Aclaris Therapeutics, Inc.
Form 424B3
September 13, 2016

Prospectus Supplement No. 4	Filed Pursuant to 424(b)(3)
(to Prospectus dated June 28, 2016)	Registration No. 333-212095

1,081,082 Shares

Common Stock

This prospectus supplement updates and should be read in conjunction with the prospectus dated June 28, 2016 (the "Prospectus") relating to the resale or other disposition, from time to time, by the selling stockholders identified in the Prospectus under the caption "Selling Stockholders," of up to 1,081,082 shares of our common stock, par value $0.00001 per share. We are not selling any shares of our common stock under the Prospectus and will not receive any proceeds from the sale or other disposition of shares by the selling stockholders. The selling stockholders will bear all commissions and discounts, if any, attributable to the sale or other disposition of the shares. We will bear all costs, expenses and fees in connection with the registration of the shares. To the extent that there is any conflict between the information contained herein and the information contained in the Prospectus, the information contained herein supersedes and replaces such information.

Current Report

This prospectus supplement incorporates into our Prospectus the information contained in our attached current report on Form 8-K that we filed with the Securities and Exchange Commission on September 13, 2016 (the "Form 8-K"). The Form 8-K, as filed, is set forth below.

The information contained in this Prospectus Supplement No. 4 supplements and supersedes, in relevant part, the information contained in the Prospectus, as amended and supplemented to date. This Prospectus Supplement No. 4 is incorporated by reference into, and should be read in conjunction with, the Prospectus, as amended and supplemented to date, and is not complete without, and may not be delivered or utilized except in connection with, the Prospectus, as amended and supplemented to date.

The Prospectus, together with Prospectus Supplement No. 1, Prospectus Supplement No. 2, Prospectus Supplement No. 3 and this Prospectus Supplement No. 4 constitutes the prospectus required to be delivered by Section 5(b) of the Securities Act of 1933, as amended, with respect to offers and sales of the securities as set forth in the Prospectus, as amended and supplemented. All references in the Prospectus to "this prospectus" are amended to read "this prospectus (as supplemented and amended to date)."

Our common stock is traded on the NASDAQ Global Select Market under the symbol "ACRS." The last reported sale price of our common stock on September 12, 2016 was $23.24 per share. You are urged to obtain current market quotations for the common stock.

We are an "emerging growth company" as defined by the Jumpstart Our Business Startups Act of 2012 and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and future

filings. Please see “Prospectus Summary—Implications of Being an Emerging Growth Company.”

Investing in our common stock is highly speculative and involves a significant degree of risk. See “Risk Factors” beginning on page 5 of the Prospectus and the Risk Factors identified in our Annual Report for the year ended December 31, 2015 and in our Quarterly Report for the quarter ended June 30, 2016 for a discussion of information that should be considered before making a decision to purchase our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is September 13, 2016.

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): September 13, 2016

ACLARIS THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation)

001-37581	46-0571712
(Commission File No.)	(IRS Employer Identification No.)

101 Lindenwood Drive, Suite 400

Malvern, PA 19355

(Address of principal executive offices and zip code)

Registrant’s telephone number, including area code: (484)
324-7933

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01 Other Events.

On September 13 and 14, 2016, members of management of Aclaris Therapeutics, Inc., or the Company, will hold meetings to review, among other things, the Company's product candidate pipeline and clinical development. In addition, on September 14, 2016, Neal Walker, the President and Chief Executive Officer of the Company, will present at the Morgan Stanley 2016 Global Healthcare Conference on, among other things, the Company's product candidate pipeline and clinical development. A copy of the presentation that will accompany the meetings and which is being presented at the Morgan Stanley conference is available on the Company's website at www.aclaristx.com, and is filed as Exhibit 99.1 to this Current Report on Form 8-K, the contents of which are incorporated herein by reference. A second presentation regarding the Company's wart disease program is also available on the Company's website at www.aclaristx.com, and is filed as Exhibit 99.2 to this Current Report on Form 8-K, the contents of which are incorporated herein by reference. The information contained in this Current Report on Form 8-K speaks only as the date hereof. While the Company may elect to update the information in this Current Report on Form 8-K in the future, the Company disclaims any obligation to do so except to the extent required by applicable law.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Aclaris Therapeutics Corporate Overview Presentation.
99.2	Aclaris Therapeutics Wart Disease Presentation.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Aclaris Therapeutics, Inc.

Date: September 13, 2016

By: /s/ Frank Ruffo
Frank Ruffo
Chief Financial Officer

Exhibit 99.1

 A-1 Company Overview 1 Dr. Neal Walker President and CEO September 2016

This presentation contains forward-looking statements, including statements regarding the treatment and market opportunity for SK, common warts, alopecia areata, androgenetic alopecia, vitiligo, and the future operations of Aclaris. These statements involve substantial known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. The forward-looking statements in this presentation represent our views as of the date of this presentation. For further information regarding these risks, uncertainties and other factors you should read Aclaris' Annual Report on Form 10-K for the year ended December 31, 2015, Aclaris' Quarterly Report on Form 10-Q for the quarter ended June 30, 2016 and Aclaris' other filings it makes with the Securities and Exchange Commission from time to time. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this presentation. This presentation also contains estimates and other statistical data made by independent parties and by us relating to market size and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk. Disclaimer 2 September 2016

The Aclaris Opportunity 3 Time and capital efficient Highly concentrated prescriber base Large unmet market segments with no FDA-approved drugs Growing market for cash pay aesthetic and medical dermatology products A-101: Proprietary formulation of high concentration H2O2 Seborrheic Keratosis Phase 3 Data 4Q 2016 Common Warts Phase 2 Data 3Q 2016 ATI-50001/ATI-50002/ATI-50003: JAK 3 and 1/3 Inhibitors Alopecia Areata Vitiligo Androgenetic Alopecia (AGA) Founded and sold several companies Directly relevant experience in Dermatology Board-certified dermatologists as CEO and CSO Developed and commercialized multiple products Build a Fully Integrated Dermatology Company Management team expertise in dermatology DRUG Development PIPELINe Attractive Dermatology markets September 2016

Our Drug Candidates Exclusive, Worldwide Right to Commercialize A-101, A-102, ATI-50001, ATI-50002, and ATI-50003. 4 Seborrheic Keratosis (topical) A-101* RESEARCH PRE-CLINICAL PHASE I PHASE II PHASE III Common Warts (topical) ATI-50001 Alopecia Areata (oral) ATI-50002 Alopecia Areata (topical,oral) Also developing A-102 topical gel as a lifecycle management opportunity for A-101 * September 2016 Vitiligo (topical) Androgenetic Alopecia (topical) ATI-50001, ATI-50002 ATI-50003

3 Months Post Cryosurgery Before Treatment SK is one of most common diagnoses made by dermatologists >83 million people with the disease in the U.S. 18.5 million patient visits to dermatologists 8.3 million procedures to remove SKs annually $1.2 billion - historic costs of treatments for SK Patients seek diagnosis and treatment Fear of skin cancer Concern about appearance Discomfort from itching and inflammation Current options for SK removal: cryosurgery, curettage, electrodessication or excision Limitations of current removal options: Dyspigmentation (hypo or hyper) Scarring Pain Surgical - invasive Treatment of numerous SK is impractical 5 Seborrheic Keratosis (SK) Background Untreated SK September 2016

A-101 is appealing concept for SK treatment Topical, non-invasive Minimal discomfort; no need for anesthesia Reduced risk of pigmentary changes and scarring Ability to treat larger numbers of lesions Ability to hand off to ancillary staff Background Developed a proprietary formulation of 40.0% H2O2 Conducted formal dose-ranging studies MOA: drives apoptotic and necrotic cell death Potential to Be First FDA-approved Drug for SK Untreated Treated 6 Inventor’s Proof of Concept (with his initial formulation) September 2016

Summary of Completed Phase 2 Trials for SK Trial SK Lesion Area Date Completed Trial Design Trial Outcome SEBK-201 (n=35) Phase 2 Trunk (Back) June 2014 Single center, intra-subject Four lesions treated A-101 concentrations: 25.0%, 32.5%, 40.0% 1 or 2 applications Duration: 78 days Efficacy: 32.4% clear; 67.7% clear or near clear with 40% concentration Favorable safety profile SEBK–202 (n=172) Phase 2 Trunk and Extremities December 2014 Multicenter, parallel group Four lesions treated A-101 concentrations: 32.5%, 40.0% 1 or 2 applications Duration: 106 days Efficacy: Demonstrated statistically significant clearance of all 4 lesions in top dose group (Phase 3 primary end point) Favorable safety profile SEBK–203 (n=119) Phase 2 Face March 2015 Multicenter, parallel group One lesion treated A-101 concentrations: 32.5%, 40.0% 1 or 2 applications Duration: 106 days Efficacy: Statistically significant clearance Favorable safety profile 7 September 2016

A-101 Phase 2 Trunk/Extremities Study: PLA Responder Analysis * 8 September 2016

A-101 Phase 2 Face Study: PLA Responder Analysis Percentage of Subjects With Target Lesion Clear Percentage of Subjects With Target Lesion Clear or Near-Clear * * * P-value<0.001 9 * P-value<0.001 September 2016 0.0% 3.0% 28.0% 46.0% 24.0% 60.0% 0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0% 70.0% Day 22 Day 106 * * * * 2.5% 5.0% 33.3% 61.5% 45.9% 67.6% 0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0% 70.0% Day 22 Day 106 * * * *

Grading of SKs using PLA Scale in Clinical Trials Subject: 04-52 Visit: 8 Date: 23Oct2014 Lesion: 3 H2O2%: 40.0 PLA: 1 Subject: 04-52 Visit: 2 Date: 07Jul2014 Lesion: 3 H2O2%: 40.0 PLA: 3 Subject: 04-52 Visit: 2 Date: 07Jul2014 Lesion: 4 H2O2%: 40.0 PLA: 3 Subj 04-92 Visit: 8 Date: 30Oct2014 Lesion: 1 H2O2%:40.0 PLA: 0 Subject: 04-92 Visit: 2 Date: 17Jul2014 Lesion: 1 H2O2%:40.0 PLA: 3 Subject: 75 Visit: 1 Date: 25Nov13 Lesion: 2 H2O2%:32.5 PLA: 2 Subject: 75 Visit: 9 Date: 18Feb14 Lesion: 2 H2O2%: 32.5 PLA: 1 10 Pre-Treatment with A-101 Post-Treatment with A-101 September 2016

A-101 40.0% is being used for Phase 3 clinical testing Initiated Phase 3 program – January 2016 Pivotal trials (SEBK-301/302): Two identical Phase 3 trials 4 lesions treated in total with at least one on face and one on trunk or extremities Primary endpoint: Proportion of subjects with clear on PLA scale 3 month drug-free follow-up Open-label (SEBK-303): 4 SK lesions Up to four applications Phase 3 Data - 4Q 2016 Plan to submit NDA – 1Q 2017 A-101 Next Steps: Phase 3 Overview 11 September 2016

12 A-101 Commercialization Strategy September 2016 Cash pay, minimally invasive procedure Lower cost relative to other aesthetic treatments (Botox®, Fillers, Laser treatments) Buy and Bill Model 5,000 dermatologists in US, accounting for over 70% of procedures performed Concentrated call point allows for high reach and frequency Concentrated Prescriber Base Disease state awareness initiatives KOL engagement, conference presentations and publications Disease Awareness 50-60 person specialty sales team focused on high tier targets Comprehensive promotional campaign to include peer-influence programs Commercial Launch Campaigns focused on driving awareness and furthering interest in treatment options Patient Engagement

A-101 CANDIDATE FOR COMMON WARTS September 2016 13

September 2016 14

Existing Patient Base Offers Significant Market Potential

1 IMS National Disease and Therapeutic Index 2016.

2 Bruggnik et al, Natural Course of Cutaneous Warts Among Primary Schoolchildren: A Prospective Cohort Study 2013, Annals of Family Medicine;11:5,2013;437-441.

3 Lipke M., An Armamentarium of Wart Treatments, Clinical Medicine & Research,4:4, 2006; 273–293.

-43%of patients have more than one wart2

-Patients with warts have higher risk of developing new warts3

2 million patients seek treatment from physicians for common warts1

59% of

patients see a dermatologist1

25%see a pediatrician1

11% see a family/general practitioner1

Trial Common Wart Area Topline Data Trial Objective and Design Trial Outcome WART–201 (n=98) Phase 2 Trunk and Extremities August 2016 Multicenter, parallel group One wart treated A-101 concentrations: 40%, 45% compared to vehicle 8 applications Duration: 56 days Efficacy: Statistically significant clearance with 45% concentration Favorable safety profile September 2016 15 Summary of A-101 Phase 2 Wart Clinical Trial Results Primary Endpoint: Mean change from baseline in the Physician's Wart Assessment (PWA) score at Visit 10 using a analysis of covariance Secondary Endpoints: Responder analysis: The proportion of subjects whose target wart is judged to be clear on the PWA at Visit 10. Responder analysis: The proportion of subjects whose target wart is judged to be clear or mild on the PWA at Visit 10.

September 2016 16 Both Statistical and Clinical Significance Achieved on Primary Endpoint with A-101 45% Concentration MEAN CHANGE FROM BASELINE IN THE PWA SCORE AT VISIT 10 Baseline Day 7 Day 14 Day 21 Day 28 Day 35 Day 42 Day 49 Day 56 -1.2 0 -0.2 -0.4 -0.6 -0.8 -1 ** * *

September 2016 17 Statistical Significance Achieved on Secondary Endpoints in Clearance of Common Warts with A-101 45% Concentration Responder Analysis PROPORTION OF SUBJECTS ACHIEVING WART CLEARANCE AT VISIT 10 P- value = 0.02 PROPORTION OF SUBJECTS ACHIEVING CLEAR OR BARELY EVIDENT ON PWA AT VISIT 10 A-101 45.0% A-101 40.0% Vehicle P- value = 0.02 41.9 15.6 14.8 0 5 10 15 20 25 30 35 40 45

Patient Treated with A-101 45% Concentration in study WART-201 Subject: 04-52 Visit: 2 Date: 07Jul2014 Lesion: 3 H2O2%: 40.0 PLA: 3 Pre-Treatment with A-101 Post-Treatment with A-101 18 Visit 2 (PLA 3) Visit 10 (PLA 0) September 2016

Skin Reactions Similar to Vehicle at Visit 10; Favorable Safety Profile No Reaction Mild Moderate September 2016 19 Vesicles/Bullae 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle A-101 Solution 40% A-101 Solution 45% A-101 Solution Vehicle Edema PRE Erosion PRE Erythema PRE Excoriations PRE Scabbing PRE Ulceration PRE Vescicles/Bullae PRE 2 1 0

September 2016 20 Based on Results, A-101 45% Concentration Considered for Further Development as Treatment for Common Warts Statistical Significance Achieved both statistical and clinical significance on the primary endpoint Achieved statistical significance in complete clearance of the warts Safety Profile Favorable safety profile was observed under the conditions of this study Occasional mild, transient local skin reactions observed during treatment; skin reactions were similar to vehicle 45% Concentration of A-101 Observed to be Safe and Effective Next steps Develop A-101 45% Concentration as the commercial dosage form for common warts Develop as RX drug for patient to use at home

ATI-50001/ATI-50002 Candidates for Alopecia Areata 21

AA is an autoimmune condition, characterized by patchy, non-scarring hair loss on the scalp and body Large unmet need: >6.6 million people in the U.S. have had or will develop AA at some point in their lives 2/3 of affected individuals ≤30 years old at disease onset 25-50% of patients have persistent patchy AA 14%-25% of patients progress to totalis or universalis Current off label treatments include topical steroids, steroid injections, and minoxidil Recent translational research work by Dr. Angela Christiano Furthered genetic understanding of disease Identified JAK inhibitors as a potential treatment for AA 22 Alopecia Areata (AA) Background Potential to be First FDA-Approved Drug for AA AA – Patchy Alopecia Universalis September 2016

Lead asset: Selective JAK 1/3 inhibitor from Rigel Exclusive, worldwide license and development collaboration Oral and topical rights Known mechanism of action and biological response in humans Promoted hair regrowth in mouse model of AA Drug Candidates: ATI-50001 for oral administration in Alopecia Totalis and Alopecia Universalis ATI-50002 for topical administration in Patchy Alopecia Areata Development Strategy Planned submission of IND: 2H 2016 Initiation of clinical trial: 1H 2017 23 ATI-50001/ATI-50002: JAK Inhibitors in Alopecia Areata September 2016

Vixen (Columbia University IP) and Key Organics/JAKPharm Broadens our IP estate Methods of use covering JAK inhibitors for the treatment of: Alopecia Areata Androgenetic alopecia (female and male pattern hair loss) Additional hair loss disorders Next generation JAK inhibitors Covalently bound highly selective JAK3 inhibitors 24 Business Development Transactions September 2016

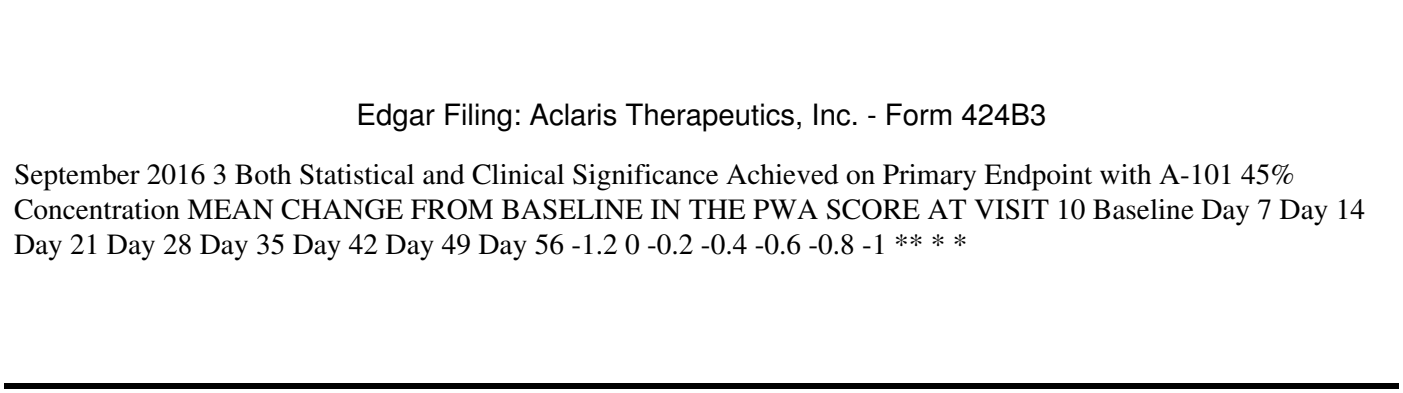
Androgenic alopecia (male and female pattern hair loss) AGA is the most common cause of hair loss and is experienced by 70% of men and 40% of women at some point in their lives1 In 2012, 35 million men and 21 million women suffered hair loss2 Topical JAK inhibitor Vitiligo Vitiligo impacts 1% to 2% of the overall global population irrespective of sex, race, or age3 Disease onset occurs in about one-half of sufferers between the ages of 10 and 303 Oral and topical JAK inhibitor 25 Additional Potential Indications Female with AGA Male with AGA 1 Cassiopea. Androgenic Alopecia. 2 Bergeson, L. The Truth About Hair Loss and Baldness Cures. 11.08.2014. 3 Fitzpatrick T., et al. Vitiligo Facts. American Vitiligo Research Foundation Inc. September 2016

Milestone 2016 2017 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 A-101 SK Phase 3 Trials Initiated Phase 3 Data Submit NDA Submit MAA A-101 Common Warts Phase 2 Data ATI-50001/ATI-50002 Alopecia Areata Submit IND Commence POC trial September 2016 26 Milestones

Exhibit 99.2

 Verruca Vulgaris (Common Warts) Market Opportunity

Trial Common Wart Area Topline Data Trial Objective and Design Trial Outcome WART–201 (n=98) Phase 2 Trunk and Extremities August 2016 Multicenter, parallel group One wart treated A-101 concentrations: 40%, 45% compared to vehicle 8 applications Duration: 56 days Efficacy: Statistically significant clearance with 45% concentration Favorable safety profile Summary of A-101 Phase 2 Wart Clinical Trial Results Primary Endpoint: Mean change from baseline in the Physician's Wart Assessment (PWA) score at Visit 10 using a analysis of covariance Secondary Endpoints: Responder analysis: The proportion of subjects whose target wart is judged to be clear on the PWA at Visit 10. Responder analysis: The proportion of subjects whose target wart is judged to be clear or mild on the PWA at Visit 10. September 2016 2


September 2016 3 Both Statistical and Clinical Significance Achieved on Primary Endpoint with A-101 45% Concentration MEAN CHANGE FROM BASELINE IN THE PWA SCORE AT VISIT 10 Baseline Day 7 Day 14 Day 21 Day 28 Day 35 Day 42 Day 49 Day 56 -1.2 0 -0.2 -0.4 -0.6 -0.8 -1 ** * *

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