

T2 Biosystems, Inc.
Form SC 13G
February 12, 2015

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 13G

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULES

13d-1(b), (c), AND (d) AND AMENDMENTS THERETO FILED

PURSUANT TO RULE 13d-2

(Amendment No.)

T2 Biosystems, Inc.

(Name of Issuer)

Common Stock, \$0.01 par value per share

(Title of Class of Securities)

89853L104

(CUSIP Number)

December 31, 2014

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be filed for the purpose of Section 18 of the Securities Exchange Act of 1934 (Act) or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 89853L104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Flagship Ventures Fund 2004, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

Delaware

5. Sole Voting Power

Number of

Shares -0-

6. Shared Voting Power

Beneficially

Owned by 1,632,816

Each 7. Sole Dispositive Power

Reporting

Person -0-

8. Shared Dispositive Power

With:

1,632,816

9. Aggregate Amount Beneficially Owned by Each Reporting Person

1,632,816

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

8.1%

12. Type of Reporting Person (See Instructions)

PN

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CUSIP No. 89853L104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Flagship Ventures General Partner LLC

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

Delaware

5. Sole Voting Power

Number of

Shares -0-
6. Shared Voting Power

Beneficially

Owned by 1,632,816
Each 7. Sole Dispositive Power

Reporting

Person -0-
8. Shared Dispositive Power

With:

1,632,816

9. Aggregate Amount Beneficially Owned by Each Reporting Person

1,632,816

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

8.1%

12. Type of Reporting Person (See Instructions)

OO

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CUSIP No. 89853L104

1. Names of Reporting Persons.

Flagship Ventures Fund IV, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

Delaware

5. Sole Voting Power

Number of

Shares -0-

6. Shared Voting Power

Beneficially

Owned by 741,755

Each 7. Sole Dispositive Power

Reporting

Person -0-

8. Shared Dispositive Power

With:

741,755

9. Aggregate Amount Beneficially Owned by Each Reporting Person

741,755

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

3.7%

12. Type of Reporting Person (See Instructions)

PN

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CUSIP No. 89853L104

1. Names of Reporting Persons.

Flagship Ventures Fund IV General Partner LLC

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

Delaware

5. Sole Voting Power

Number of

Shares -0-

6. Shared Voting Power

Beneficially

Owned by 741,755

Each 7. Sole Dispositive Power

Reporting

Person -0-

8. Shared Dispositive Power

With:

741,755

9. Aggregate Amount Beneficially Owned by Each Reporting Person

741,755

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

3.7%

12. Type of Reporting Person (See Instructions)

OO

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CUSIP No. 89853L104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Noubar B. Afeyan Ph.D.

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

United States

5. Sole Voting Power

Number of

Shares 0

6. Shared Voting Power

Beneficially

Owned by 2,374,571

Each 7. Sole Dispositive Power

Reporting

Person 0

8. Shared Dispositive Power

With:

2,374,571

9. Aggregate Amount Beneficially Owned by Each Reporting Person

2,374,571

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

11.8%

12. Type of Reporting Person (See Instructions)

IN

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CUSIP No. 89853L104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Edwin M. Kania, Jr.

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Citizenship or Place of Organization

United States

5. Sole Voting Power

Number of

Shares 0

6. Shared Voting Power

Beneficially

Owned by 2,374,571

Each 7. Sole Dispositive Power

Reporting

Person 0

8. Shared Dispositive Power

With:

2,374,571

9. Aggregate Amount Beneficially Owned by Each Reporting Person

2,374,571

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

11.8%

12. Type of Reporting Person (See Instructions)

IN

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CUSIP No. 89853L104

Item 1(a) Name of Issuer:

T2 Biosystems, Inc.

Item 1(b) Address of Issuer's Principal Executive Offices:

101 Hartwell Avenue

Lexington, Massachusetts 02421 USA

Item 2(a) Name of Person Filing:

The names of the persons filing this report (collectively, the reporting persons) are:

Flagship Ventures Fund 2004, L.P. (Fund 2004)

Flagship Ventures General Partner LLC (Fund 2004 GP)

Flagship Ventures Fund IV, L.P. (Fund IV)

Flagship Ventures Fund IV General Partner LLC (Fund IV GP)

Noubar B. Afeyan, Ph.D. (Mr. Afeyan)

Edwin M. Kania, Jr. (Mr. Kania)

Item 2(b) Address of Principal Business Office or, if None, Residence:

The address of the principal business office of each of the reporting persons is:

c/o Flagship Ventures

One Memorial Drive, 7th Floor

Cambridge, Massachusetts 02142

Item 2(c) Citizenship:

Fund 2004 Delaware limited partnership

Fund 2004 GP Delaware limited liability company

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Fund IV	Delaware limited partnership
Fund IV GP	Delaware limited liability company
Mr. Afeyan	U.S. citizen
Mr. Kania	U.S. citizen

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CUSIP No. 89853L104

Item 2(d) Title of Class of Securities:

This Schedule 13G relates to the Common Stock, par value \$0.001 per share (Common Stock), of T2 Biosystems, Inc.

Item 2(e) CUSIP Number:

89853L104

Item 3 Description of Person Filing:

Not applicable.

Item 4 Ownership:

(a) Amount Beneficially Owned:

As of December 31, 2014: (i) Fund 2004 was the record holder of 1,632,816 shares of Common Stock (the Fund 2004 Shares), and Fund IV was the record holder of 741,755 shares of Common Stock (the Fund IV Shares and, collectively with the Fund 2004 Shares, the Shares).

Fund 2004 GP is the general partner of Fund 2004 and, as such, may be deemed to beneficially own the Fund 2004 Shares.

Fund IV GP is the general partner of Fund IV and, as such, may be deemed to beneficially own the Fund IV Shares.

Messrs. Afeyan and Kania are the managers of each of Fund 2004 GP and Fund IV GP and have shared voting and dispositive power over the Shares. Accordingly, Messrs. Afeyan and Kania may be deemed to beneficially own the Shares.

Each of the Reporting Persons expressly disclaims beneficial ownership of the Shares except to the extent of its or his pecuniary interest in such Shares.

(b) Percent of Class:

Fund 2004	8.1%
Fund 2004 GP	8.1%
Fund IV	3.7%
Fund IV GP	3.7%
Mr. Afeyan	11.8%
Mr. Kania	11.8%

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The ownership percentages reported above are based on an aggregate of 20,041,645 shares of Common Stock outstanding, as reported in the Issuer's Quarterly Report on Form 10-Q for the quarter ended September 30, 2014.

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(c) Number of Shares as to which the Person has:

Reporting Person	NUMBER OF SHARES OF COMMON STOCK			
	(i)	(ii)	(iii)	(iv)
Fund 2004	0	1,632,816	0	1,632,816
Fund 2004 GP	0	1,632,816	0	1,632,816
Fund IV	0	741,755	0	741,755
Fund IV GP	0	741,755	0	741,755
Mr. Afeyan	0	2,374,571	0	2,374,571
Mr. Kania	0	2,374,571	0	2,374,571

- (i) Sole power to vote or direct the vote
- (ii) Shared power to vote or to direct the vote
- (iii) Sole power to dispose or to direct the disposition of
- (iv) Shared power to dispose or to direct the disposition of

Item 5 Ownership of Five Percent or Less of a Class:

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following " .

Item 6 Ownership of More than Five Percent on Behalf of Another Person:

Not applicable.

Item 7 Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person:

Not applicable.

Item 8 Identification and Classification of Members of the Group:

Each of the Reporting Persons expressly disclaims membership in a Group as defined in Rule 13d-1(b)(ii)(K).

Item 9 Notice of Dissolution of Group:

Not applicable.

Item 10 Certification:

Not applicable.

This Schedule 13G is not filed pursuant to Rule 13d-1(b) or Rule 13d-1(c).

CUSIP No. 89853L104

SIGNATURES

After reasonable inquiry and to the best of the knowledge and belief of each of the undersigned, each of the undersigned hereby certifies that the information set forth in this statement is true, complete and correct.

DATED: February 10, 2015

FLAGSHIP VENTURES FUND 2004, L.P.

By: Flagship Ventures General Partner
LLC, its general partner

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

FLAGSHIP VENTURES GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

FLAGSHIP VENTURES FUND IV, L.P.

By: Flagship Ventures Fund IV General
Partner LLC, its general partner

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

FLAGSHIP VENTURES FUND IV GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

/s/ Noubar B. Afeyan, Ph. D
NOUBAR B. AFEYAN, PH.D.

/s/ Edwin M. Kania, Jr.
EDWIN M. KANIA, JR.

CUSIP No. 89853L104

Exhibit I

Joint Filing Agreement

Pursuant to Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended, the undersigned hereby agree that only one statement containing the information required by Schedule 13G need be filed with respect to the ownership by each of the undersigned of the shares of Common Stock of T2 Biosystems, Inc. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original.

EXECUTED as of this 10th day of February, 2015.

FLAGSHIP VENTURES FUND 2004, L.P.

By: Flagship Ventures General Partner
LLC, its general partner

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

**FLAGSHIP VENTURES GENERAL
PARTNER LLC**

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

FLAGSHIP VENTURES FUND IV, L.P.

By: Flagship Ventures Fund IV General
Partner LLC, its general partner

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

**FLAGSHIP VENTURES FUND IV
GENERAL PARTNER LLC**

By: /s/ Noubar B. Afeyan, Ph. D.
Name: Noubar B. Afeyan, Ph. D.
Title: Manager

/s/ Noubar B. Afeyan, Ph. D

NOUBAR B. AFEYAN, PH.D.

/s/ Edwin M. Kania, Jr.

EDWIN M. KANIA, JR.

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