br>Following Reported<br>Transaction(s) (Instr. 3 and<br>4) | 6. Ownership<br>Form: Direct (D)<br>or Indirect (I)<br>(Instr. 4) | 7. Nature of<br>Indirect Beneficial<br>Ownership (Instr.<br>4) |
|---------------------------------------|-----------------------------------------|----------------------------------------------------------|-----------------------------------|---|-------------------------------------------------------------------------|---------------|-------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------|
|                                       |                                         |                                                          | Code                              | V | Amount                                                                  | (A) or<br>(D) | Price |                                                                                                           |                                                                   |                                                                |
| Common<br>Stock                       | 12/21/2011 <sup>(1)</sup>               |                                                          | A                                 |   | 125,000                                                                 | A             | \$0   | 337,208                                                                                                   | D                                                                 |                                                                |

Table II – Derivative Securities Acquired, Disposed of, or Beneficially Owned  
(e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of<br>Derivative<br>Security (Instr. 3) | 2. Conversion<br>or Exercise<br>Price of<br>Derivative<br>Security | 3. Transaction<br>Date<br>(Month/Day/Year) | 3A. Deemed<br>Execution Date, if<br>any<br>(Month/Day/Year) | 4. Transaction<br>Code (Instr.<br>8) | 5. Number<br>of<br>Derivative<br>Securities<br>Acquired<br>(A) or<br>Disposed<br>of (D)<br>(Instr. 3,<br>4<br>and 5) | 6. Date Exercisable and<br>Expiration Date<br>(Month/Day/Year) |                    | 7. Title and<br>Amount of<br>Securities<br>Underlying<br>Derivative<br>Security (Instr.<br>3 and 4) | 8. Price<br>of<br>Derivative<br>Security<br>(Instr. 5) | 9. Number<br>of<br>Derivative<br>Securities<br>Beneficially<br>Owned<br>Following<br>Reported<br>Transaction<br>(s) (Instr. 4) | 10. Ownership<br>Form:<br>Direct (D)<br>or Indirect<br>(I) (Instr.<br>4) | 11. Nature<br>of Indirect<br>Beneficial<br>Ownership<br>(Instr. 4) |
|--------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------|
|                                                  |                                                                    |                                            |                                                             |                                      |                                                                                                                      | Date<br>Exercisable                                            | Expiration<br>Date |                                                                                                     |                                                        |                                                                                                                                |                                                                          |                                                                    |
|                                                  |                                                                    |                                            |                                                             | Code                                 | V                                                                                                                    | (A)                                                            | (D)                | Title                                                                                               | Amount<br>or<br>Number<br>of<br>Shares                 |                                                                                                                                |                                                                          |                                                                    |

## Explanation of Responses:

1. The shares vest as follows: 25% after 6 months from grant and the remaining shares vest in 6 equal installments every 3 months thereafter.

## Remarks:

/s/ Doron Shorrer

\*\* Signature of Reporting Person

12/22/2011

Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 4(b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.