

Mirati Therapeutics, Inc.
Form SC 13G
February 12, 2016

SECURITIES
AND
EXCHANGE
COMMISSION
Washington,
D.C. 20549

SCHEDULE
13G

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

Mirati
Therapeutics,
Inc.
(Name of
Issuer)

Common stock,
\$0.001 par value
(Title of Class
of Securities)

60468T105
(CUSIP
Number)

December 31,
2015
(Date of Event
Which Requires
Filing of This
Statement)

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

filed:

þ Rule 13d-1(b)

¨ Rule 13d-1(c)

¨ Rule 13d-1(d)

(Page 1 of 6

Pages)

*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. 60468T105 13G Page 2 of 6 Pages

1 NAME OF REPORTING PERSON

venBio Select Advisor LLC

2 CHECK THE APPROPRIATE BOX IF A MEMBER (b) " OF A GROUP

3 SEC USE ONLY CITIZENSHIP OR PLACE OF ORGANIZATION

4

Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:

5 SOLE VOTING POWER

1,295,555 (including 37,500 shares issuable upon exercise of warrants)

6 SHARED VOTING POWER

0

7 SOLE DISPOSITIVE POWER

1,295,555 (including 37,500 shares issuable upon exercise of warrants)

8 SHARED DISPOSITIVE POWER

0
AGGREGATE
AMOUNT
BENEFICIALLY
OWNED BY EACH
REPORTING
9 PERSON

1,295,555 (including
37,500 shares issuable
upon exercise of
warrants)

10 CHECK BOX
IF THE
AGGREGATE
AMOUNT IN ..
ROW (9)
EXCLUDES
CERTAIN
SHARES
PERCENT OF
CLASS
11 REPRESENTED BY
AMOUNT IN ROW
(9)

6.7%
TYPE OF
REPORTING
12 PERSON

OO, IA

CUSIP No. 60468T105 13G Page 3 of 6 Pages

Item 1(a). NAME OF ISSUER

Mirati Therapeutics, Inc. (the "Issuer")

Item 1(b). ADDRESS OF ISSUER'S PRINCIPAL EXECUTIVE OFFICES

9393 Towne Centre Drive, Suite 200, San Diego, California 92121

Item 2(a). NAME OF PERSON FILING

venBio Select Advisor LLC, a Delaware limited liability company ("venBio" or the "Reporting Person"), provides investment advisory and management services and has acquired the securities of the Issuer solely for investment purposes on behalf of venBio Select Fund LLC, a Delaware limited liability company, venBio Select Fund Ltd., a Cayman Islands exempted company, and certain managed accounts.

The filing of this statement should not be construed as an admission that the Reporting Person is, for purposes of Section 13 of the Act, the beneficial owner of the securities reported herein.

Item 2(b). ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE

1700 Owens Street, Suite 595, San Francisco, CA 94158

Item 2(c). CITIZENSHIP

venBio is a Delaware limited liability company

Item 2(d). TITLE OF CLASS OF SECURITIES

Common stock, \$0.001 par value

Item 2(e). CUSIP NUMBER

60468T105

Item 3. IF THIS STATEMENT IS FILED PURSUANT TO Rules 13d-1(b), OR 13d-2(b) OR (c), CHECK WHETHER THE PERSON FILING IS A:

(a) "Broker or dealer registered under Section 15 of the Act;

- (b) "Bank as defined in Section 3(a)(6) of the Act;
- (c) "Insurance company as defined in Section 3(a)(19) of the Act;
- (d) "Investment company registered under Section 8 of the Investment Company Act of 1940;

CUSIP No. 60468T105 13G Page 4 of 6 Pages

- (e) An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E);
- An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F);
- (f) ..
- A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G);
- (g) ..
- A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act;
- (h) ..
- A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (i) ..
- (j) .. A non-U.S. institution in accordance with Rule 13d-1(b)(1)(ii)(J);
- (k) .. Group, in accordance with Rule 13d-1(b)(1)(ii)(K).

If filing as a non-U.S. institution
in accordance with Rule
13d-1(b)(1)(ii)(J), please
specify the type of institution:

Item 4. OWNERSHIP

The information required by Items 4(a) - (c) is set forth in Rows 5 - 11 of the cover page and is incorporated herein by reference.

The percentage set forth in Row 11 of this Schedule 13G is calculated based upon 19,265,922 shares of common stock outstanding as of October 30, 2015, as reported in the Issuer's Form 10-Q for the quarterly period ended September 30, 2015.

Item 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS

Not applicable.

Item 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER PERSON

See Item 2 above.

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.

CUSIP No. 60468T105 13G Page 5 of 6 Pages

Item 9. NOTICE OF DISSOLUTION OF GROUP

Not applicable.

Item 10. CERTIFICATION

The Reporting Person hereby makes the following certification:

By signing below the Reporting Person certifies that, to the best of his or its knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

CUSIP No. 60468T105 13G Page 6 of 6 Pages

SIGNATURES

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

DATE: February 12, 2016

venBio Select Advisor LLC

/s/ Scott Epstein

Name: Scott Epstein

Title: Chief Financial Officer

& Chief Compliance Officer