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

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**SCHEDULE 13G**

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

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**ACCELERON PHARMA INC.**  
(Name of Issuer)

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**COMMON STOCK**  
(Title of Class of Securities)

**00434H108**  
(CUSIP Number)

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

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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).

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1.	Name of Reporting Persons Advanced Technology Ventures VI, L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by Advanced Technology Ventures VI, L.P. (“ATV VI”), Advanced Technology Ventures VII, L.P. (“ATV VII”), Advanced Technology Ventures VII (B), L.P. (“ATV VII-B”), Advanced Technology Ventures VII(C), L.P. (“ATV VII-C”), ATV Entrepreneurs VI, L.P. (“ATVE VI”), ATV Entrepreneurs VII, L.P. (“ATVE VII”), ATV Alliance 2003, L.P. (“ATV Alliance”), ATV Associates VI, L.L.C. (the general partner of ATV VI and ATVE VI) (“ATVA VI”), ATV Associates VII, L.L.C. (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII) (“ATVA VII”), and ATV Alliance Associates, L.L.C. (the general partner of ATV Alliance) (“ATVAA” and, together with ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI and ATVA VII, the “ATV Entities”). The ATV Entities expressly disclaim status as a “group” for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer’s common stock outstanding as of January 1, 2014, as set forth in the Issuer’s prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons Advanced Technology Ventures VII, L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
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9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons Advanced Technology Ventures VII (B), L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons Advanced Technology Ventures VII(C), L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
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10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons ATV Entrepreneurs VI, L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons ATV Entrepreneurs VII, L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
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	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons ATV Alliance 2003, L.P.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
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12.	Type of Reporting Person (See Instructions) PN	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.



1.	Name of Reporting Persons ATV Associates VI, L.L.C.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) OO	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons ATV Associates VII, L.L.C.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
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9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) OO	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

1.	Name of Reporting Persons ATV Alliance Associates, L.L.C.	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/> <sup>1</sup>	
3.	SEC USE ONLY	
4.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With:	5.	Sole Voting Power 0
	6.	Shared Voting Power 2,513,783 <sup>2</sup>
	7.	Sole Dispositive Power 0
	8.	Shared Dispositive Power 2,513,783 <sup>2</sup>
9.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,513,783 <sup>2</sup>	
10.	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
11.	Percent of Class Represented by Amount in Row (9) 8.9% <sup>3</sup>	
12.	Type of Reporting Person (See Instructions) OO	

<sup>1</sup> This Schedule 13G is filed by ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI (the general partner of ATV VI and ATVE VI), ATVA VII (the general partner of ATV VII, ATV VII-B, ATV VII-C and ATVE VII), and ATVAA (the general partner of ATV Alliance). The ATV Entities expressly disclaim status as a "group" for purposes of this Schedule 13G.

<sup>2</sup> Consists of (i) 337,565 shares of common stock owned by ATV VI, (ii) 2,018,586 shares of common stock owned by ATV VII, (iii) 81,002 shares of common stock owned by ATV VII-B, (iv) 38,934 shares of common stock owned by ATV VII-C, (v) 12,025 shares of common stock owned by ATVE VII, (vi) 21,543 shares of common stock owned by ATVE VI and (vii) 4,128 shares of common stock owned by ATV Alliance.

<sup>3</sup> This percentage is calculated based upon 28,348,633 shares of the Issuer's common stock outstanding as of January 1, 2014, as set forth in the Issuer's prospectus filed under Rule 424(b)(4), filed with the Securities and Exchange Commission on January 23, 2014.

Introductory Note: This Statement on Schedule 13G is filed on behalf of Advanced Technology Ventures VI, L.P., a limited partnership organized under the laws of the State of Delaware (“ATV VI”), Advanced Technology Ventures VII, L.P., a limited partnership organized under the laws of the State of Delaware (“ATV VII”), Advanced Technology Ventures VII (B), L.P., a limited partnership organized under the laws of the State of Delaware (“ATV VII-B”), Advanced Technology Ventures VII(C), L.P., a limited partnership organized under the laws of the State of Delaware (“ATV VII-C”), ATV Entrepreneurs VI, L.P, a limited partnership organized under the laws of the State of Delaware (“ATVE VI”), ATV Entrepreneurs VII, L.P, a limited partnership organized under the laws of the State of Delaware (“ATVE VII”), ATV Alliance 2003, L.P., a limited partnership organized under the laws of the State of Delaware (“ATV Alliance”), ATV Associates VI, L.L.C., a limited liability company organized under the laws of the State of Delaware (“ATVA VI”), ATV Associates VII, L.L.C., a limited liability company organized under the laws of the State of Delaware (“ATVA VII”) and ATV Alliance Associates, L.L.C., a limited liability company organized under the laws of the State of Delaware (“ATVAA” and collectively with ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII, ATV Alliance, ATVA VI and ATVA VII, the “ATV Entities”) in respect of shares of common stock of Acceleron Pharma Inc. The ATV Entities expressly disclaim status as a “group” for purposes of this Schedule 13G.

**Item 1.**

- (a) Name of Issuer

Acceleron Pharma Inc.

- (b) Address of Issuer’s Principal Executive Offices

128 Sydney Street  
Cambridge, MA 02139

**Item 2.**

- (a) Name of Person Filing

Advanced Technology Ventures VI, L.P.  
Advanced Technology Ventures VII, L.P.  
Advanced Technology Ventures VII (B), L.P.  
Advanced Technology Ventures VII(C), L.P.  
ATV Entrepreneurs VI, L.P.  
ATV Entrepreneurs VII, L.P.  
ATV Alliance 2003, L.P.  
ATV Associates VI, L.L.C.  
ATV Associates VII, L.L.C.  
ATV Alliance Associates, L.L.C.

- (b) Address of Principal Business Office or, if none, Residence

500 Boylston Street, Suite 1380, Boston, Massachusetts 02116

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(c) Citizenship

Each of ATV VI, ATV VII, ATV VII-B, ATV VII-C, ATVE VI, ATVE VII and ATV Alliance are limited partnerships organized in the State of Delaware. Each of ATVA VI, ATVA VII and ATVAA are limited liability companies organized in the State of Delaware.

(d) Title of Class of Securities

Common Stock

(e) CUSIP Number

00434H108

**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:**

Not applicable

**Item 4. Ownership**

(a) Amount Beneficially Owned as of December 31, 2013:

Advanced Technology Ventures VI, L.P.	2,513,783(1)
Advanced Technology Ventures VII, L.P.	2,513,783(1)
Advanced Technology Ventures VII (B), L.P.	2,513,783(1)
Advanced Technology Ventures VII(C), L.P.	2,513,783(1)
ATV Entrepreneurs VII, L.P.	2,513,783(1)
ATV Entrepreneurs VI, L.P.	2,513,783(1)
ATV Alliance 2003, L.P.	2,513,783(1)
ATV Associates VI, L.L.C.	2,513,783(1)
ATV Associates VII, L.L.C.	2,513,783(1)
ATV Alliance Associates, L.L.C.	2,513,783(1)

(b) Percent of Class as of December 31, 2013:

Advanced Technology Ventures VI, L.P.	8.9%
Advanced Technology Ventures VII, L.P.	8.9%
Advanced Technology Ventures VII (B), L.P.	8.9%
Advanced Technology Ventures VII(C), L.P.	8.9%
ATV Entrepreneurs VII, L.P.	8.9%
ATV Entrepreneurs VI, L.P.	8.9%
ATV Alliance 2003, L.P.	8.9%
ATV Associates VI, L.L.C.	8.9%
ATV Associates VII, L.L.C.	8.9%
ATV Alliance Associates, L.L.C.	8.9%

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(c) Number of shares as to which the person has, as of December 31, 2013:

(i) Sole power to vote or to direct the vote

Advanced Technology Ventures VI, L.P.	0
Advanced Technology Ventures VII, L.P.	0
Advanced Technology Ventures VII (B), L.P.	0
Advanced Technology Ventures VII(C), L.P.	0
ATV Entrepreneurs VII, L.P.	0
ATV Entrepreneurs VI, L.P.	0
ATV Alliance 2003, L.P.	0
ATV Associates VI, L.L.C.	0
ATV Associates VII, L.L.C.	0
ATV Alliance Associates, L.L.C.	0

(ii) Shared power to vote or to direct the vote

Advanced Technology Ventures VI, L.P.	2,513,783(1)
Advanced Technology Ventures VII, L.P.	2,513,783(1)
Advanced Technology Ventures VII (B), L.P.	2,513,783(1)
Advanced Technology Ventures VII(C), L.P.	2,513,783(1)
ATV Entrepreneurs VII, L.P.	2,513,783(1)
ATV Entrepreneurs VI, L.P.	2,513,783(1)
ATV Alliance 2003, L.P.	2,513,783(1)
ATV Associates VI, L.L.C.	2,513,783(1)
ATV Associates VII, L.L.C.	2,513,783(1)
ATV Alliance Associates, L.L.C.	2,513,783(1)

(IV) Sole power to dispose or to direct the disposition of

Advanced Technology Ventures VI, L.P.	0
Advanced Technology Ventures VII, L.P.	0
Advanced Technology Ventures VII (B), L.P.	0
Advanced Technology Ventures VII(C), L.P.	0
ATV Entrepreneurs VII, L.P.	0
ATV Entrepreneurs VI, L.P.	0
ATV Alliance 2003, L.P.	0
ATV Associates VI, L.L.C.	0
ATV Associates VII, L.L.C.	0
ATV Alliance Associates, L.L.C.	0

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(iv) Shared power to dispose or to direct the disposition of

Advanced Technology Ventures VI, L.P.	2,513,783(1)
Advanced Technology Ventures VII, L.P.	2,513,783(1)
Advanced Technology Ventures VII (B), L.P.	2,513,783(1)
Advanced Technology Ventures VII(C), L.P.	2,513,783(1)
ATV Entrepreneurs VII, L.P.	2,513,783(1)
ATV Entrepreneurs VI, L.P.	2,513,783(1)
ATV Alliance 2003, L.P.	2,513,783(1)
ATV Associates VI, L.L.C.	2,513,783(1)
ATV Associates VII, L.L.C.	2,513,783(1)
ATV Alliance Associates, L.L.C.	2,513,783(1)

(1) These shares are owned directly as follows: 337,565 shares of common stock are owned by ATV VI, 2,018,586 shares of common stock are owned by ATV VII, 81,002 shares of common stock are owned by ATV VII-B, 38,934 shares of common stock are owned by ATV VII-C, 12,025 shares of common stock are owned by ATVE VII, 21,543 shares of common stock are owned by ATVE VI, and 4,128 shares of common stock are owned by ATV Alliance.

**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**

Not Applicable

**Item 9. Notice of Dissolution of a Group**

Not Applicable

**Item 10. Certification**

Not Applicable

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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.

Dated: February 13, 2014

**Advanced Technology Ventures VI, L.P.**

By: ATV Associates VI, L.L.C., its General Partner

By: /s/ William Wiberg

Authorized Signatory

**ATV Entrepreneurs VII, L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**Advanced Technology Ventures VII, L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Alliance 2003, L.P.**

By: ATV Alliance Associates, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**Advanced Technology Ventures VII (B), L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Associates VI, L.L.C.**

By: /s/ William Wiberg

Authorized Signatory

**Advanced Technology Ventures VII(C), L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Associates VII, L.L.C.**

By: /s/ Jean George

Authorized Signatory

**ATV Alliance Associates, L.L.C.**

By: /s/ Jean George

Authorized Signatory

**ATV Entrepreneurs VI, L.P.**

By: ATV Associates VI, L.L.C., its General Partner

By: /s/ William Wiberg

Authorized Signatory

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**EXHIBITS**

A: Joint Filing Agreement

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**EXHIBIT A**

**JOINT FILING AGREEMENT**

In accordance with Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended, the undersigned agree to the joint filing on behalf of each of them of a statement on Schedule 13G (including amendments thereto) with respect to the Common Stock of Acceleron Pharma Inc. and further agree that this agreement be included as an exhibit to such filing. Each party to the agreement expressly authorizes each other party to file on its behalf any and all amendments to such statement. Each party to this agreement agrees that this joint filing agreement may be signed in counterparts.

In evidence whereof, the undersigned have caused this Agreement to be executed on their behalf this 13 day of February, 2014.

**Advanced Technology Ventures VI, L.P.**

By: ATV Associates VI, L.L.C., its General Partner

By: /s/ William Wiberg

Authorized Signatory

**ATV Entrepreneurs VII, L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**Advanced Technology Ventures VII, L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Alliance 2003, L.P.**

By: ATV Alliance Associates, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**Advanced Technology Ventures VII (B), L.P.**

By: ATV Associates VII, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Associates VI, L.L.C.**

By: /s/ William Wiberg

Authorized Signatory

**Advanced Technology Ventures VII(C), L.P.**

By: ATV Associates VI, L.L.C., its General Partner

By: /s/ Jean George

Authorized Signatory

**ATV Associates VII, L.L.C.**

By: /s/ Jean George

Authorized Signatory

**ATV Alliance Associates, L.L.C.**

By: /s/ Jean George

Authorized Signatory

**ATV Entrepreneurs VI, L.P.**

By: ATV Associates VI, L.L.C., its General Partner

By: /s/ William Wiberg

Authorized Signatory

