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

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**SCHEDULE 13D**  
(Rule 13d-101)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT  
TO RULE 13d-1(a) AND AMENDMENTS THERETO FILED  
PURSUANT TO RULE 13d-2(a)  
Under the Securities Exchange Act of 1934

**Vital Therapies, Inc.**  
(Name of issuer)

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Common Stock, par value \$0.0001  
(Title of class of securities)

92847R104  
(CUSIP number)

Muneer A. Satter  
c/o Satter Management Co., L.P.  
676 N. Michigan Avenue, Suite 4000, Chicago, IL 60611  
(312) 448-5500

*COPY TO:*

Robert M. Hayward, P.C.  
Kirkland & Ellis LLP  
300 N. LaSalle St.  
Chicago, Illinois 60654  
(312) 862-2000

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

March 27, 2017  
(Date of Event which Requires Filing of this Statement)

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If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box.

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**Note:** Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7 for other parties to whom copies are to be sent.

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\* 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 disclosures provided in a prior cover page.

The information required on 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).

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## SCHEDULE 13D

CUSIP No. 92847R104

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**Explanatory Note:** The Reporting Person has previously filed statements on Schedule 13G with respect to his ownership of the Issuer's common stock. As a result of the recent purchase of shares in the Issuer's registered public offering described in this Schedule 13D, the Reporting Person acquired more than 2% of the Issuer's outstanding common stock during the past 12 months and, therefore, is no longer eligible to report his ownership of common stock on Schedule 13G on an annual basis.

(1)	Names of reporting persons Muneer A. Satter
(2)	Check the appropriate box if a member of a group (see instructions) (a) <input type="checkbox"/> (b) <input type="checkbox"/>
(3)	SEC use only
(4)	Source of funds (see instructions) PF; OO
(5)	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>
(6)	Citizenship or place of organization United States of America
Number of shares beneficially owned by each reporting person with:	(7) Sole voting power 11,034,688 shares (see Item 5(a))
	(8) Shared voting power 0 shares
	(9) Sole dispositive power 11,034,688 shares (see Item 5(a))
	(10) Shared dispositive power 0 shares
(11)	Aggregate amount beneficially owned by each reporting person 11,034,688 shares (see Item 5(a))
(12)	Check if the aggregate amount in Row (11) excludes certain shares (see instructions) <input type="checkbox"/>
(13)	Percent of class represented by amount in Row (11) 26.9%
(14)	Type of reporting person (see instructions) IN

**Item 1. Security and Issuer.**

The class of equity security to which Schedule 13D relates is the common stock, par value \$0.0001 per share (the “*Common Stock*”), of Vital Therapies, Inc. (the “*Company*”). The principal executive offices of the Company are located at 15010 Avenue of Science, Suite 200, San Diego, CA 92128.

**Item 2. Identity and Background.**

(a) Muneer A. Satter (the “*Reporting Person*”).

(b) The address of the principal business office of the Reporting Person is c/o Satter Management Co., L.P., 676 N. Michigan Avenue, Suite 4000, Chicago IL, 60611.

(c) The Reporting Person is Founder and Managing Partner of Satter Medical Technology Partners, L.P. (“*SMTP*”) or one of its affiliates, a private equity fund, and Chairman of Satter Investment Management LLC, a family office and private investment firm. The principal business of the Reporting Person is to make investments in both private and public companies in the medical technology industry (broadly defined to include biotech, medical devices and healthcare services) on behalf of SMTP and various trusts and other entities affiliated with the Reporting Person.

(d)-(e) During the last five years, the Reporting Person (and any general partner or controlling member of the various trusts and other entities affiliated with the Reporting Person) has not been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors). During the last five years, the Reporting Person (and any general partner or controlling member of the various trusts and other entities affiliated with the Reporting Person) has not been party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) The Reporting Person is a citizen of the United States of America.

**Item 3. Source and Amount of Funds.**

On March 27, 2017, the Company closed a registered public offering of 8,750,000 shares of Common Stock, at a purchase price of \$4.00 per share. The Reporting Person acquired beneficial ownership of 3,750,000 shares of Common Stock in the offering for an aggregate purchase price of \$15.0 million. The source of funds for the acquisition of shares in the offering was capital committed by the partners of SMTP.

The Reporting Person has previously filed statements on Schedule 13G with respect to his ownership of Common Stock. As a result of the purchase of shares in the Company’s registered public offering, the Reporting Person acquired more than 2% of the Company’s outstanding Common Stock during the past 12 months and, therefore, is no longer eligible to report his ownership of Common Stock on Schedule 13G on an annual basis.

**Item 4. Purpose of the Transaction.**

The Reporting Person has acquired beneficial ownership of the Common Stock for investment purposes, and such acquisition has been made in the Reporting Person’s ordinary course of business.

In pursuing such investment purposes, the Reporting Person may further purchase, hold, vote, trade, dispose of or otherwise deal in the Common Stock at such times, and in such manner, as he deems advisable to benefit from changes in the market prices of such Common Stock, changes in the Company’s operations, business strategy or prospects, or from a sale or merger of the Company or otherwise. To evaluate such alternatives, the Reporting Person will routinely monitor the Company’s operations, prospects, business development, management, competitive and strategic matters, capital structure, and prevailing market conditions, as well as alternative investment opportunities, liquidity objectives and other investment considerations. Furthermore, in his capacity as a member of the Company’s board of directors and a significant shareholder, the Reporting Person will from time to time discuss various matters with management and other directors of the Company, other shareholders, industry analysts, existing or potential strategic partners or competitors, investment and financing professionals, sources of credit and other investors.

The Reporting Person has no current intention to propose changes in the Company's operations, governance or capitalization, or to propose one or more of the other actions described in subsections (a) through (j) of Item 4 of Schedule 13D. However, the Reporting Person reserves the right to formulate other plans and/or make other proposals, and take such actions with respect to his investment in the Company, including any or all of the actions set forth in paragraphs (a) through (j) of Item 4 of Schedule 13D, or to acquire additional shares of Common Stock or dispose of all the Common Stock beneficially owned by him, in the public market, in privately negotiated transactions (which may be with the Company or with third parties) or otherwise. The Reporting Person may at any time reconsider and change his plans or proposals relating to the foregoing.

**Item 5. Interest in Securities of the Issuer.**

(a) *Amount beneficially owned as of the date hereof:*

The Reporting Person beneficially owns an aggregate of 11,034,688 shares of Common Stock. The shares of Common Stock beneficially owned by the Reporting Person include (a) 4,202,930 shares of Common Stock that are held by Muneer A. Satter Revocable Trust for which the Reporting Person serves as trustee and, in such capacity, has sole voting and dispositive power over all such shares; (b) 2,929,347 shares of Common Stock that are held by various other trusts and other entities for which the Reporting Person serves as trustee, investment advisor or manager and, in such capacity, has sole voting and dispositive power over all such shares; (c) 3,750,000 shares that are held by Satter Medical Technology Partners, L.P. for which the Reporting Person has sole voting and dispositive power over all such shares; (d) warrants to acquire 60,639 shares of Common Stock that are held by the Muneer A. Satter Revocable Trust for which the Reporting Person serves as trustee and, in such capacity, has the sole power to exercise such warrants and sole voting and dispositive power over all shares underlying such warrants; (e) warrants to acquire 61,533 shares of Common Stock that are held by various trusts and other entities for which the Reporting Person serves as trustee, investment advisor or manager, and in such capacity, has the sole power to exercise such warrants and sole voting and dispositive power over all shares underlying such warrants; and (f) stock options to purchase 30,239 shares of Common Stock, which vest on the earlier of May 24, 2017 and the date immediately prior to the Issuer's 2017 annual meeting of stockholders.

*Percent of class:*

In the aggregate, the Reporting Persons beneficially own 11,034,688 shares of Common Stock, or 26.9% of the total number of shares of Common Stock outstanding.

All percentages calculated in this Schedule 13D are based upon 40,893,475 shares outstanding (which assumes no exercise of the underwriters' option to purchase additional shares) as of March 22, 2017, as disclosed in the Company's Prospectus Supplement filed with the Securities and Exchange Commission ("SEC") on March 23, 2017.

(b) Number of shares as to which such person has:

- (i) sole power to vote or to direct the vote: See Item 7 on the cover pages hereto.
- (ii) shared power to vote or to direct the vote: See Item 8 on the cover pages hereto.
- (iii) sole power to dispose or to direct the disposition of: See Item 9 on the cover pages hereto.
- (iv) shared power to dispose or to direct the disposition of: See Item 10 on the cover pages hereto.

(c) The information set forth in Item 3 of this Schedule 13D is hereby incorporated by reference into this Item 5(c), as applicable.

(d) Not applicable

(e) Not applicable

**Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.**

The information set forth in Items 3 and 4 of this Schedule 13D is hereby incorporated by reference into this Item 6, as applicable.

***Senior Preferred Investors' Rights Agreement***

Pursuant to the Company's Fourth Amended and Restated Investors' Rights Agreement, dated August 28, 2013, as amended (the "*Senior Preferred IRA*"), certain holders of Common Stock, including the Reporting Person and various trusts and other entities affiliated with the Reporting Person, are entitled to certain rights with respect to the registration of shares of Common Stock under the Securities Act. Subject to company-imposed lock-ups and certain limitations in the Senior Preferred IRA, including its ability to delay registration in certain circumstances, the holders of at least 25% of these securities then outstanding may demand on three occasions, that the Company use its reasonable best efforts to register these securities using a long form registration statement for public resale if the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed \$15 million. If the Company registers any of its common stock either for its own account or for the account of other security holders, the holders of these securities are entitled to include their shares of common stock in that registration, subject to the ability of the underwriters to limit the number of shares included in the offering. The Company is obligated to use its reasonable best efforts to make short form registration statements available, and the holders of at least 25% of these securities then outstanding may also demand, but not more than two times in any 12-month period, that the Company registers all or a portion of these securities using a short form registration statement, provided, among other limitations, that the proposed aggregate selling price is at least \$15 million. The Company will be responsible for paying all registration expenses, including the reasonable fees of legal counsel for the selling holders, and the holders selling their shares will be responsible for paying all selling expenses.

Registration rights under the Senior Preferred IRA terminate, as to a given holder of registration rights, when such holder and such holder's affiliates can sell all of their registrable securities in a three-month period pursuant to Rule 144. Accordingly, only those of its directors, executive officers and their affiliates who were parties to the Senior Preferred IRA have existing registration rights.

The Senior Preferred IRA also provides that, for so long as the Reporting Person and various trusts and other entities affiliated with the Reporting Person holds at least 30% of the outstanding Common Stock, the Reporting Person and various trusts and other entities affiliated with the Reporting Person have the right to nominate 40% of the Company's directors (rounded up to the nearest whole number). If the Reporting Person and various trusts and other entities affiliated with the Reporting Person hold less than 30% (but at least 20%) of the outstanding Common Stock, they have the right to nominate 30% of the Company's directors (rounded up to the nearest whole number). If the Reporting Person and various trusts and other entities affiliated with the Reporting Person hold less than 20% (but at least 10%) of the outstanding Common Stock, they have the right to nominate 20% of the Company's directors (rounded up to the nearest whole number). If the Reporting Person and various trusts and other entities affiliated with the Reporting Person hold less than 10% (but at least 2%) of the outstanding Common Stock, they have the right to nominate 10% of the Company's directors (rounded up to the nearest whole number). For so long as the Reporting Person and various trusts and other entities affiliated with the Reporting Person hold less than 2% of the outstanding Common Stock, they do not have the contractual right to nominate any representatives to the Company's board of directors. To date the Reporting Person and various trusts and other entities affiliated with the Reporting Person have not exercised their rights to nominate any directors, but they have reserved the right to do so in the future.

The Senior Preferred IRA provides that for so long as the Reporting Person and Terence E. Winters both serve as members of the Company's board of directors, each shall serve as co-chairman of the Company's board of directors and the Reporting Person shall serve as the Company's Lead Director. In the event that the Reporting Person serves as a member of the Company's board of directors at a time when Dr. Winters does not, the Reporting Person will serve as the Company's chairman of the board and Lead Director. Dr. Winters will serve as Co-Chairman only so long as he is both a director and the Company's Chief Executive Officer.

***Series D Investors' Rights Agreement***

Pursuant to the Company's investors' rights agreement, dated June 7, 2011 (the "Series D IRA"), certain holders of Common Stock, including the Reporting Person and various trusts and other entities affiliated with the Reporting Person, are entitled to certain rights with respect to the registration of such shares under the Securities Act. Subject to company-imposed lock-ups and limitations in the Series D IRA, including the Company's ability to delay registration in certain circumstances, the holders of at least 25% of these securities then outstanding may require, on two occasions, that the Company use its best efforts to register these securities using a long-form registration statement for public resale if the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed \$7 million. If the Company registers any of its common stock either for its own account or for the account of other security holders, the holders of these securities are entitled to include their shares of common stock in that registration, subject to the ability of the underwriters to limit the number of shares included in the offering to as few as 45% of the offering. The holders of these securities then outstanding may also require us, but not more than one time in any 12-month period, to register all or a portion of these securities using a short form registration statement, provided, among other limitations, that the proposed aggregate selling price is at least \$1 million. The Company will be responsible for paying all registration expenses, including the reasonable fees of legal counsel for the selling holders, and the holders selling their shares will be responsible for paying all selling expenses.

Registration rights under the Series D IRA terminate upon the earliest of (i) the five-year anniversary of the effective date of the Company's initial public offering, or (ii) as to a given holder of registration rights, when such holder and such holder's affiliates can sell all of such holder's registrable securities in a three month-period pursuant to Rule 144. Accordingly, only those of directors, executive officers and their affiliates who were parties to the Series D IRA (and whose registration rights under the Series D IRA were not superseded by the Senior Preferred IRA) have existing registration rights.

*The description of the above agreements do not purport to be complete descriptions and are qualified in their entirety by reference to the full text of such agreements, which are filed as part of this Schedule 13D and incorporated by reference herein.*

**Item 7. Material to be Filed as Exhibits.**

- Exhibit A: Fourth Amended and Restated Investors' Rights Agreement, dated August 28, 2013 (*incorporated by reference to Exhibit 4.2 to the Company's Registration Statement on Form S-1 filed on October 11, 2013*)
- Exhibit B: Amended and Restated Investors' Rights Agreement dated June 7, 2011 (*incorporated by reference to Exhibit 4.4 to the Company's Registration Statement on Form S-1 filed on October 11, 2013*)

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**SIGNATURE**

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: April 3, 2017

By: /s/ Muneer A. Satter  
Muneer A. Satter

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**EXHIBIT INDEX**

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