

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

SCHEDULE 13G
(Rule 13d-102)

OMB APPROVAL
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**INFORMATION TO BE INCLUDED IN STATEMENTS FILED
PURSUANT TO RULES 13d-1(b) AND (c) AND AMENDMENTS
THERE TO FILED PURSUANT TO 13d-2(b) (1)**

**Under the Securities Exchange Act of 1934
(Amendment No.)***

Nuvasive, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

670704105

(CUSIP Number)

December 31, 2004

(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)

(1) 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).

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only)
Kleiner Perkins Caufield & Byers VIII, L.P., a California limited partnership ("KPCB VIII") 77-0431351

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
California limited partnership

5. Sole Voting Power
0

Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With

6. Shared Voting Power
1,666,618

7. Sole Dispositive Power
0

8. Shared Dispositive Power
1,666,618

9. Aggregate Amount Beneficially Owned by Each Reporting Person
1,666,618

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

11. Percent of Class Represented by Amount in Row (9)
6.98%

12. Type of Reporting Person (See Instructions)
PN

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only)
KPCB VIII Associates, L.P., a California limited partnership ("KPCB VIII Associates") 94-3240818

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
California limited partnership

Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With

5. Sole Voting Power
0

6. Shared Voting Power
1,763,245 shares of which 1,666,618 shares are directly held by KPCB VIII and 96,627 shares are directly held by KPCB VIII Founders Fund, L.P., a California limited partnership ("KPCB VIII FF"). KPCB VIII Associates is the general partner of KPCB VIII and KPCB VIII FF.

7. Sole Dispositive Power
0

8. Shared Dispositive Power
1,763,245 shares of which 1,666,618 shares are directly held by KPCB VIII and 96,627 shares are directly held by KPCB VIII Founders Fund, L.P., a California limited partnership ("KPCB VIII FF"). KPCB VIII Associates is the general partner of KPCB VIII and KPCB VIII FF.

9. Aggregate Amount Beneficially Owned by Each Reporting Person
1,763,245

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

11. Percent of Class Represented by Amount in Row (9)
7.39%

12. Type of Reporting Person (See Instructions)
PN

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only)
Joseph S. Lacob

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

Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With

5. Sole Voting Power
55,125 shares, of which 32,000 are options of which 14,000 are fully vested or will be fully vested within 60 days.

6. Shared Voting Power
1,798,456 shares of which 1,666,618 shares are directly held by KPCB VIII, 96,627 shares are directly held by KPCB VIII FF and 35,211 shares are directly held by KPCB Life Sciences Zaibatsu Fund II, L.P., a California limited partnership ("KPCB ZF II"). KPCB VIII Associates is the general partner of KPCB VIII and KPCB VIII FF. KPCB VII Associates, L.P., a California limited partnership ("KPCB VII Associates"), is the general partner of KPCB ZF II. Mr. Lacob disclaims beneficial ownership of the shares held directly by KPCB VIII, KPCB VIII FF, and KPCB ZF II.

7. Sole Dispositive Power
55,125 shares, of which 32,000 are options of which 14,000 are fully vested or will be fully vested within 60 days.

8. Shared Dispositive Power
1,798,456 shares of which 1,666,618 shares are directly held by KPCB VIII, 96,627 shares are directly held by KPCB VIII FF and 35,211 shares are directly held by KPCB ZF II. KPCB VIII Associates is the general partner of KPCB VIII and KPCB VIII FF. KPCB VII Associates is the general partner of KPCB ZF II. Mr. Lacob disclaims beneficial ownership of the shares held directly by KPCB VIII, KPCB VIII FF, and KPCB ZF II.

9. Aggregate Amount Beneficially Owned by Each Reporting Person
1,853,581

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

11. Percent of Class Represented by Amount in Row (9)
7.77%

12. Type of Reporting Person (See Instructions)
IN

Item 1.

- (a) Name of Issuer
Nuvasive, Inc.
-
- (b) Address of Issuer's Principal Executive Offices
4545 Towne Centre Court
San Diego, CA 92121
-

Item 2.

- (a) Name of Person Filing
Kleiner Perkins Caufield & Byers VIII, L.P., a California limited partnership
KPCB VIII Associates, L.P., a California limited partnership
Joseph S. Lacob
-
- (b) Address of Principal Business Office or, if none, Residence
c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road, Menlo Park, California 94025
-
- (c) Citizenship
The entities listed in 2(a) are California limited partnerships. The individual listed in 2(a) is a United States citizen.
-
- (d) Title of Class of Securities
Common Stock
-
- (e) CUSIP Number
670704105
-

Item 3. If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

- (a) Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o).
- (b) Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c) Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d) Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C 80a-8).
- (e) An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
- (g) A parent holding company or control person in accordance with § 240.13d-1(b)(1)(ii)(G);
- (h) A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i) A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j) Group, in accordance with §240.13d-1(b)(1)(ii)(J).

Not applicable.

Item 4. Ownership

See rows 5-11 of cover pages hereto.

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

(a) Amount beneficially owned:

(b) Percent of class:

(c) Number of shares as to which the person has:

(i) Sole power to vote or to 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 .

Not Applicable

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

Under certain circumstances set forth in the limited partnership agreements of KPCB VIII, KPCB VIII FF and KPCB ZF II, the general and limited partners of such entities may have the right to receive dividends on, or the proceeds from the sale of, the securities of Nuvasive, Inc. held by such entity. No such partner's rights relate to more than five percent of the class.

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

Not Applicable

Item 9. Notice of Dissolution of Group

Not Applicable

Item 10. Certification

Not Applicable

[The remainder of this page intentionally left blank.]

SIGNATURES

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: February 14, 2005
JOSEPH S. LACOB

KPCB VIII ASSOCIATES, L.P., A
CALIFORNIA LIMITED PARTNERSHIP

Signature /s/ SUSAN BIGLIERI
Susan Biglieri,
Attorney-in-Fact

Signature /s/ BROOK H. BYERS
Brook H. Byers,
A General Partner

KLEINER PERKINS CAUFIELD &
BYERS
VIII, L.P., A CALIFORNIA LIMITED
PARTNERSHIP

By: KPCB VIII Associates, L.P., a
California
Limited Partnership, its General Partner

Signature /s/ BROOK H. BYERS
Brook H. Byers,
A General Partner

EXHIBIT INDEX

Exhibit

Exhibit A: Agreement of Joint Filing

Exhibit B: List of General Partners of KPCB VIII Associates

EXHIBIT A

Agreement of Joint Filing

The undersigned hereby agree that they are filing jointly pursuant to Rule 13d-1 of the Act the statement dated February 14, 2005 containing the information required by Schedule 13G, for the securities of Nuvasive, Inc., held by Kleiner Perkins Caufield & Byers VIII, L.P., a California limited partnership, and with respect to the general partners, such other holdings as may be reported therein.

Date: February 14, 2005
JOSEPH S. LACOB

KPCB VIII ASSOCIATES, L.P., A
CALIFORNIA LIMITED PARTNERSHIP

Signature /s/ SUSAN BIGLIERI
Susan Biglieri,
Attorney-in-Fact

Signature /s/ BROOK H. BYERS
Brook H. Byers,
A General Partner

KLEINER PERKINS CAUFIELD & BYERS
VIII, L.P., A CALIFORNIA LIMITED
PARTNERSHIP

By: KPCB VIII Associates, L.P., a
California
Limited Partnership, its General Partner

Signature /s/ BROOK H. BYERS
Brook H. Byers,
A General Partner

EXHIBIT B

**General Partners of
KPCB VIII Associates, a California Limited Partnership**

Set forth below, with respect to each general partner of KPCB VIII Associates, is the following: (a) name; (b) business address; and (c) citizenship.

1. (a) Brook H. Byers*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
2. (a) Kevin R. Compton*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
3. (a) L. John Doerr*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
4. (a) William R. Hearst III*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
5. (a) Vinod Khosla*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
6. (a) Joseph S. Lacob*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen
7. (a) Douglas J. Mackenzie*
(b) c/o Kleiner Perkins Caufield & Byers
2750 Sand Hill Road
Menlo Park, CA 94025
(c) United States Citizen

* Listed individual is also a general partner of KPCB VII Associates, L.P., a California limited partnership.