Mirati Therapeutics, Inc
Form SC 13G
February 14, 2014

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, par value \$0.001 per share (Title of Class of Securities)

60468T105 (CUSIP Number)

December 31, 2013 (Date of Event Which Requires Filing of this Statement)

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

- o Rule 13d-1(b)
- o Rule 13d-1(c)
- þ 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. 60468T105 Page 2 of 7 Pages SCHEDULE 13G NAME OF REPORTING PERSONS 1 OrbiMed Advisors LLC CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) 2 (a) o (b) o SEC USE ONLY 3 CITIZENSHIP OR PLACE OF ORGANIZATION 4 Delaware **SOLE VOTING POWER** 5 NUMBER OF - 0 -**SHARES** SHARED VOTING POWER **BENEFICIALLY** 6 OWNED BY 1,619,131 **EACH** SOLE DISPOSITIVE POWER **REPORTING** 7 **PERSON** - 0 -WITH SHARED DISPOSITIVE POWER 8 1,619,131 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 9 1,619,131 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES o **CERTAIN SHARES (See Instructions)** 10 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11 11.90%(1) TYPE OF REPORTING PERSON (See Instructions) 12 IA

(1) This percentage is based upon 13,261,862 shares outstanding as of November 7, 2013, as set forth in Mirati Therapeutics, Inc.'s (the "Issuer") Form 10-Q filed with the Securities and Exchange Commission on November 12, 2013 and includes 344,799 shares issuable upon the exercise of warrants.

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Page 3 of 7 Pages NAME OF REPORTING PERSONS 1 OrbiMed Capital GP IV LLC CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) 2 (a) o (b) o SEC USE ONLY 3 CITIZENSHIP OR PLACE OF ORGANIZATION 4 Delaware **SOLE VOTING POWER** 5 NUMBER OF - 0 -**SHARES** SHARED VOTING POWER **BENEFICIALLY** 6 OWNED BY 1,619,131 **EACH** SOLE DISPOSITIVE POWER **REPORTING** 7 **PERSON** - 0 -WITH SHARED DISPOSITIVE POWER 8 1,619,131 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 9 1,619,131 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES o **CERTAIN SHARES (See Instructions)** 10 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11 11.90%(1) TYPE OF REPORTING PERSON (See Instructions) 12 00

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Page 4 of 7 Pages NAME OF REPORTING PERSONS 1 Samuel D. Isaly CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) 2 (a) o (b) o SEC USE ONLY 3 CITIZENSHIP OR PLACE OF ORGANIZATION 4 **United States SOLE VOTING POWER** 5 NUMBER OF - 0 -**SHARES** SHARED VOTING POWER **BENEFICIALLY** 6 OWNED BY 1,619,131 **EACH** SOLE DISPOSITIVE POWER **REPORTING** 7 **PERSON** - 0 -WITH SHARED DISPOSITIVE POWER 8 1,619,131 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 9 1,619,131 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES o **CERTAIN SHARES (See Instructions)** 10 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11 11.90%(1) TYPE OF REPORTING PERSON (See Instructions) 12 IN

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Item 1	(a).	Name of Issuer:				
			Mirati Therapeutics, Inc.			
Item 1	(b).	Address of Issuer's Principal Exec	cutive Offices:			
			9363 Towne Centre Drive, Suite 200 San Diego, CA 92121			
Item 2	(a).	Name of Person Filing:				
		This Schedule 13G is being filed by each of the following persons (each, a "Report Person" and together, the "Reporting Persons"):				
		(i)	OrbiMed Capital GP IV LLC ("GP IV")			
		(ii)	OrbiMed Advisors LLC ("Advisors")			
		(iii)	Samuel D. Isaly ("Isaly")			
		See Exhibit A for the Reporting Poon their behalf.	ersons' agreement for a joint filing of a single statement			
Item 2	(b).	Address of Principal Business Off	ice:			
		The address of the principal busin Lexington Avenue, 54th Floor, No.	ess office of each of GP IV, Advisors and Isaly is 601 ew York, New York 10022.			
Item 2	(c).	Citizenship:				
		Please refer to Item 4 on each cover sheet for each filing person.				
Item 2	(d).	Title of Class of Securities:				
		Common Stock, par value \$0.001 per share (the "Common Stock").				
Item 2	(e).	CUSIP Number:				
		60468T105				
Item 3.		If this statement is filed pursuant t whether the person filing is a:	to §§ 240.13d-1(b) or 240.13d-2(b) or (c), check			
		Not applicable.				

Item 4. Ownership:

GP IV is the General Partner of OrbiMed Private Investments IV, LP ("OPI IV"), which beneficially owns 1,274,332 shares of Common Stock ("Shares") and warrants to purchase 344,799 Shares. Advisors is an investment advisor in accordance with § 240.13d-1(b)(1)(ii)(E) and the Managing Member of GP IV. Isaly is the Managing Member of Advisors and a control person in accordance with § 240.13d-1(b)(1)(ii)(G). On the basis of these relationships, GP IV, Advisors and Isaly may be deemed to share beneficial ownership of the Shares and warrants to purchase Shares directly owned by OPI IV.

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	(a)	Amount beneficially owned: See the response(s) to Item 9 on the attached cover page(s).				
	(b)	Percent of class: See the response(s) to Item 11 on the attached cover page(s).				
	(c)	Number of shares as to which such person has:				
		(i)	Sole power to vote or to direct the vote: See the response(s) to Item 5 on the attached cover page(s).			
		(ii)	Shared power to vote or to direct the vote: See the response(s) to Item 6 on the attached cover page(s).			
		(iii)	Sole power to dispose or to direct the disposition of: See the response(s) to Item 7 on the attached cover page(s).			
		(iv)	Shared power to dispose or to direct the disposition of: See the response(s) to Item 8 on the attached cover page(s).			
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. o					
Item 6.	Ownership of More	than Five Percent on Behalf of	Another Person.			
	See Item 4.					
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.					

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Item 10. Certifications.

Not applicable.

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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.

February 14, 2014

ORBIMED ADVISORS LLC

By: /s/ Samuel D. Isaly

Name: Samuel D. Isaly Title: Managing Member

ORBIMED CAPITAL GP IV LLC

By: OrbiMed Advisors LLC, its Managing

Member

By: /s/ Samuel D. Isaly

Name: Samuel D. Isaly Title: Managing Member

SAMUEL D. ISALY

By: /s/ Samuel D. Isaly

Name: Samuel D. Isaly