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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, DC 20549

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**SCHEDULE 13D**

**Under the Securities Exchange Act of 1934  
(Amendment No. 7)\***

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**Akcea Therapeutics, Inc.**  
(Name of Issuer)

**Common Stock**  
(Title of Class of Securities)

**00972L 107**  
(CUSIP Number)

**Elizabeth L. Hougen**  
**Ionis Pharmaceuticals, Inc.**  
**2855 Gazelle Court**  
**Carlsbad, CA 92010**  
**(760) 931-9200**

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

**October 10, 2020**  
(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 §§240.13d-1(e), 240.13d-1(f) or 240.13d-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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1.	Name of Reporting Persons <b>Ionis Pharmaceuticals, Inc. ("Ionis")</b>	
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) <b>WC</b>	
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 <b>Delaware</b>	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power <b>1,000</b>
	8.	Shared Voting Power
	9.	Sole Dispositive Power <b>1,000</b>
	10.	Shared Dispositive Power
11.	Aggregate Amount Beneficially Owned by Each Reporting Person <b>1,000</b>	
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 <b>100%</b>	
14.	Type of Reporting Person (See Instructions) <b>CO</b>	

**Item 1. Security and Issuer.**

This Amendment No. 7 to Schedule 13D is being filed as an amendment to the initial statement on Schedule 13D relating to the Common Stock, \$0.001 par value per share (“Common Stock”), of Akcea Therapeutics, Inc., a Delaware corporation (the “Issuer”), as filed with the Securities and Exchange Commission (the “SEC”) on July 27, 2017, as amended by Amendment No. 1 filed April 26, 2018, Amendment No. 2 filed August 7, 2018, Amendment No. 3 filed October 22, 2018, Amendment No. 4 filed April 2, 2019, Amendment No. 5 filed December 20, 2019, and Amendment No. 6 filed August 31, 2020 (as so amended, the “Schedule 13D”). The principal executive offices of the Issuer are located at 22 Boston Wharf Road, 9th Floor, Boston, Massachusetts 02210.

All capitalized terms used in this Amendment No. 7 but not defined herein shall have the meanings ascribed thereto in the Schedule 13D.

**Item 4. Purpose of Transaction.**

*Item 4 of the Schedule 13D is hereby amended and supplemented by adding the following paragraphs at the end of Item 4:*

On September 14, 2020, Purchaser commenced the Offer to purchase all of the issued and outstanding Shares at the Offer Price.

The Offer expired at one minute after 11:59 p.m. Eastern Time, on October 9, 2020. American Stock Transfer & Trust Company, LLC, the depository for the Offer (the “Depository”), advised Purchaser that, as of the expiration of the Offer, a total of 21,201,937 Shares (excluding (i) Shares beneficially owned and tendered by Excluded Holders (as defined below) and (ii) Shares with respect to which Notices of Guaranteed Delivery were delivered) were tendered and not validly withdrawn pursuant to the Offer, representing approximately 85.5% of the Shares outstanding as of the expiration of the Offer, excluding the Shares beneficially owned by the Reporting Person, its affiliates (other than the Issuer and its subsidiaries), their respective directors and executive officers and Damien McDevitt, the Issuer’s chief executive officer (the “Excluded Holders”). In addition, the Depository advised Purchaser that Notices of Guaranteed Delivery had been delivered with respect to 919,068 additional Shares, representing approximately 3.7% of the Shares outstanding as of the expiration of the Offer, excluding the Shares beneficially owned by the Excluded Holders.

As of the expiration of the Offer, the number of Shares tendered and not validly withdrawn pursuant to the Offer satisfied the minimum tender condition of the Offer, and all other conditions to the Offer were satisfied or waived. Immediately after the expiration of the Offer, Purchaser irrevocably accepted for payment, and will promptly pay for, all Shares tendered and not validly withdrawn pursuant to Offer.

Pursuant to the Merger Agreement, the Reporting Person and Purchaser completed the acquisition of the Issuer on October 12, 2020 by consummating the merger of Purchaser with and into the Issuer (the “Merger”) without a vote of the Issuer’s shareholders in accordance with Section 251(h) of the General Corporation Law of the State of Delaware (the “DGCL”). At the effective time of the Merger, each issued and outstanding Share (other than Shares held by the Issuer, the Reporting Person, Purchaser, any wholly owned subsidiary of the Reporting Person or Purchaser, or by stockholders of the Issuer who have perfected their statutory rights of appraisal under the DGCL) was converted into the right to receive \$18.15 in cash, without any interest thereon and subject to any withholding of taxes.

Following consummation of the Merger, the Reporting Person anticipates that the Shares will be delisted and will cease to trade on the Nasdaq Stock Market. The Reporting Person intends to take steps to cause the termination of the registration of the Shares under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) and suspend all of the Issuer’s reporting obligations under the Exchange Act as promptly as practicable.

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

*Item 5 of the Schedule 13D is hereby amended and restated in its entirety as follows:*

The following information with respect to the ownership of the Common Stock of the Issuer by the Reporting Person filing this Schedule 13D is provided as of October 12, 2020:

- (a) The Reporting Person beneficially owns 1,000 shares of the Common Stock of the Issuer, or 100% of the Issuer's outstanding Common Stock.
- (b) The Reporting Person has sole power to vote and dispose of the securities of the Issuer held by it.
- (c) The description of the Offer and the Merger set forth in Item 4 is hereby incorporated by reference.
- (d) Not applicable.
- (e) Not applicable.

**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: October 13, 2020

**IONIS PHARMACEUTICALS, INC.**

By: /s/ Elizabeth L. Hougen  
Elizabeth L. Hougen  
Executive Vice President, Finance and  
Chief Financial Officer