azitra

CORPORATE PRESENTATION

January 2025

Precision dermatology powered by synthetic biology.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This document contains forward-looking statements concerning Azitra, Inc. ("Azitra", the "Company," "we," "us," and "our"). The words "believe," "may," "will," "potentially," "estimate," "continue," "anticipate," "intend," "could," "would," "project," "plan," "expect" and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward- looking statements. These forward-looking statements include, but are not limited to, statements concerning the following:

- our future financial and operating results;
- our intentions, expectations and beliefs regarding anticipated growth, market penetration and trends in our business; the timing and success of our plan of commercialization;
- our ability to successfully develop and clinically test our product candidates;
- and the adequacy of the net proceeds of this offering.

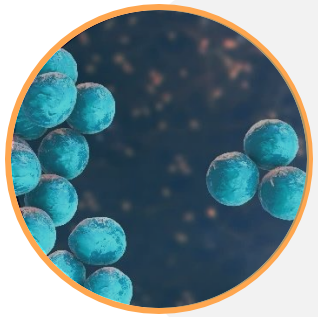
These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including (i) we are an early-stage clinical biopharmaceutical company with limited operating history, (ii) there are no drug products to date that incorporate our microbial library and genetic engineering platform and the clinical and commercial utility of our microbial library and genetic engineering platform is uncertain and may never be realized; (iii) we have only recently commenced Phase 1 clinical studies of our initial product candidates and our product candidates will require extensive additional preclinical and clinical testing; (iv) we expect we will need additional financing to execute our business plan and fund operations, which additional financing may not be available on reasonable terms or at all; and (v) those other risks described or incorporated by reference in the "Risk Factors" section in our Form 10-Q filed by Azitra with the Securities and Exchange Commission on November 12, 2024.

In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this document may not occur and actual results could differ materially and adversely from those anticipated or implied in our forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. Azitra does not undertake and specifically disclaims any obligation to update or revise our forward-looking statements to reflect new circumstances or unanticipated events as they occur, except as required by law.

This document contains only basic information concerning Azitra. Because it is a summary it does not contain all of the information you should consider with regard to Azitra. You should read the Prospectus for more complete information about Azitra.

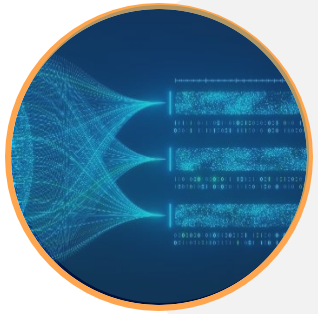
Three foundational platforms for precision dermatology

POWERED BY SYNTHETIC BIOLOGY AND THE METAGENOME



Bacterial Cell Library

- Proprietary, robust library of **~1,500 microbial strains**
- Engineered and non-engineered bacterial chasses
- Over 60 species in house, mostly *Staphylococcus epidermidis*



Artificial Intelligence / Machine Learning Discovery

- Predictive algorithms for **novel microbial-derived proteins, peptides & small molecules**
  - Exclusive agreement covering specific strains with team from Carnegie Mellon
  - Based on genetic sequences and biosynthetic gene clusters

Microbial Genetic Engineering Platform

- Demonstrated ability to make **novel transformations** to overcome challenge of thick cell walls and restriction modification systems
  - Exclusive worldwide license with Fred Hutchinson Cancer Center

Using synthetic biology and *S. epidermidis* biology for skin therapeutics

1 **Identify human or bacterial protein or molecule of interest**

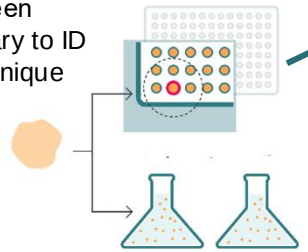
2 **Engineer auxotrophy to control strain growth**

3 **Colonize affected skin with engineered strain**

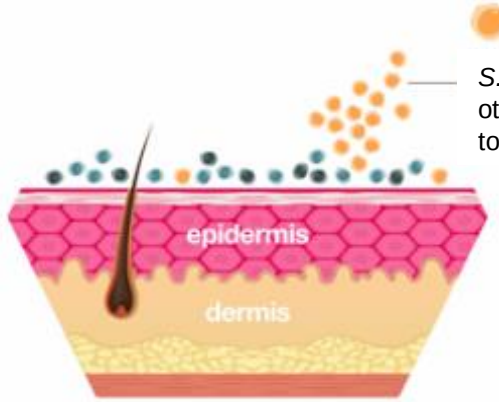
4 **Secrete active molecule throughout layers of the epidermis for therapeutic treatment**

Encode human protein for delivery…

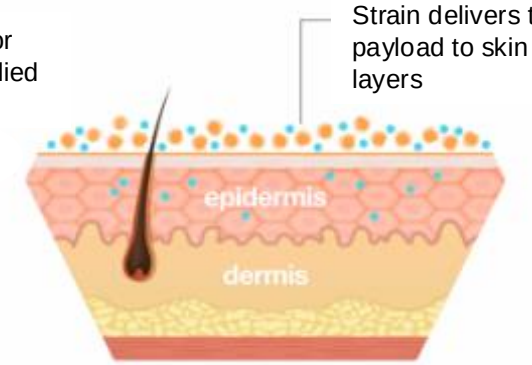
…and/or screen bacterial library to ID strains with unique activity



Engineered strain



S. epidermidis or other strain applied topically



Strain delivers therapeutic payload to skin tissue layers

Differentiated approach in an attractive space

Azitra's differentiated approach to precision dermatology

	Penetrates or delivers to skin	Disease modifying	Safe	Low cost	Ease of use
Oral small molecules	➖	✗	➖	✓	✓
Topical small molecules	✓	✗	➖	✓	✓
Injectable antibodies	➖	➖	➖	✗	✗
Topical gene therapy	➖	✓	✓	✗	✓
Other gene therapies	✓	✓	➖	✗	✗
azitra™	✓	✓	✓	✓	✓

Recent acquisitions in dermatology indicate interest in the sector[1]

31 M&A Deals
in medical dermatology

$12.2B
Total

$393M
Mean Deal Size

$50M
Medial Deal Size

[1] Data from S&P Global; Jan 2020-July 2024

Azitra's pipeline features multiple internally developed programs

FDA-regulated candidates for drug development

DISCOVERY | IND-ENABLING | PHASE 1 | PHASE 2 | PHASE 3 | COMMERCIALIZATION

ATR-12: LEKTI-secreting *Staphylococcus Epidermidis ("SE")* — **Netherton syndrome**

ATR-04: *SE* epidermin secreting auxotroph — **EGFR inhibitor associated rash**

IND cleared

ATR-01: Filaggrin-secreting auxotroph — **Ichthyosis vulgaris**

Consumer/Cosmetic Product Development

RESEARCH | SAFETY TESTING | COMMERCIALIZATION

Consumer Health Programs: Improve skin appearance and texture — **Joint Development Agreement with** BAYER

Recent achievements

Two clinical-stage programs in high, unmet needs in dermatology

July 2024

- ✓ Completed **$10 million** follow-on offering
- ✓ Announced new **patent allowances**

August 2024

- ✓ ATR-04 **IND cleared**
- ✓ **First Netherton syndrome patient dosed** with ATR-12

September 2024

- ✓ **Fast Track designation** received for ATR-04 to treat EGFRi-associated rash

ATR-12 Program

Netherton Syndrome

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ATR-12: LEKTI-Secreting *Staphylococcus epidermidis* for Netherton syndrome

ATR-12 Summary

- **Netherton syndrome** is a rare, orphan autosomal recessive disease with no current FDA-approved treatment option
- Characterized by severe inflammation, pruritus, scaling, red, and dehydrated skin
  - Caused by mutations in the *SPINK5* gene, which encodes the serine protease inhibitor, **LEKTI** (lympho-epithelial Kazal-type related inhibitor)
  - Results in overactive proteases causing desquamation, skin barrier defects, and activation of inflammation
  - ~10% mortality rate in infants[1]
- **Mechanism of action:** Auxotrophic ATR-12 inhibits the overactive proteases through LEKTI fragment secretion
- **Pediatric Rare Disease Designation** received from FDA

ATR-12 Key Facts

Primary Mechanism:
Topical protein replacement and kallikrein Inhibition

Clinical Status:
Phase 1b

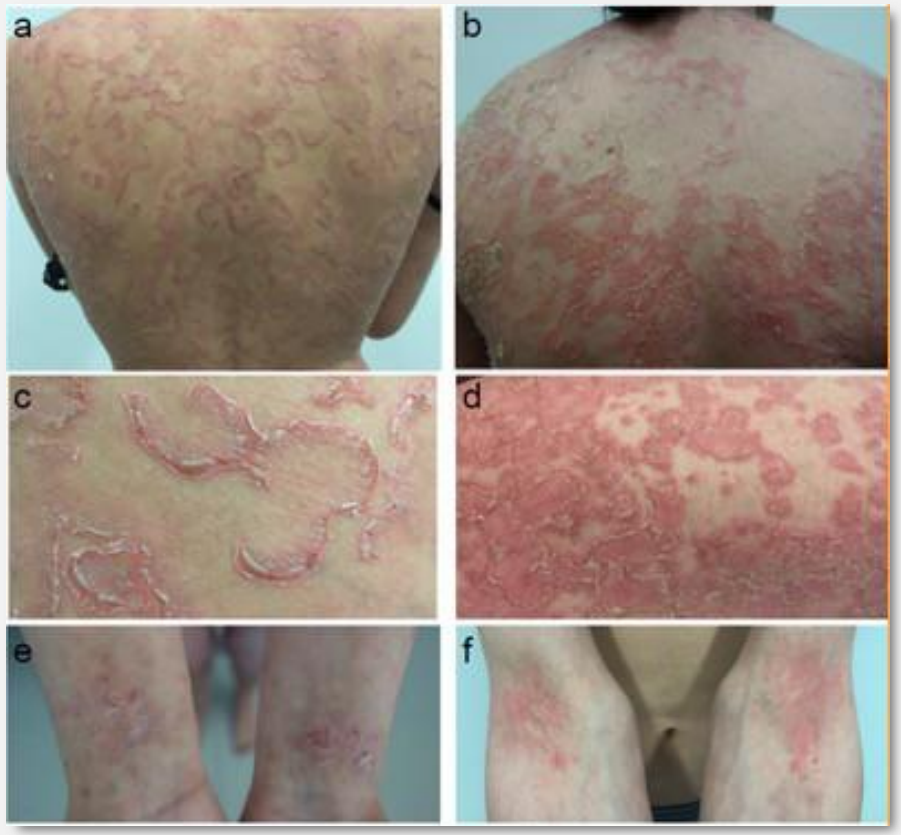
Global Prevalence:
~20K+ Patients[2]

Peak Sales Opportunity:
~$250M[3]

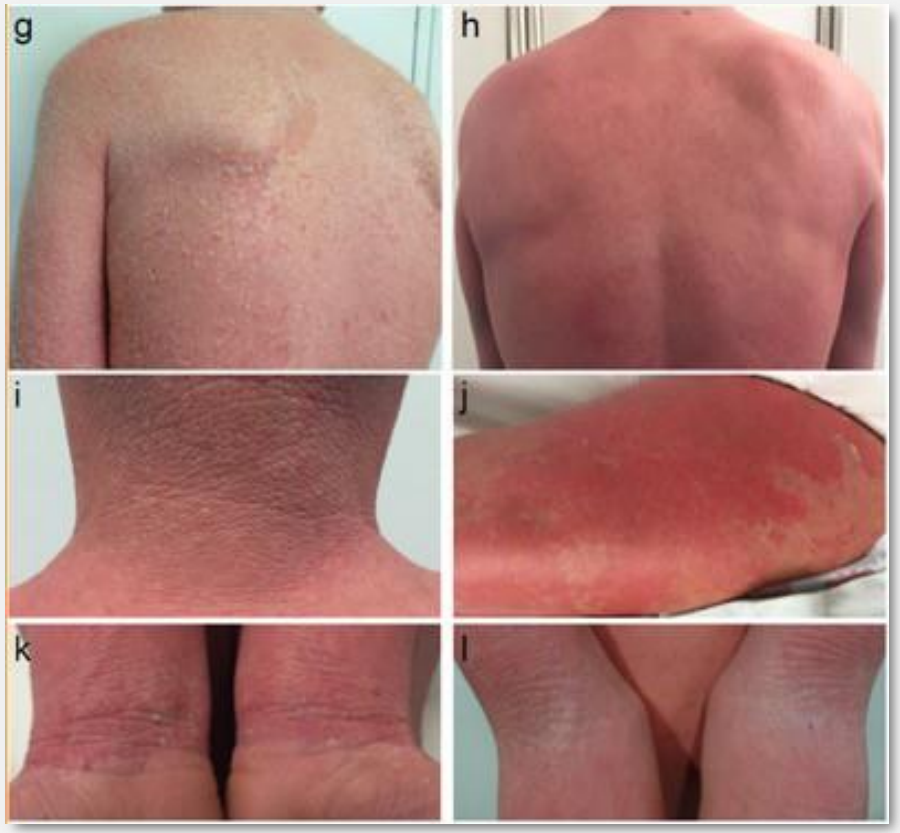
[1] Bellon N et al. Br J Dermatol. 2021.
[2] Barbati F, et al. Front Pediatr. 2021.
[3] Company estimates of 2,500 patients x $100,000 annually.

Protein replacement strategy addresses multiple Netherton syndrome phenotypes

Ichthyosis Linearis Circumflexa (ILC)

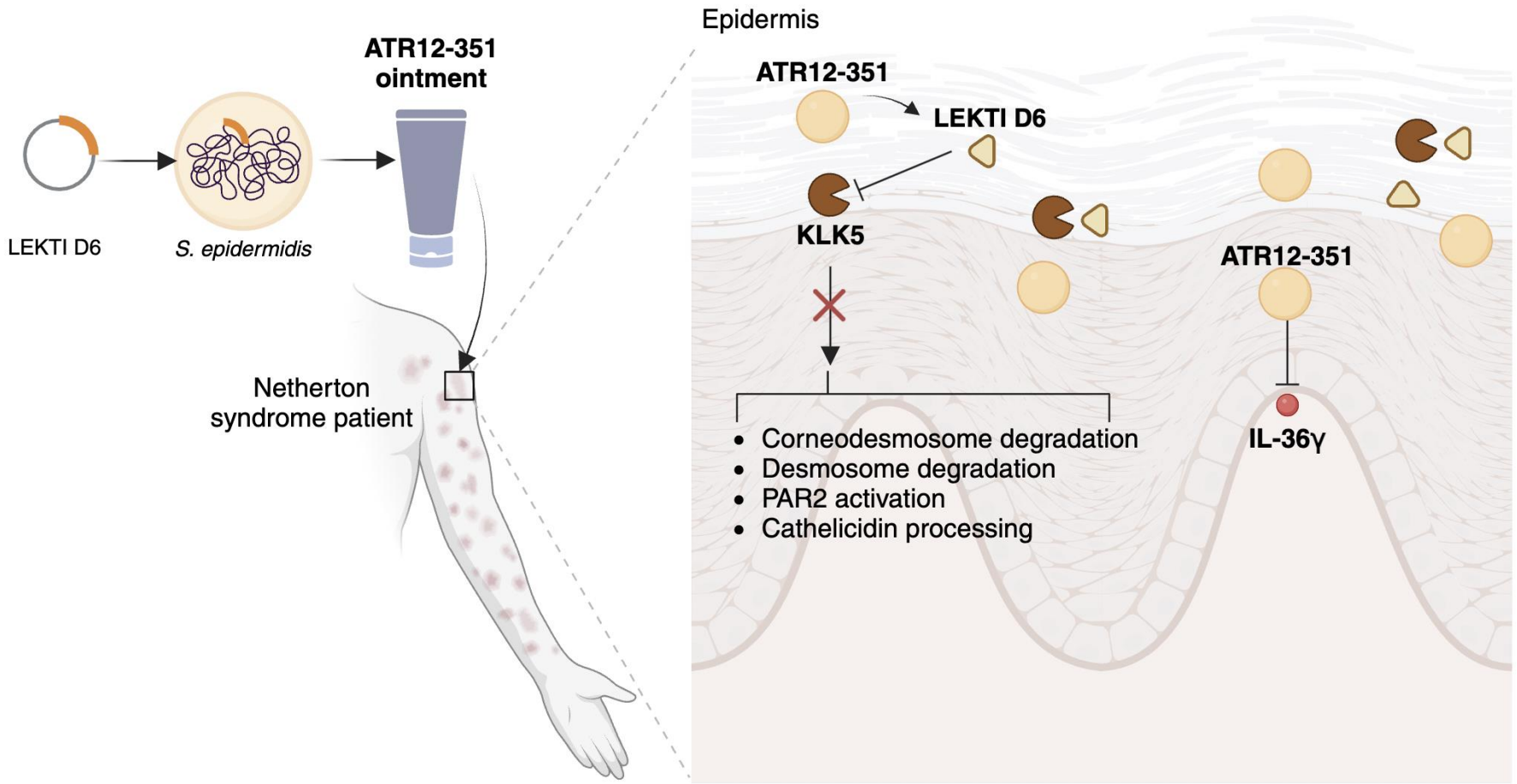


Scaly Erythema (SE)



Barbieux et al, J Allergy Clin Immunol 2021

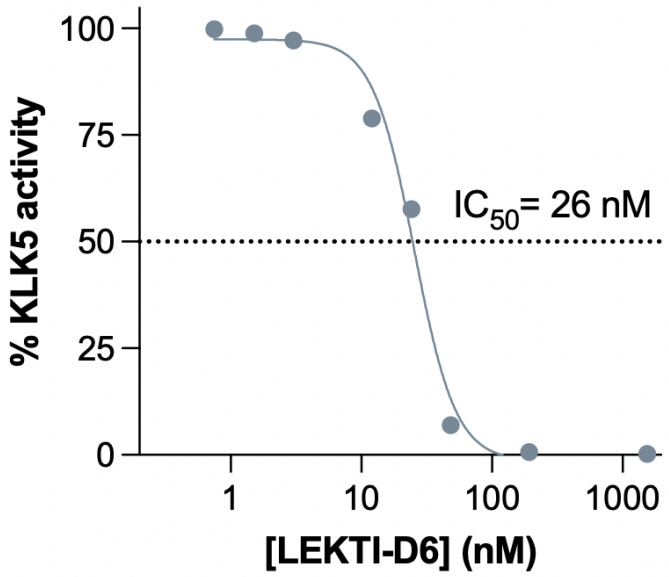
Mechanism of action of ATR-12



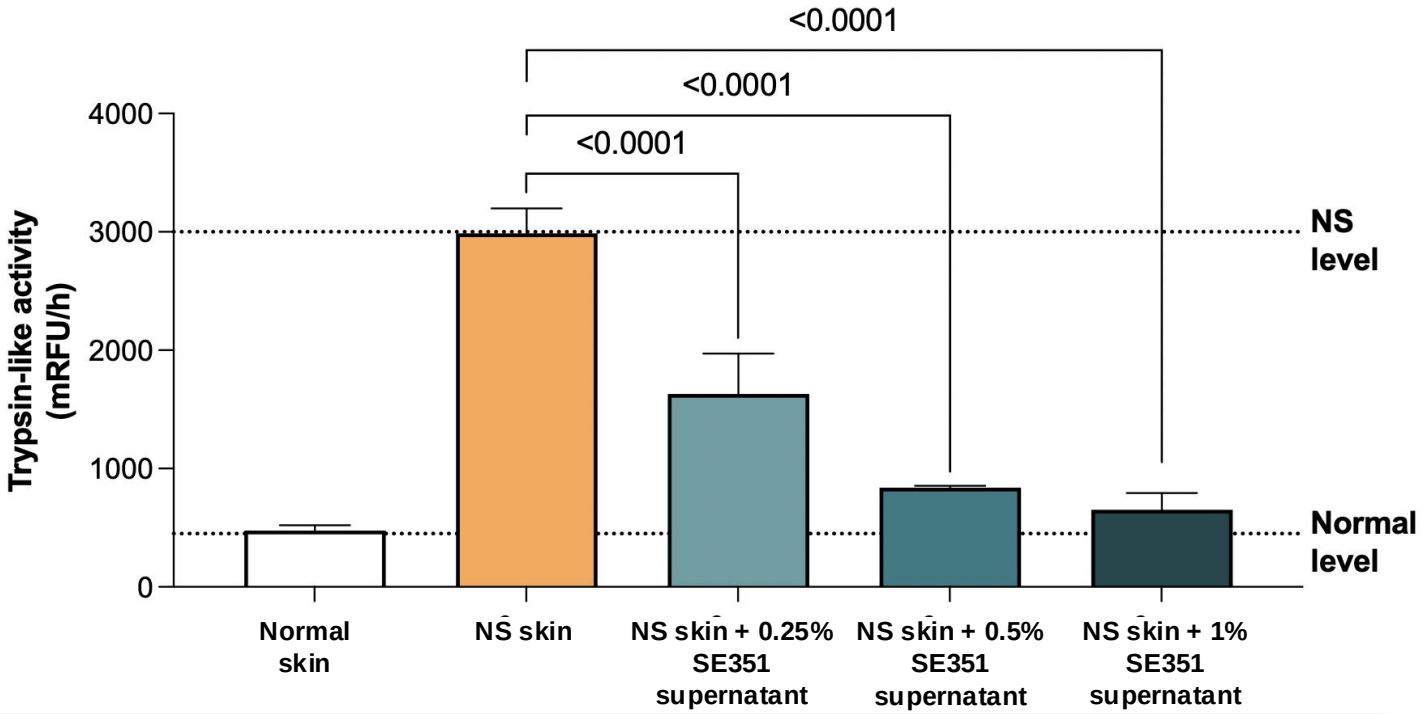
Collectively, ATR-12 addresses Netherton syndrome by LEKTI replacement and IL-36γ inhibition

ATR-12 shows potent reduction in protease activity

Nanomolar IC50 of KLK5 from SE351 *in vitro*



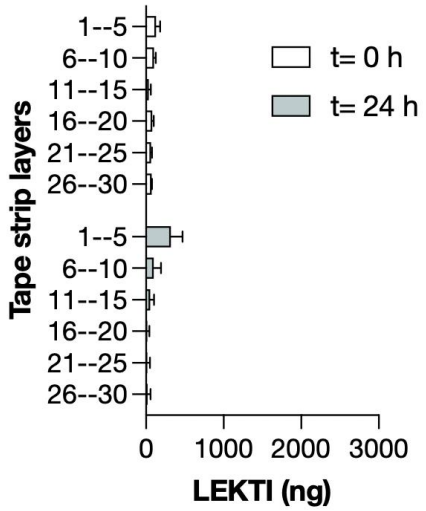
***S. epidermidis* strain SE351 (LEKTI-secreting) spent broth inhibition of human skin tape stripped extracts**



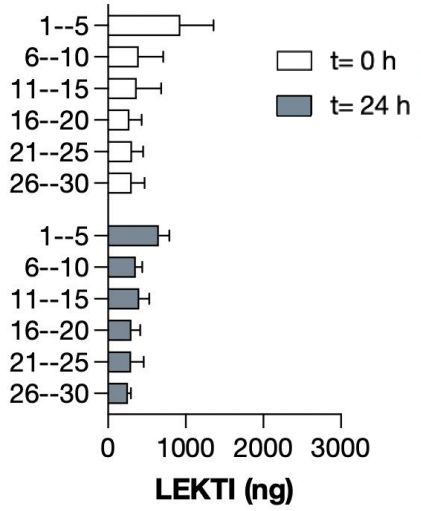
- ✓ Nanomolar inhibition of KLK5
- ✓ Trypsin-like activity (key measure of protease activity in NS patients) decreased after addition of spent broth from LEKTI-secreting strain SE351 in ATR-12
- ✓ Dose-dependent response seen across concentrations of supernatant

Penetration of LEKTI-like activity into *ex vivo* human skin

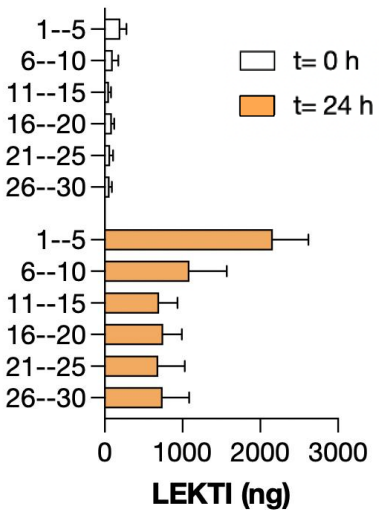
Vehicle



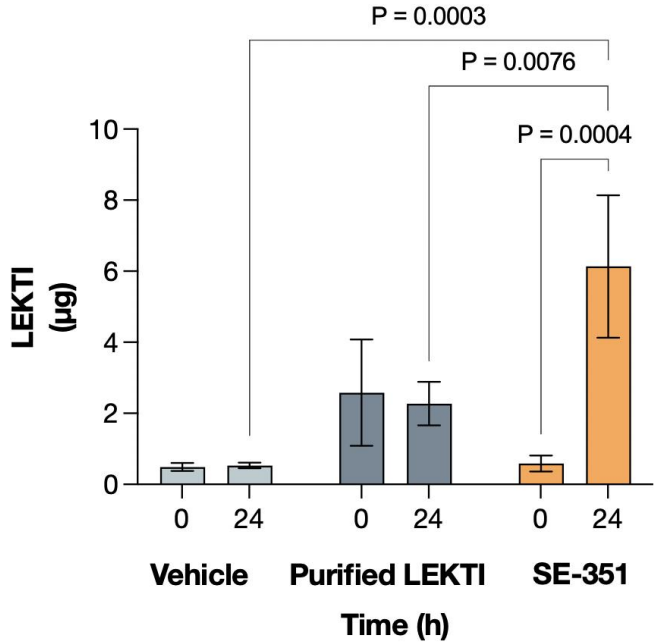
Purified LEKTI



ATR-12



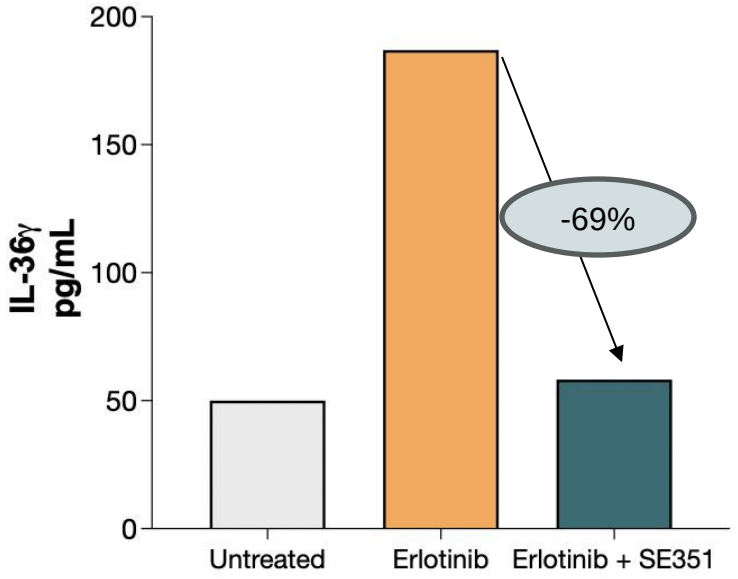
Total LEKTI activity



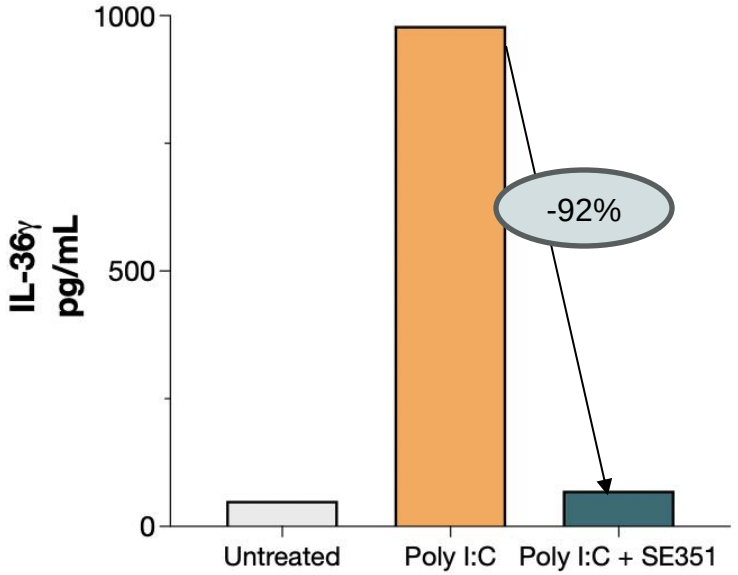
- ✓ LEKTI delivery is significantly higher after 24 hours compared to T0 in all layers following ATR-12 application
- ✓ The LEKTI activity penetrates to at least 30 layers deep in substantial amounts with µg of protein delivered after 24 hours
- ✓ LEKTI delivery by ATR-12 is superior compared to topical protein delivery alone

ATR-12 decreases IL-36γ levels

Reconstructed epidermis induced with erlotinib and treated with SE351 cells



HaCaT cells induced with Poly I:C and treated with SE351 cell-free supernatant



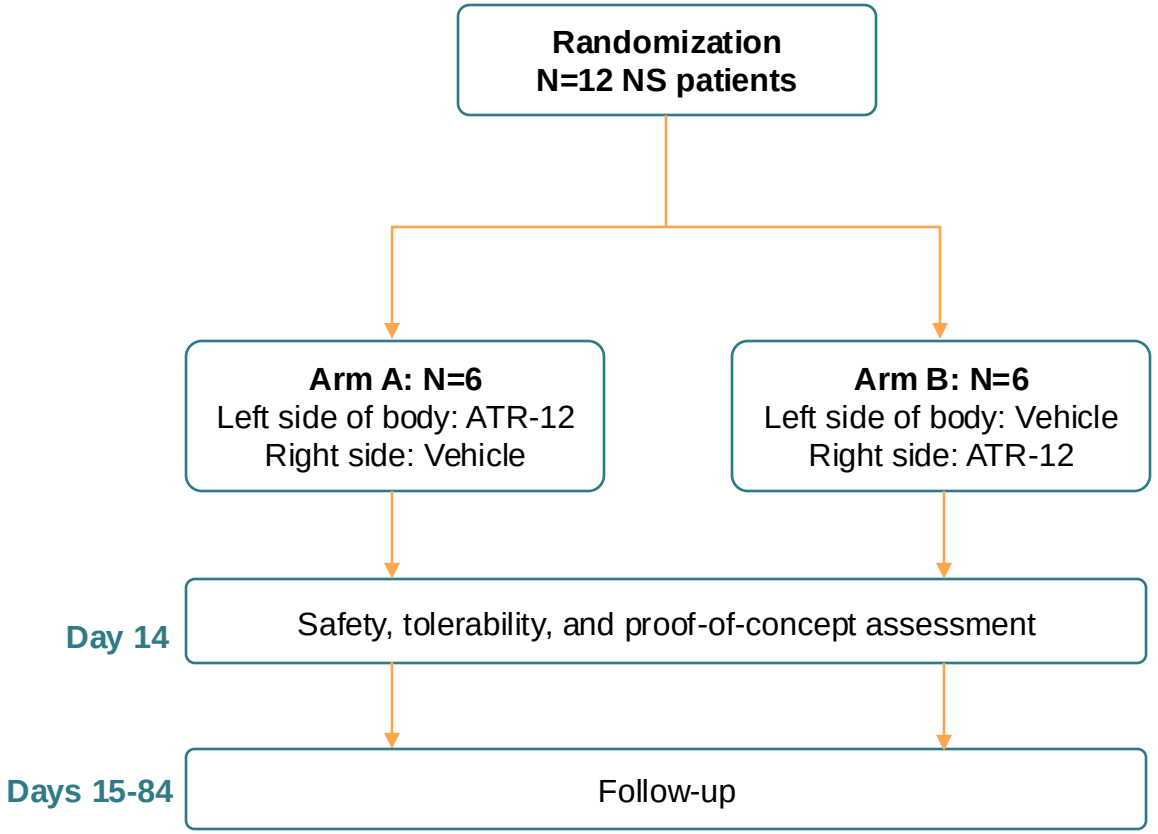
- ✓ ATR-12 cells and supernatant reduce IL-36**γ**, a key pro-inflammatory cytokine involved in NS inflammation, in multiple *in vitro* models

Phase 1 clinical trial design

Study overview

- Multicenter, randomized, double-blind, vehicle-controlled study in adults (n=12) with Netherton syndrome
  - Dose level: 10^9 CFU / g ATR-12
  - N=12 patients dosed twice daily for 14 days
- Primary objective: to assess the safety and tolerability of topical application of ATR-12
- Secondary objectives:
  - Evaluate efficacy signals (investigator and patient global assessments, NS-modified SCORAD)
  - Evaluate the skin pharmacokinetics of rhLEKTI-D6
- Exploratory objectives:
  - Evaluate pharmacodynamic parameters, including anti-rhLEKTI response, cytokine responses, biomarkers such as KLK5, KLK7, IL-36γ, TARC/CCL17, trypsin-like activity, and chymotrypsin-like activity

Design



ATR-04 Program

EGFR inhibitor-associated rash

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ATR-04: auxotrophic *S. epidermidis* for EGFR inhibitor-associated rash

ATR-04 Summary

- Chemotherapy agents such as EGFR inhibitors and immunotherapies such as early BTK inhibitors lead to an aggressive and debilitating rash on most patients
- Severity of the rash is linked to IL-36**γ** signaling as well as correlations to *S. aureus* increases
- EGFR inhibitors produce the most prevalent and most predictable affliction
- **ATR-04** is topically administered and inhibits IL-36**γ** and *S. aureus*
- Fast Track designation from the FDA

ATR-04 Key Facts

Primary Mechanism:
Topical IL36**γ** inhibition, *S. aureus* control

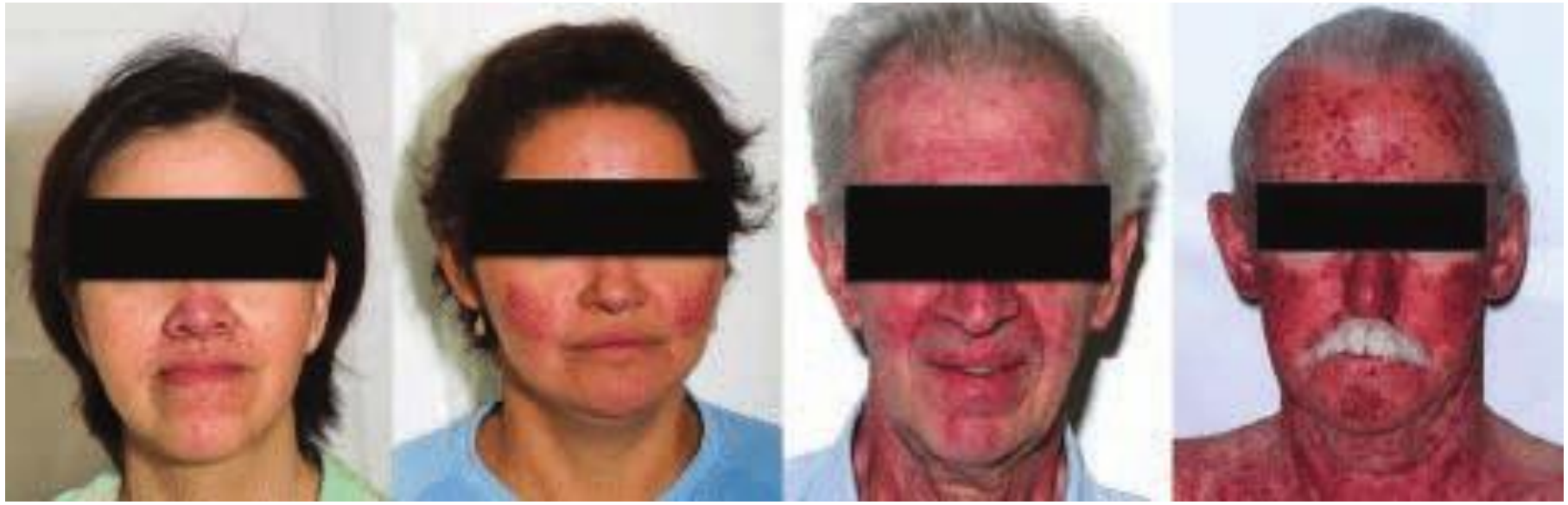
Clinical Status:
Phase 1/2 ready

US Prevalence:
~150,000 patients[1]

Peak Sales Opportunity:
>$1B[2]

[1] Bloomberg/Symphony drug prescription data and FDA labels
[2] Company estimates of 150,000 patients x $10,000/year.

EGFRi-driven rash is highly prevalent with significant clinical impact

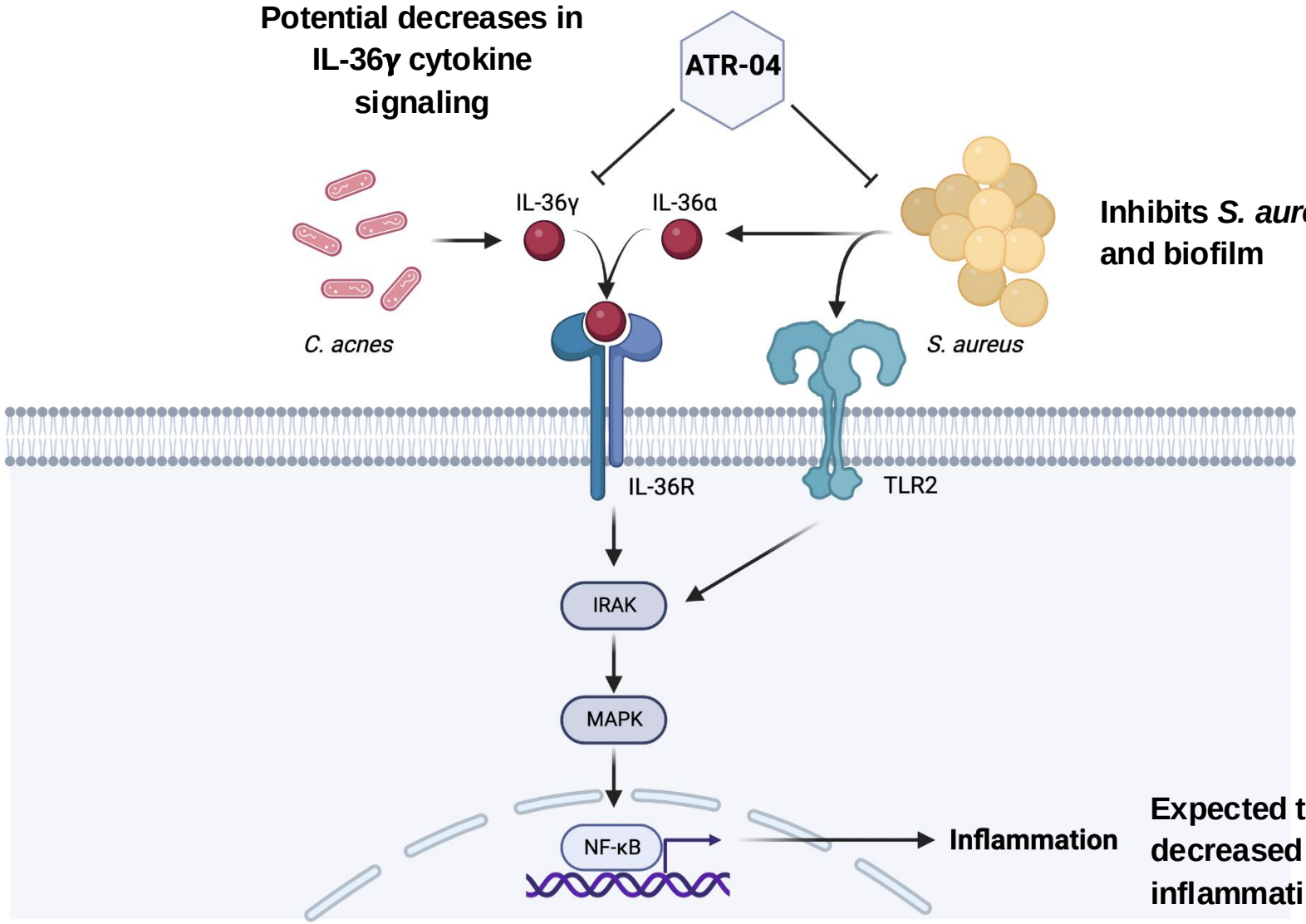


Grade 1	Grade 2	Grade 3	Grade 4

- Rash severity often linked to cancer drug dosing and correlates with *S. aureus* levels on the skin
- Rash can lead to significant changes in course of therapy and QOL
- **As many as 15-20% discontinue EGFRi therapy due to skin rash**

Source: Melosky et al. (2015). Grade 1, gefitinib; grade 2, erlotinib; grade 3, erlotinib; grade 4, erlotinib

Mechanism of action of ATR-04



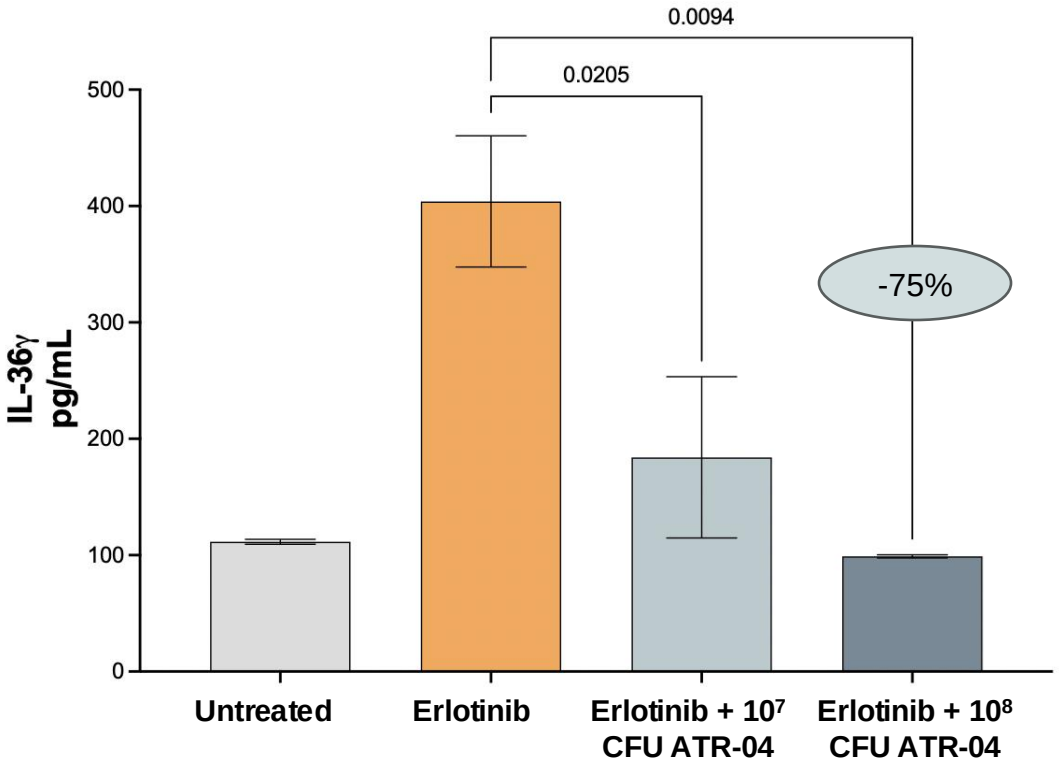
Inhibits *S. aureus* growth and biofilm

Expected to lead to decreased inflammation

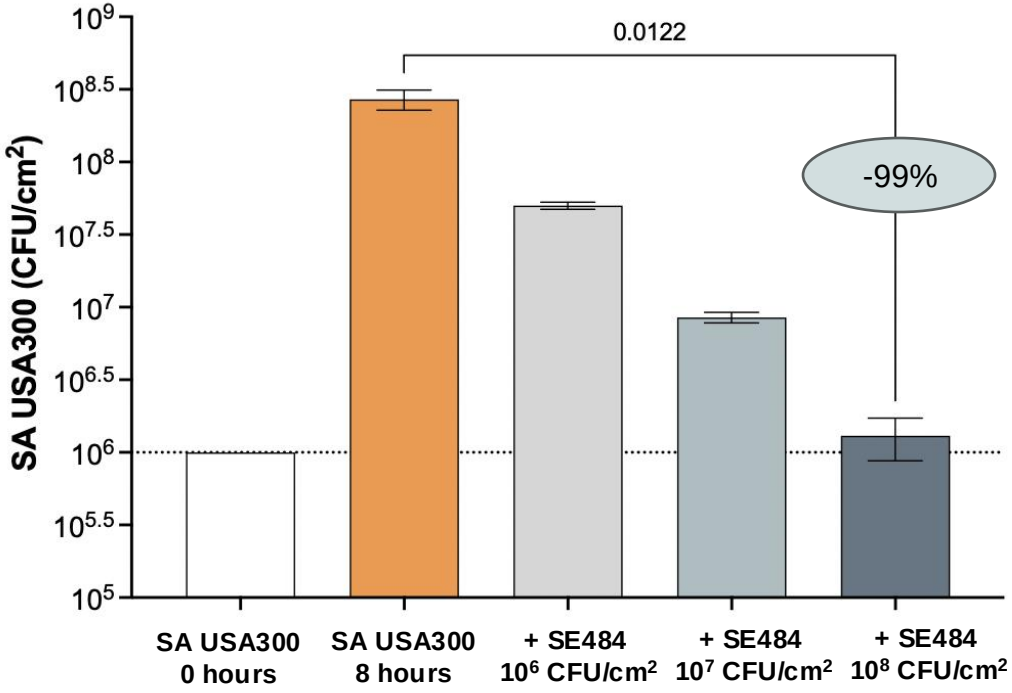
Collectively, ATR-04 addresses rash severity driven by EGFR inhibition

In vitro data show ATR-04 reduces erlotinib-induced IL-36γ and *S. aureus*

IL-36γ reduction in reconstructed human epidermis



***S. aureus* reduction on *ex vivo* pig skin**



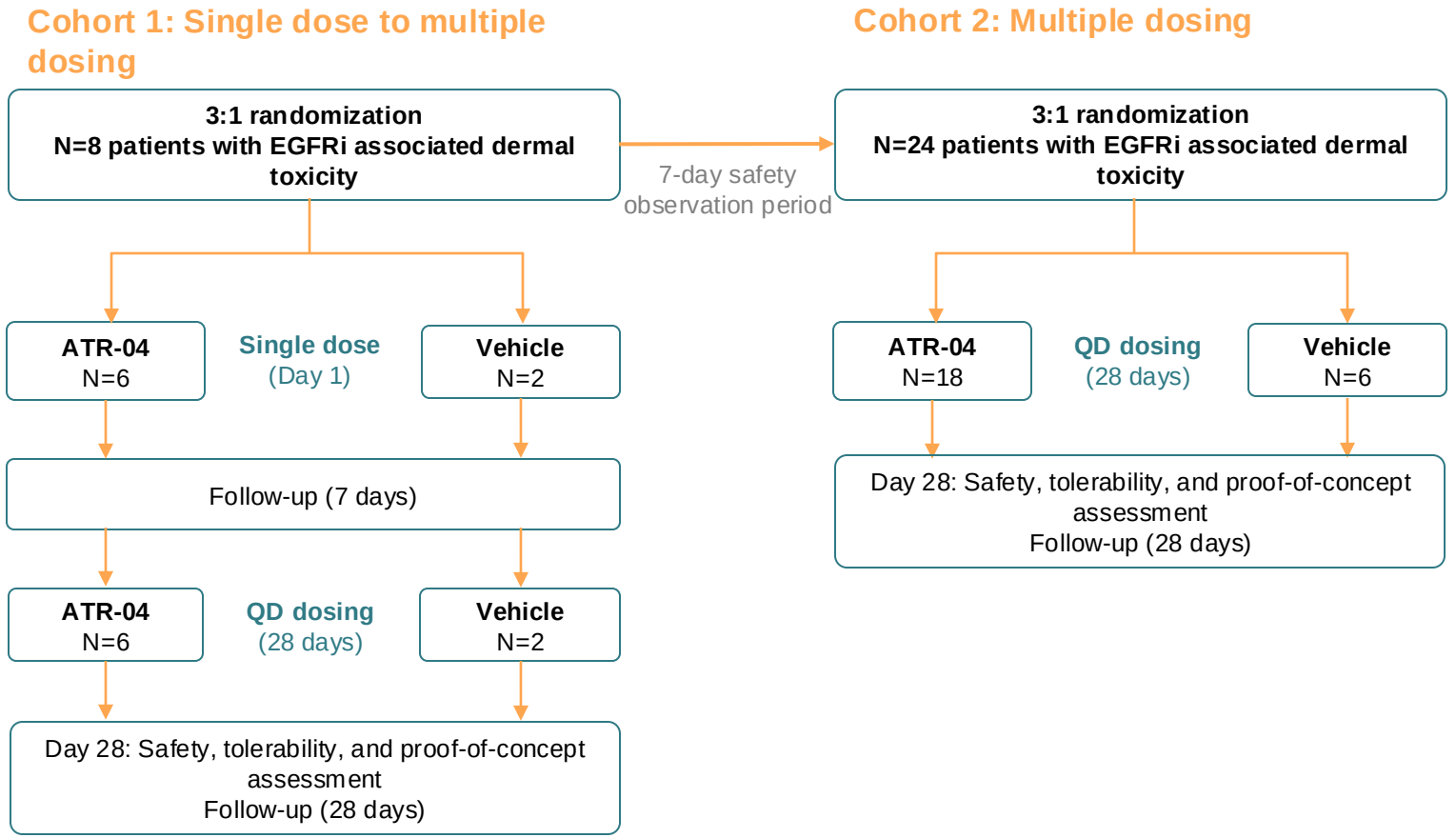
- ✓ IL-36γ is elevated in reconstructed human epidermis following erlotinib exposure
- ✓ ATR-04 reduces IL-36γ induced by erlotinib and reduces *S. aureus*
- ✓ Dose-dependent effect observed

Phase 1/2 clinical trial design: IND cleared August 2024

Study overview

- Multicenter, randomized, double-blind, vehicle-controlled study in adults (n=32) with EGFRi associated dermal toxicity
  - Dose level: 10^9 CFU / g ATR-04
  - Cohort 1 (n=8): single dose leading to multiple dose for 28 days
  - Cohort 2 (n=24): multiple dose cohort for 28 days
- Primary objective: to assess the safety and tolerability of topical application of ATR-04
- Secondary objectives:
  - Evaluate efficacy signals (modified CTCAE, pruritus, and pain)
  - Bioavailability of ATR-04
- Exploratory objectives:
  - Evaluate PD parameters, including IL-36γ
  - Quality of life questionnaire

Design



Future Directions

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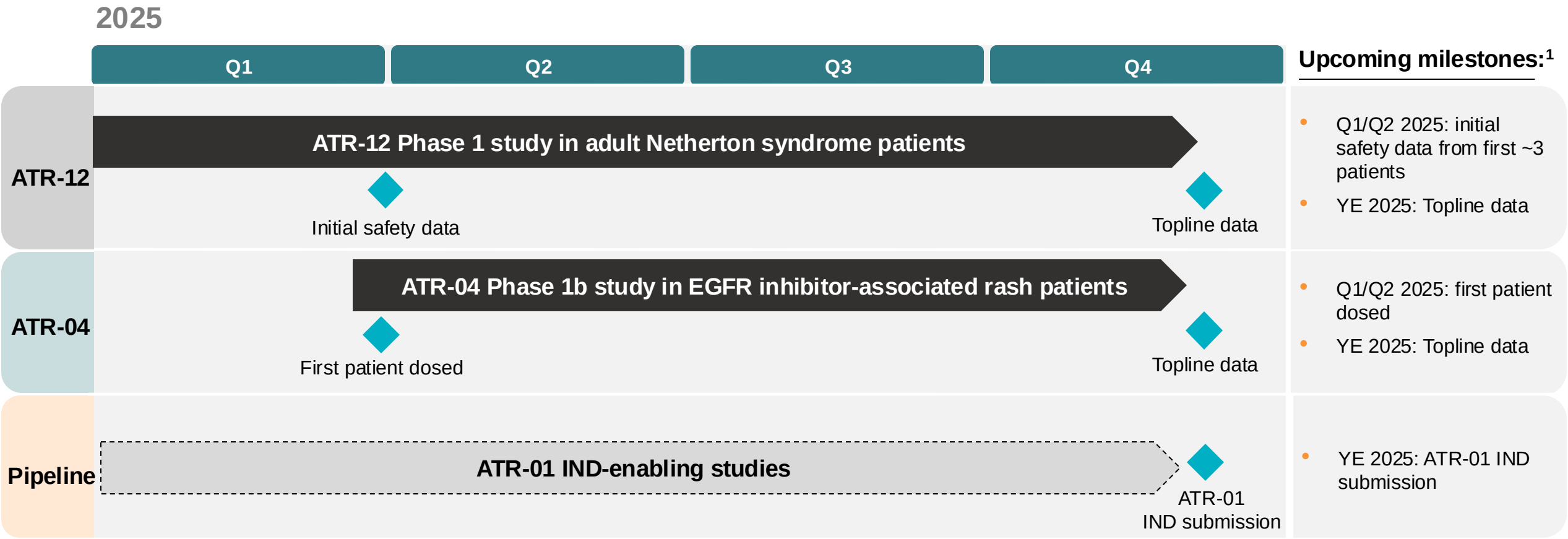
ATR-12 and ATR-04 bring value-creating milestones in 2025



Upcoming milestones:[1]

- Q1/Q2 2025: initial safety data from first ~3 patients
- YE 2025: Topline data

- Q1/Q2 2025: first patient dosed
- YE 2025: Topline data

- YE 2025: ATR-01 IND submission

[1] Upcoming milestones are estimates.

Robust intellectual property with key patents issued

5 issued US patents | **14** pending US patent applications | **58** pending international patent applications

2038
***Treating skin disease with recombinant organisms**
**Issued*

2038
Treatment of skin disease with recombinant commensal skin microorganisms
Pending

2038
***Auxotrophic strains of Staphylococcus bacteria**
**Issued*

2038
Filaggrin subunits for treatment of eczema and ichthyosis vulgaris
**Issued*

2039
LEKTI for Pruritis, Pain, Inflammation
Pending

Formulations for stabilizing microbiome products
Pending

2034
***Treating atopic dermatitis with recombinant organisms**
**Issued*

2038
Treating inflammatory skin disease with recombinant organisms
Pending

2038
Commensal bacteria to treat cancer associated rash
Pending

2038
Cosmetic compositions with engineered bacteria
Pending

2038
Treatment of Netherton syndrome with LEKTI expressing microbes
Pending

2039
LEKTI for treating skin cancer
Pending

Investment Highlights

Azitra well-positioned to take advantage of synthetic biology innovations

Established platforms for precision dermatology

- ✓ Poised to generate clinical patient data with 2 cleared INDs
- ✓ Established manufacturing and formulation systems
- ✓ Orphan dermatology indications

Partnerships to expand the pipeline

- ✓ Partnerships with top-tier academic institutions
- ✓ Collaborations allow for pipeline expansion

Strong business foundation

- ✓ $62 million invested to date, including Bayer
- ✓ Comprehensive intellectual property
- ✓ Management team with history of multiple approved drugs and successful exits
- ✓ Multiple shots on goal for 2025

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THANK YOU

Precision dermatology powered by synthetic biology.

APPENDIX

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Azitra is led by world-class management team

Francisco Salva, MSc.
President and CEO

- Prior Co-Founder and VP of Operations at Acerta Pharma – Sold for $6.3 billion
- Formerly Senior Director –Corporate Development at Pharmacyclics
- 25+ years experience in life science venture capital, investment banking and operating roles

Travis Whitfill, M.P.H.
Co-Founder and COO

- Prior Partner at Bios Partners, a venture capital fund with $350M+ assets under management
- Assistant Professor Adjunct in the Department of Pediatrics at Yale University
- Named one of Forbes' 30 Under 30 in healthcare in 2018

Norman Staskey, CPA
CFO

- Currently Acting CFO via Danforth Advisors
- Previously, Managing Director E&Y
- 20+ years accounting experience, including multiple IPO, SPAC and M&A transactions

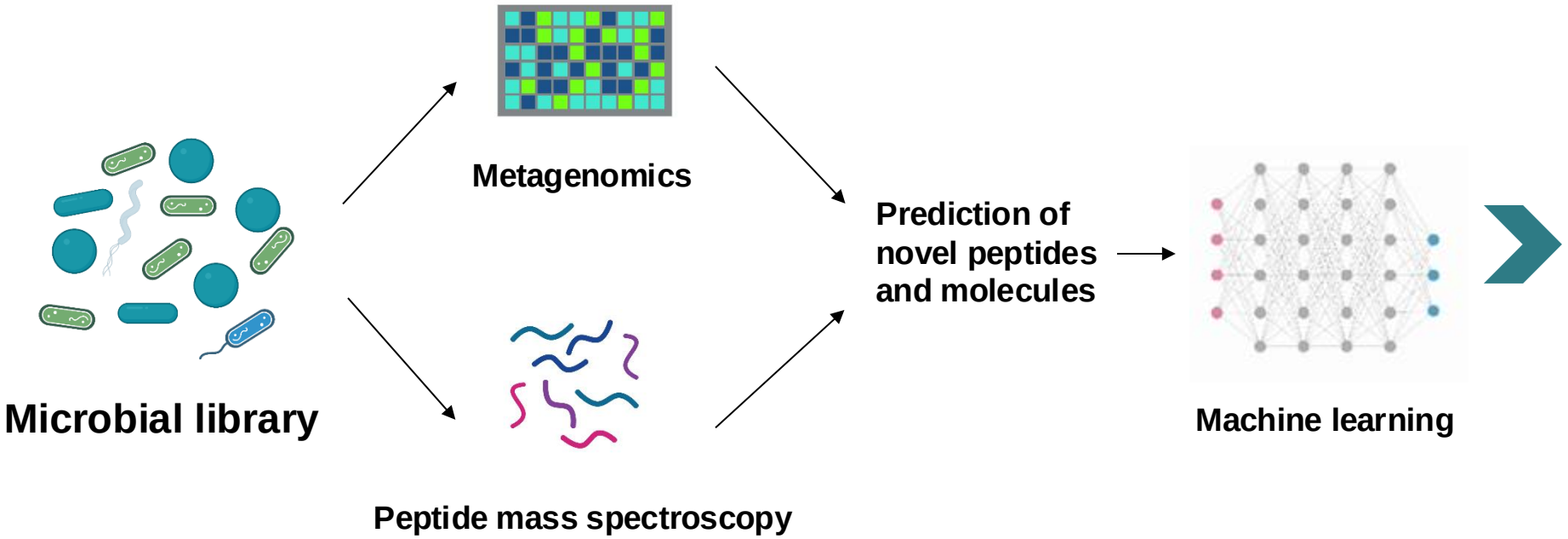
Mary Spellman, M.D.
Acting CMO

- Prior CMO of Revance Therapeutics, Menlo Therapeutics, and Castle Creek Biosciences
- Previously Scientific Director at Biogen and Novartis
- 30+ years of dermatology and broad industry experience, including 10+ NDAs

Leonard Milstone, M.D.
Professor Emeritus of Dermatology
Yale School of Medicine
Azitra Scientific Advisory Board

- Led the group that first demonstrated gene editing in the epidermis
- Discovered the unique proteoglycan Epican as well as keratins 4 and 13
- Former Chair, Medical and Scientific Advisory Board, Foundation for Ichthyosis and Related Skin Types

Machine learning for novel drug discovery



AI/ML-driven drug discovery benefits:

- ✓ Expand possible universe of possible drug candidates
- ✓ Expand knowledge of function of skin bacteria
- ✓ Combine with phenotypic screens for accelerated target discovery and validation
- ✓ Potential to cut 1-3 years off the discovery stage into clinical testing

Bayer consumer health product joint development partnership

- ✓ Long-established expertise in dermatology and consumer skin health
- ✓ Global brand recognition
- ✓ Formulation, marketing and regulatory expertise

- ✓ Deep expertise, broadly applicable platform, and 1,500+ proprietary *S. epidermidis* strains
- ✓ Translational leader in dermatology and *S. epidermidis* biology
- ✓ Key academic and clinical collaborator network

Build a leading, world-class consumer care product line

Joint Development Agreement overview:

- ✓ Joint development on *S. epidermidis* strains and products for eczema-prone skin
- ✓ Azitra is responsible for early research, and Bayer is responsible for clinical development and commercialization

ATR-12 is a differentiated approach for Netherton syndrome

	Company	Asset	Description	Status	Topical treatment	Protein replacement	Disease Modifying
Kallikrein inhibitors	azitra	ATR-12	*S. epidermidis* strain expressing LEKTI; topical	Phase 1	✓	✓	✓
	SIXERA PHARMA	SXR1096	KLK inhibitor; topical	Phase 1(EU)	✓	✗	–
	biocryst	BCX17725	LEKTI-2 variant.FC; subcutaneous injection	Preclinical	✗	✓	✓
Gene therapy	MoST	BBP-561	KLK5/7 inhibitor; topical	Preclinical	✓	✗	–
	Krystal	KB104	Gene therapy; topical	Preclinical	✓	✗	✓
	Daiichi-Sankyo	DS-2324a	Gene therapy; IV/subcutaneous injection	Phase 1 (EU)	✓	✗	✓
Other	QUOIN PHARMACEUTICALS	QRX-003	Protease inhibitor; topical	Phase 2/3	✓	✗	–
	Boehringer Ingelheim	Spesolimab	IL-36R antibody; injection	Phase 2	✗	✗	–
	AnaptysBio	ANB019[1]	IL-36R antibody; injection	Phase 2	✗	✗	–
	MatriSys BIOSCIENCE	MSB-6005	Skin microbiome therapy; topical	Preclinical	✓	✗	✗
	Investigator- initiated trial	Cosentyx[1]	IL-17A antibody; subcutaneous injection	Phase 2	✗	✗	✗

[1] Under investigation for broader category of ichthyoses.

ATR-04 is a differentiated approach for EGFRi-related skin toxicities

	Company	Asset	Description	Status	Topical treatment	Disease modifying	IL-36γ targeted	Notes
US-based	azitra	ATR-04	Epidermin-secreting *S. epidermidis* auxotrophic strain; anti-*S. aureus* and anti-IL-36γ; topical	IND-enabling	☑	☑	☑	IND submission planned summer 2024
	LUTRIS	LUT-014	B-Raf inhibitor; topical	Phase 2	☑	☑		Phase 1 showed effect but did not reach statistical significance
	HOTHTHERAPEUTICS	HT-001	Immune cell inhibitor; topical	Phase 2	☑			505(b)(2) pathway. No previous clinical data
Ex-US	twiB	AC-707	Antibiotic and anti-inflammatory; topical	Phase 2	☑			No updated Phase 2 data since trial completion in 2021
	DAEWOONG	DWP708	Human HGF spray; topical	Phase 2 (Korea)	☑			Korean IND cleared in 2022
	GENOME&CO	GEN-501	Microbiome-based therapy	Preclinical	☑			Little information available