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

**SCHEDULE 14A INFORMATION**

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934  
(Amendment No. \_\_)

Filed by the Registrant   
Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to § 240.14a-12

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**ACELRX PHARMACEUTICALS, INC.**

(Name of Registrant as Specified In Its Charter)

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(Name of Person(s) Filing Proxy Statement if Other Than the Registrant)

Payment of Filing Fee (Check the appropriate box)

- No fee required
  - Fee paid previously with preliminary materials
  - Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11
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ACELRX PHARMACEUTICALS, INC.

1850 Gateway Drive, Suite 175  
San Mateo, CA 94404  
650-216-3500

**SUPPLEMENT TO THE PROXY STATEMENT  
FOR THE ANNUAL MEETING OF STOCKHOLDERS  
TO BE HELD ON OCTOBER 10, 2023**

October 5, 2023

AcelRx Pharmaceuticals, Inc. (“AcelRx,” “we,” “us” and “our”) is filing this proxy statement supplement (this “Proxy Supplement”) to update and amend its definitive proxy statement on Schedule 14A (the “Proxy Statement”) filed with the Securities and Exchange Commission (the “SEC”) on August 28, 2023 in connection with the solicitation of proxies by our Board of Directors (the “Board”) for use at our 2023 Annual Meeting of Stockholders to be held on Tuesday, October 10, 2023 at 10:00 a.m. Pacific Daylight Time virtually via the Internet at [www.virtualshareholdermeeting.com/ACRX23](http://www.virtualshareholdermeeting.com/ACRX23) (the “Annual Meeting”). Except as updated or supplemented by this Proxy Supplement, all information set forth in the Proxy Statement remains unchanged and should be considered in casting your vote by proxy or during the Annual Meeting. This Proxy Supplement should be read together with the Proxy Statement. This Proxy Supplement, our Notice of Annual Meeting of Stockholders, our Proxy Statement and our 2022 Annual Report to Stockholders are available at [www.proxyvote.com](http://www.proxyvote.com).

**Change in Independent Registered Public Accounting Firm**

On October 5, 2023, we filed a Current Report on Form 8-K (the “Form 8-K”) announcing that the Audit Committee of the Board approved the dismissal of WithumSmith+Brown, PC (“Withum”) as our independent registered public accounting firm and approved the engagement of BPM LLP (“BPM”) as our independent registered public accounting firm for the fiscal year ending December 31, 2023, effective immediately.

As disclosed in the Form 8-K, Withum’s audit report on our financial statements for the fiscal year ended December 31, 2022, did not contain any adverse opinion or disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope, or accounting principles, except for the following: the report included an explanatory paragraph regarding substantial doubt about our ability to continue as a going concern as result of our recurring operating losses and negative operating cash flows. Withum’s audit report on our financial statements for the year ended December 31, 2021, did not contain any adverse opinion or disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope, or accounting principles.

During the fiscal years ended December 31, 2022 and 2021, and subsequent interim period through October 2, 2023: (i) there were no “disagreements” (as defined in Item 304(a)(1)(iv) of Regulation S-K and the related instructions to Item 304) with Withum on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of Withum, would have caused Withum to make reference to the subject matter of such disagreements in connection with its reports on the financial statements for such periods and (ii) there were no “reportable events” (as defined in Item 304(a)(1)(v) of Regulation S-K), except for the disclosure of the following material weakness in our internal control over financial reporting which existed during our fiscal year ended December 31, 2022 and the subsequent interim period through March 31, 2023, as disclosed in Part II, Item 9A of our Annual Report on Form 10-K for the year ended December 31, 2022 and Part I, Item 4 of our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023, respectively: the review procedures related to the technical accounting review and analysis over earnings per share calculations were insufficient to prevent or detect errors in the calculation. We remediated the material weakness as of June 30, 2023.

We provided Withum with a copy of the foregoing disclosures in the Form 8-K prior to its filing with the SEC and requested Withum to furnish a letter addressed to the SEC stating whether it agrees with the statements we made in the Form 8-K. A copy of Withum’s letter dated October 5, 2023 was filed as Exhibit 16.1 to the Form 8-K.

During the fiscal years ended December 31, 2022 and December 31, 2021, and subsequent interim period through October 2, 2023, neither we nor anyone acting on our behalf consulted with BPM regarding either: (i) the application of accounting principles to a specific transaction, either completed or proposed; or the type of audit opinion that might be rendered on our financial statements, and neither a written report nor oral advice was provided to us that BPM concluded was an important factor considered by us in reaching a decision as to the accounting, auditing or financial reporting issue; or (ii) any matter that was the subject of a “disagreement” within the meaning of Item 304(a)(1)(iv) of Regulation S-K and the related instructions to Item 304 or a “reportable event” within the meaning of Item 304(a)(1)(v) of Regulation S-K.

A representative of BPM is expected to attend the Annual Meeting via the live webcast. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

## Withdrawal of Proposal 2 of the Proxy Statement

As a result of the dismissal of Withum, we have withdrawn Proposal 2 from the meeting agenda of the Annual Meeting, which requested that our stockholders ratify the appointment of Withum as our independent registered public accounting firm for the fiscal year ending December 31, 2023. Accordingly, Proposal 2 will not be considered or voted upon at the Annual Meeting. Furthermore, we do not intend to submit a new proposal for stockholder ratification with respect to the appointment of BPM as our independent registered public accounting firm for the fiscal year ending December 31, 2023. In conjunction with our 2024 Annual Meeting of Stockholders, we intend to submit a proposal requesting that stockholders ratify the appointment of BPM as our independent registered public accounting firm for the fiscal year ending December 31, 2024.

Stockholders should note the following:

- we will not make available or distribute, and you do not need to sign, new proxy cards or submit new voting instructions solely as a result of the withdrawal of Proposal 2;
- proxy cards or voting instructions already received with direction on Proposal 2 will not be voted on Proposal 2 as the agenda item has been withdrawn;
- proxy cards or voting instructions received and providing direction on the remaining agenda items to be considered at the Annual Meeting (Proposal 1 – Election of Directors; Proposal 3 – Advisory Vote on Executive Compensation; and Proposal 4 – Approval of Amended and Restated 2020 Equity Incentive Plan) will remain valid and in effect and will be voted as directed; and
- if you have already submitted a proxy card or voting instructions, you do not need to resubmit proxies or voting instructions with different directions, unless you wish to change your previously cast votes on the remaining agenda items. If you wish to change your vote, please refer to the question “Can I Change my vote after submitting my proxy?” in the “Questions and Answers About These Proxy Materials and Voting” section of the Proxy Statement for detailed instructions on how to change or revoke your proxy.

**Your vote regarding the remaining agenda items is important. Please vote on these remaining items as described in the Notice of Internet Availability of Proxy Materials previously mailed to you on or about August 28, 2023, the Proxy Statement, and the proxy card accompanying the Proxy Statement, copies of which are available at [www.proxyvote.com](http://www.proxyvote.com).**