Company Overview

February, 2016

Disclaimer

This presentation contains forward-looking statements, including statements regarding the treatment and market opportunity for SK, common warts and alopecia areata, 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' Quarterly Report on Form 10-Q for the quarter ended September 30, 2015 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.

ACLARIS THERAPEUTICS

The Aclaris Opportunity

MANAGEMENT TEAM EXPERTISE IN DERMATOLOGY

- Founded and sold several companies
- Directly relevant experience in Dermatology
- Board-certified dermatologists as CEO and CSO
- Developed and commercialized multiple products

DRUG DEVELOPMENT PIPELINE

A-101: Proprietary formulation of high concentration H_2O_2

- Seborrheic Keratosis
  - Phase 3 commenced in Jan 2016
- Common Warts
  - Phase 2 – commenced in Dec 2015

A-201/301: JAK 1/3 Inhibitors

- Alopecia Areata
  - Topical and Oral
  - PoC demonstrated with JAK inhibitors

ATTRACTIVE DERMATOLOGY MARKETS

- 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

Build a Fully Integrated Dermatology Company

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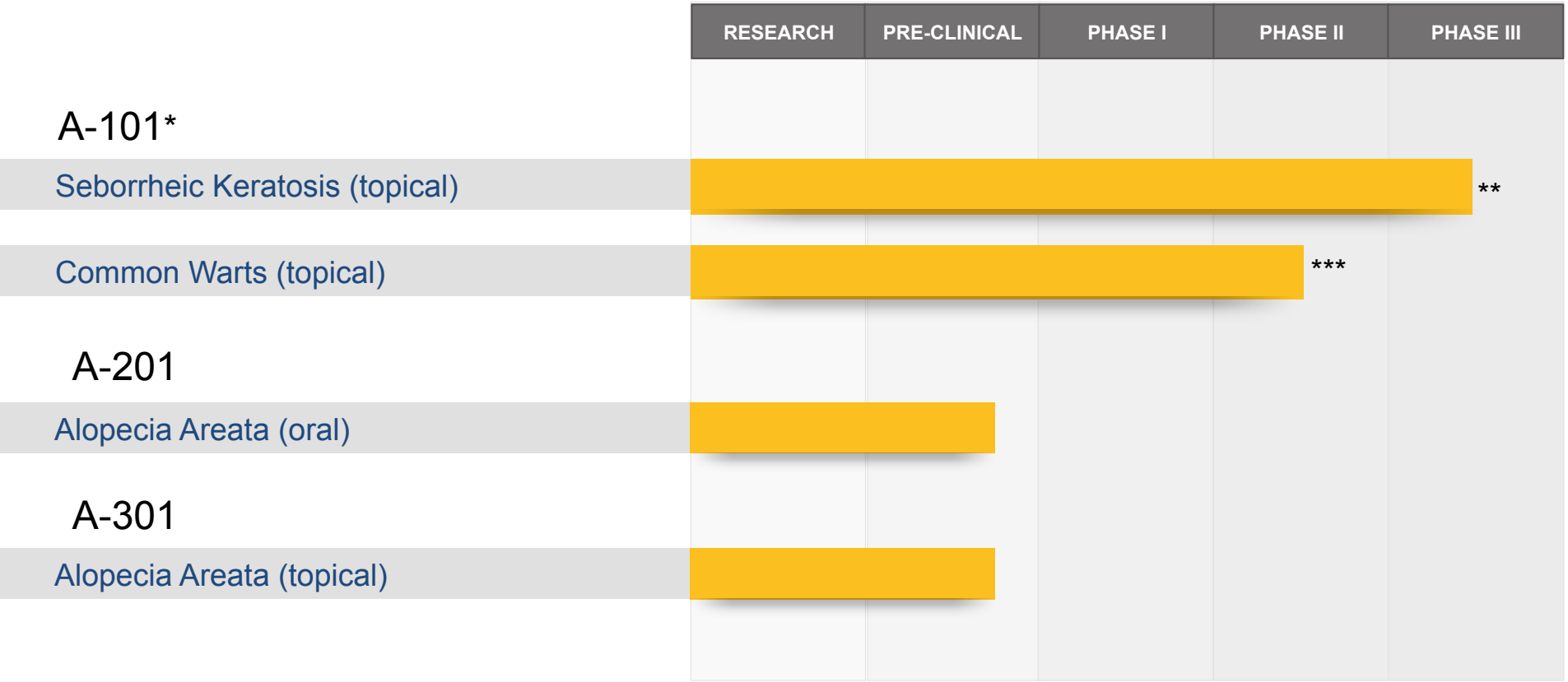
Our Drug Candidates

Exclusive, Worldwide Right to Commercialize A-101, A-102, A-201 and A-301

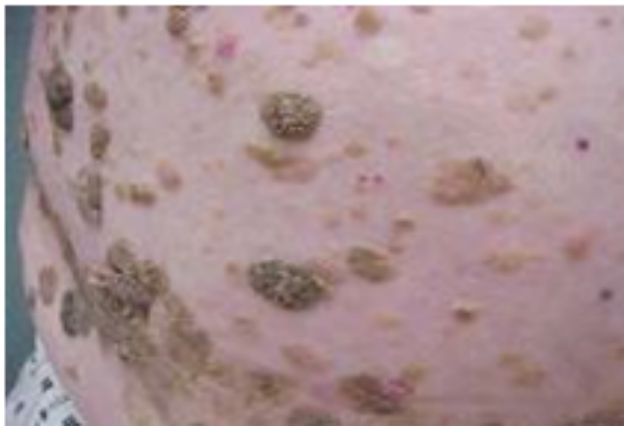


* Also developing A-102 topical gel as a lifecycle management opportunity for A-101

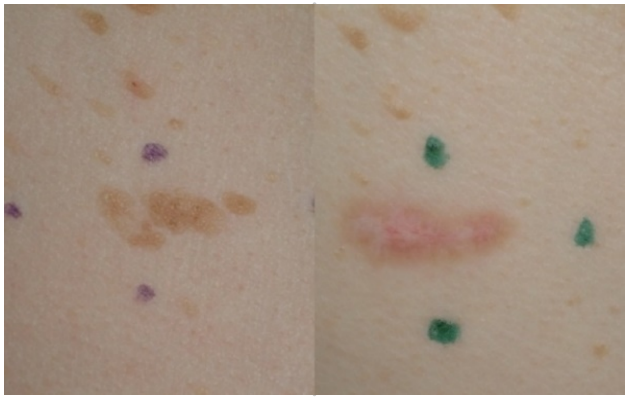
** Commenced Phase 3 clinical trials

*** Commenced Phase 2 clinical trial

Seborrheic Keratosis (SK) Background



Untreated SK



Before Treatment **3 Months Post Cryosurgery**

- 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

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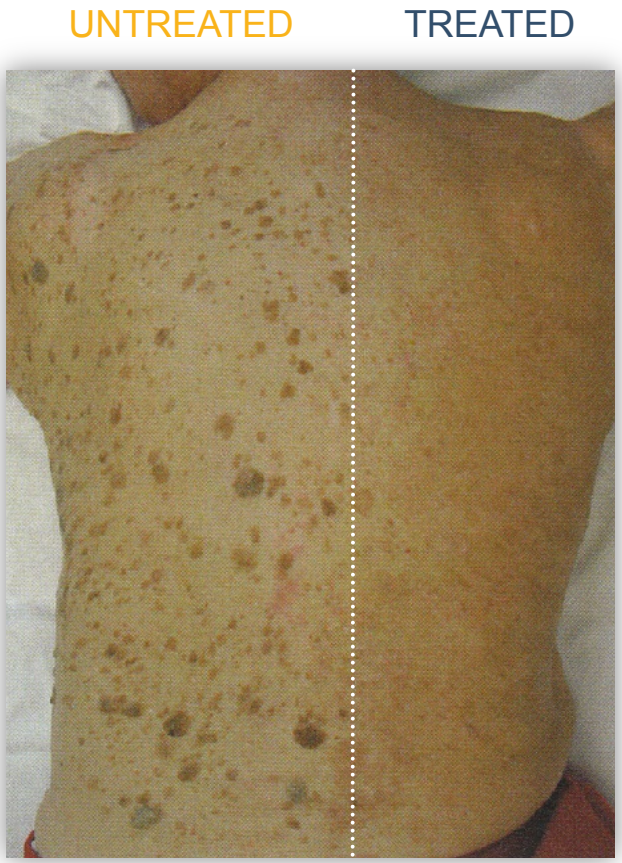
Potential to Be First FDA-approved Drug for SK

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% H_2O_2
- Conducted formal dose-ranging studies
- MOA: drives apoptotic and necrotic cell death



Inventor's Proof of Concept
(with his initial formulation)

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

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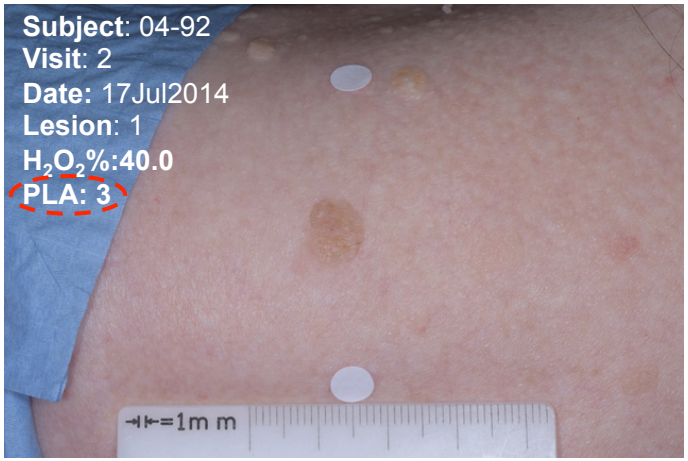
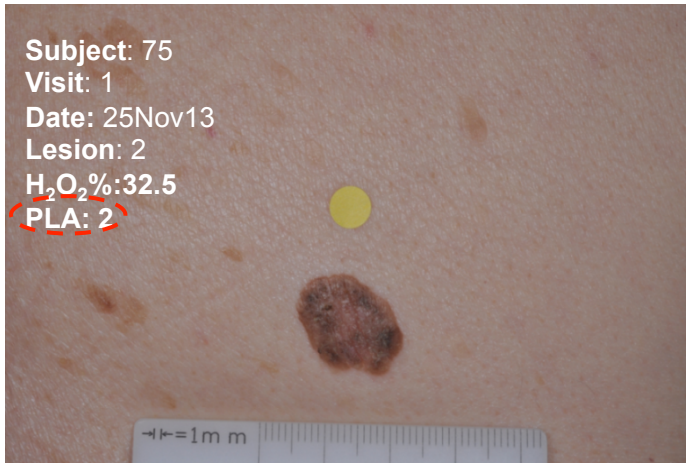
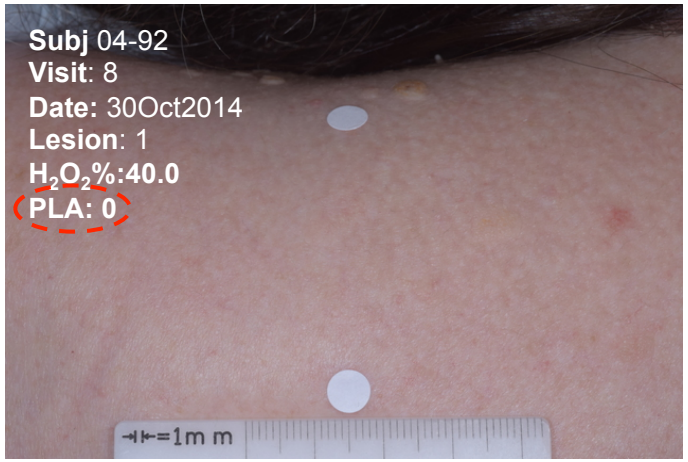
Grading of SKs using PLA Scale in Clinical Trials

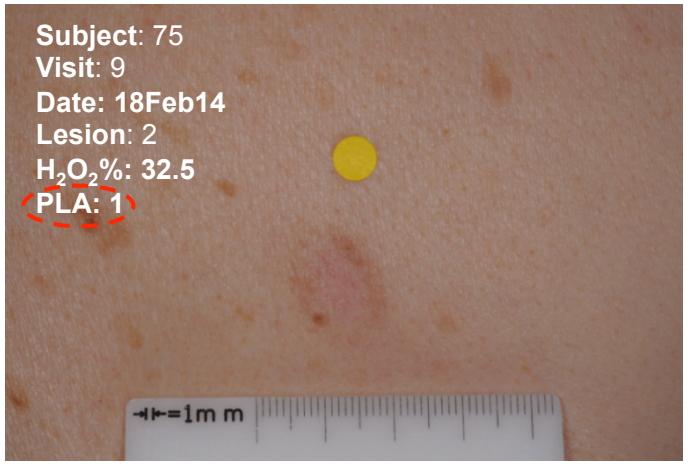
Pre-Treatment with A-101





Post-Treatment with A-101





A-101 Next Steps: Phase 3 Overview

- 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
    - 400 subjects each
    - 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
    - 200 subjects
- Plan to submit NDA – 4Q 2016

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A-101 Commercialization Strategy

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

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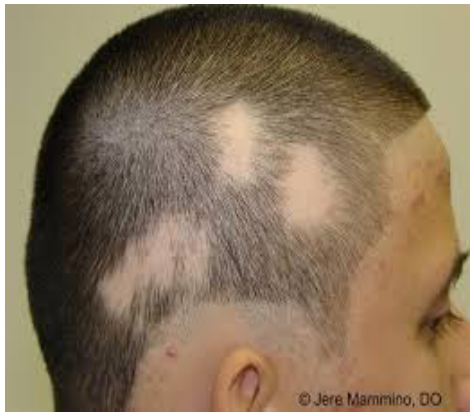
A201/301: JAK Inhibitors in Alopecia Areata



- In-licensed selective JAK 1/3 inhibitors 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:
  - A-201 for oral administration in Alopecia Totalis and Alopecia Universalis
  - A-301 for topical administration in Patchy Alopecia Areata
- Development Strategy
  - Planned submission of IND: 2H 2016
  - Initiation of Proof-of-Concept Trial: 1H 2017

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Near-Term Milestones

Milestone	2016				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A-101 SK								
Phase 3 Trial Initiated								
Submit NDA								
A-101 Common Warts								
Phase 2 Trial Underway								
A-201/301 Alopecia Areata								
Submit IND								
Commence POC Trial								

THANK YOU

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