Abeona® THERAPEUTICS

INVESTOR PRESENTATION

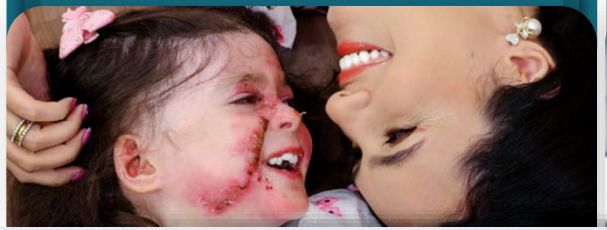
June 2026

Forward-Looking Statements

This presentation contains certain statements that are forward-looking within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and that involve risks and uncertainties. We have attempted to identify forward-looking statements by such terminology as “may,” “will,” “believe,” “anticipate,” “expect,” “intend,” “potential,” and similar words and expressions (as well as other words or expressions referencing future events, conditions or circumstances), which constitute and are intended to identify forward-looking statements. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, numerous risks and uncertainties, including but not limited to, our ability to successfully commercialize and market ZEVASKYN, including manufacturing sufficient batches of ZEVASKYN to meet demand; the therapeutic potential of ZEVASKYN; whether the unmet need and market opportunity for ZEVASKYN are consistent with the Company’s expectations; continued interest in our portfolio; our ability to submit an investigational new drug application for ABO-701 and enroll patients in clinical trials; the outcome of future meetings with and inspections by the FDA or other regulatory agencies, including those relating to preclinical programs and to the cGMP manufacturing of ZEVASKYN; the ability to achieve or obtain necessary regulatory approvals for our pre-clinical programs; our ability to execute on our key business priorities; the impact of any changes in the financial markets and global economic conditions, including those resulting from changes to U.S. or other countries’ trade policy, such as current or future tariffs; risks associated with data analysis and reporting; and other risks disclosed in the Company’s most recent Annual Report on Form 10-K and subsequent periodic reports filed with the Securities and Exchange Commission. The Company undertakes no obligation to revise these forward-looking statements or to update them to reflect events or circumstances occurring after the date of this presentation, whether as a result of new information, future developments or otherwise, except as required by the federal securities laws.

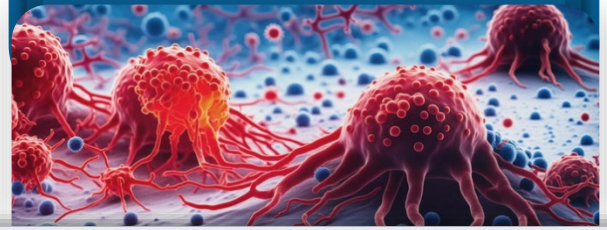
Abeona, a Commercial-Stage, Cell and Gene Therapy Company

Anchored by ZEVASKYN®, an FDA-approved, ex-vivo autologous gene therapy for RDEB with durable clinical benefit from a **one-time application.**



Combination of **in-house cGMP manufacturing, regulatory expertise**, and a **lean commercial model**.

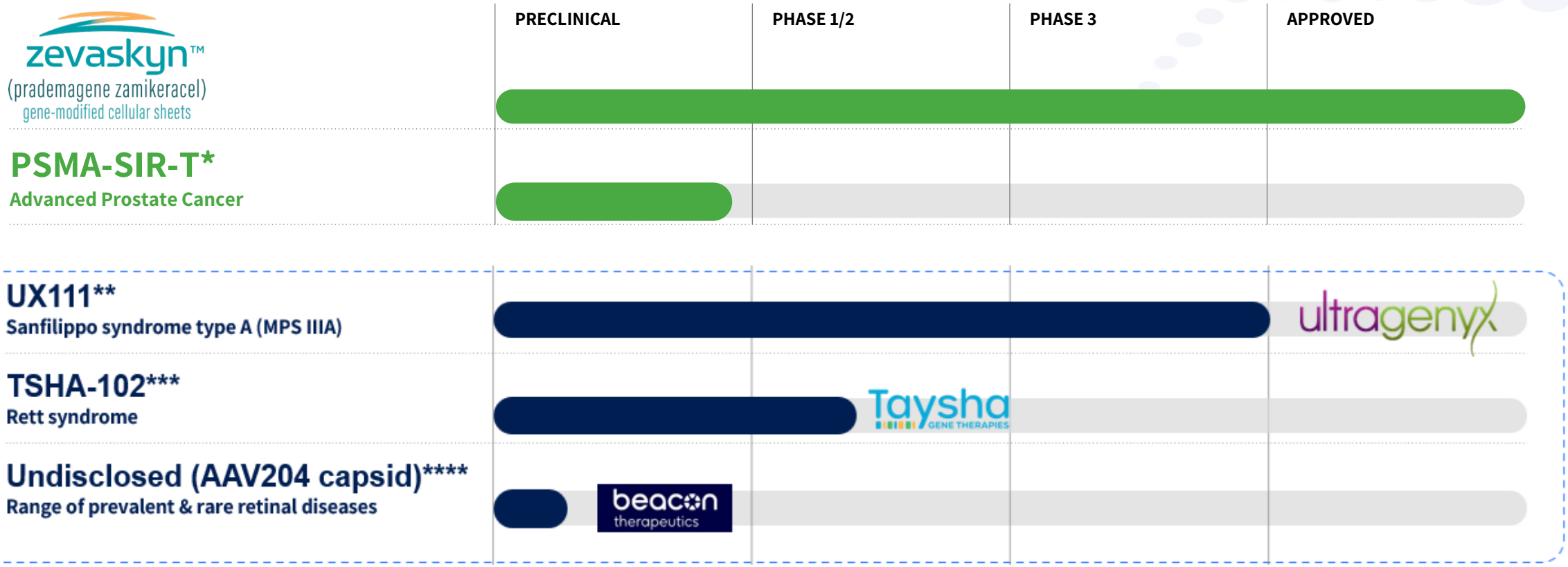
With **expansion into solid tumor oncology with ABO-701 and partnered assets**, Abeona is positioned for disciplined, value-driven growth.



Experienced leadership team with decades of experience in cell and gene therapy development and commercialization.

$168.3M in cash, cash equivalents and short-term investments as of March 31, 2026

Pipeline



* Transaction was completed in Q1 26
Partnered with *Ultragenyx Pharmaceutical Inc, ***Taysha Gene Therapies, Inc, ** Beacon Therapeutics.

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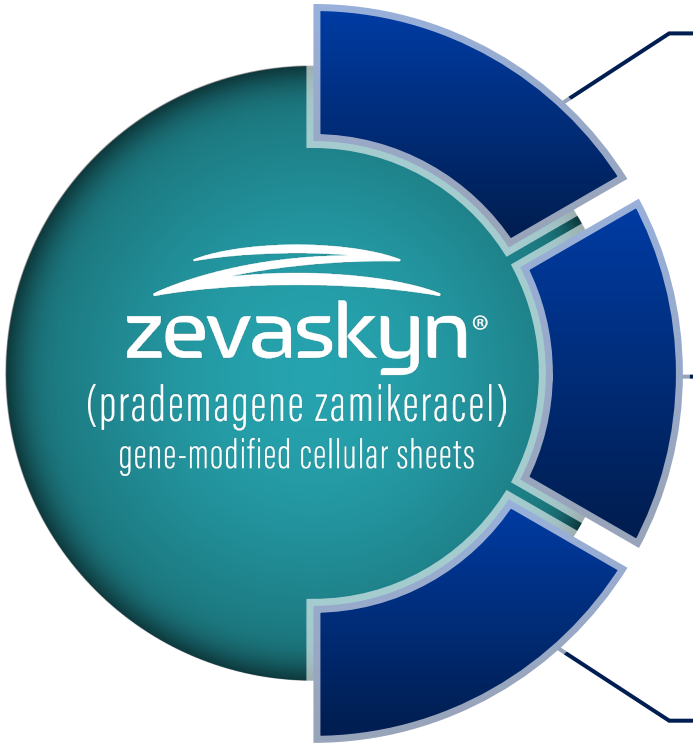
ZEVASKYN® for Recessive Dystrophic Epidermolysis Bullosa (RDEB)



Differentiated profile with transformational potential

- Demonstrated wound healing and pain reduction
- Sustained clinical benefit and no treatment-related serious AEs over 12 years of follow-up

Commercial asset

- Launch momentum for ZEVASKYN® continues to build
- 6 activated Qualified Treatment Centers (QTCs) and growing
- Published coverage policies now in place for 95% of commercially insured U.S. lives

Substantial revenue potential and profitable business model expected

- Annual >$250M US revenue potential with $4B cumulative
- End-to-end manufacturing and quality testing capabilities in-house in Cleveland, OH for both retroviral vector and drug product

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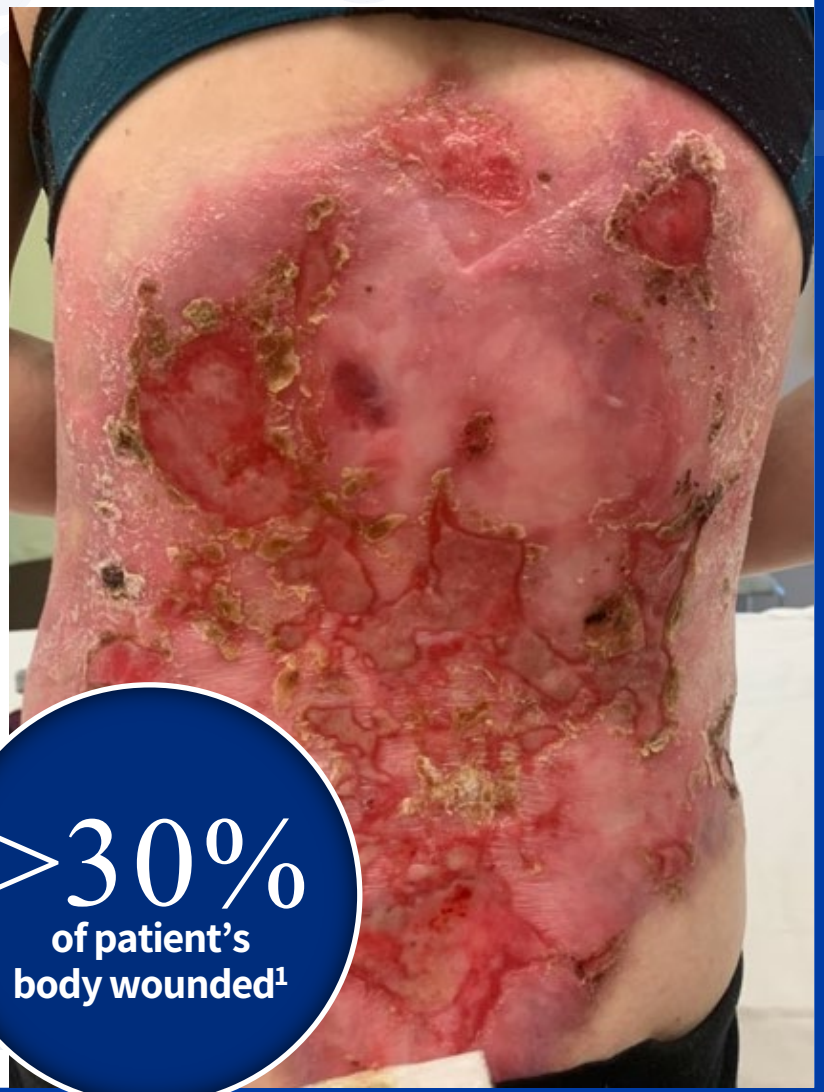
Recessive Dystrophic Epidermolysis Bullosa (RDEB) Overview

- Rare and debilitating monogenic skin disease
- Caused by mutations in both copies of *COL7A1* gene, resulting in lack of collagen VII, a protein necessary to keep skin intact
- Leads to fragile skin that blisters easily
- RDEB wounds can lead to serious life-threatening complications
  - Patients suffer from years of large painful wounds, itch and infection
  - High risk of squamous cell carcinoma (SCC)[2], systemic infection and sepsis
  - 76% likelihood of death by age 40[3]
- Lifelong burden on patients and caregivers



RDEB
TREATMENT GOALS

- **Provide multi-year durable wound healing**
- **Provide long-term pain and itch relief**
- **Reduce risk of SCC**

>30%
of patient's body wounded[1]

1 Bruckner, et al. Orphanet J Rare Dis. 2020 Jan 3;15(1):1.;
2 South, et al. J Invest Dermatol. 2023 Nov;143(11):2108-2119.;
3 Tang, et al. Orphanet J Rare Dis. 2021 Apr 13;16(1):175.

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First and Only Gene Therapy Made From Patients' Own Skin Cells to Treat Wounds in Children and Adults with RDEB

zevaskyn®
(prademagene zamikeracel)
gene-modified cellular sheets

- **Single treatment application**
- **Covers large wound areas**
- **Provides years of healing & pain relief**

Geovanna, a ZEVASKYN™ patient at age 8

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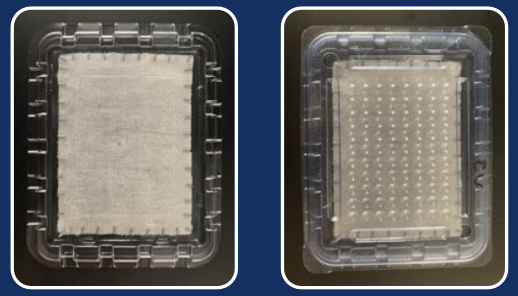
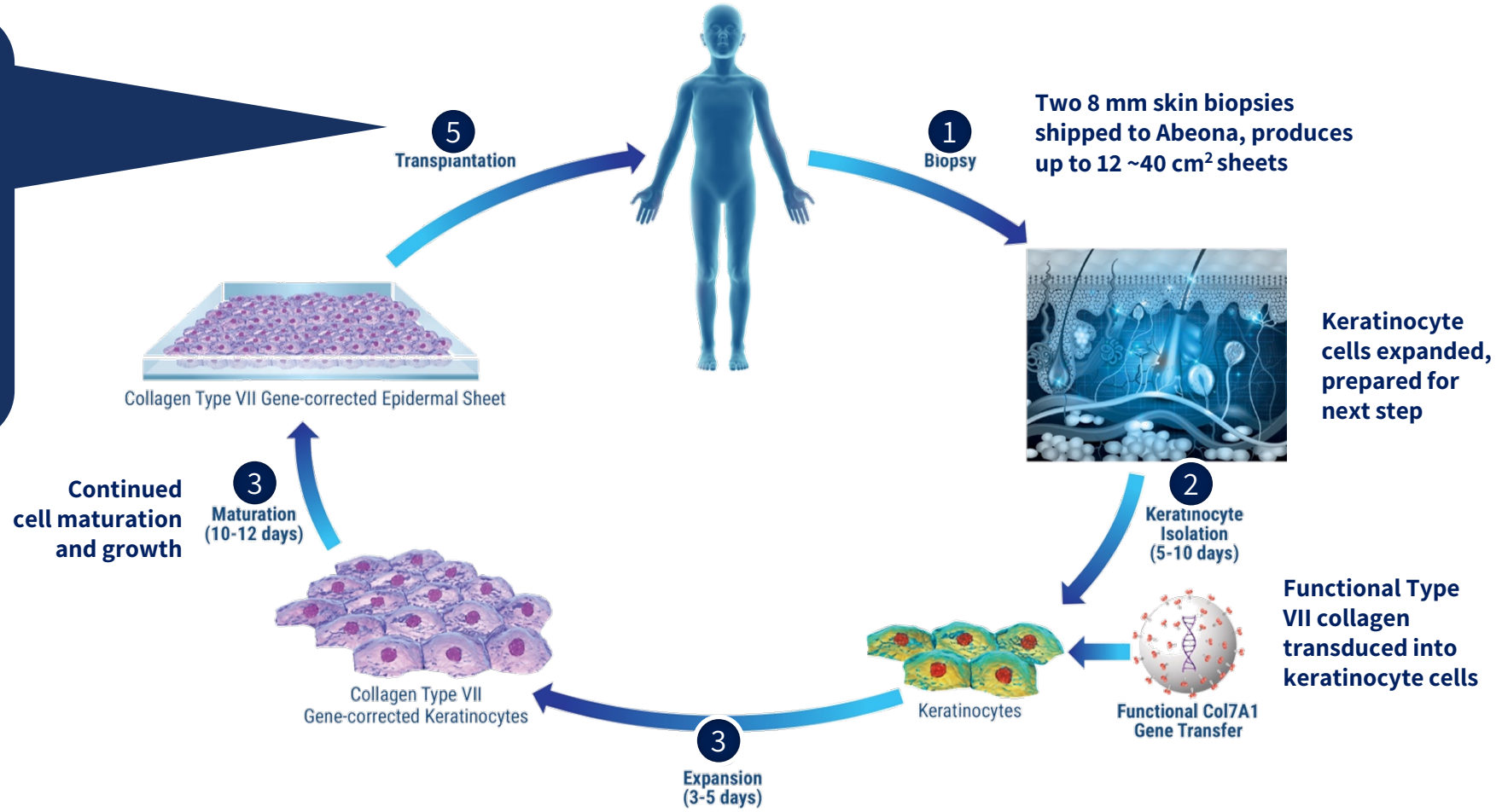
ZEVASKYN®: *Ex-Vivo* Autologous Gene-Corrected Breakthrough Therapy for Large and Chronic Wounds

ZEVASKYN
READY FOR PATIENTS



ZEVASKYN Restores Functional Collagen VII to Keratinocytes and Their Progenitors

- Personalized Treatment
- 2 Skin Biopsies = Up to 12 Sheets = 480 cm^2



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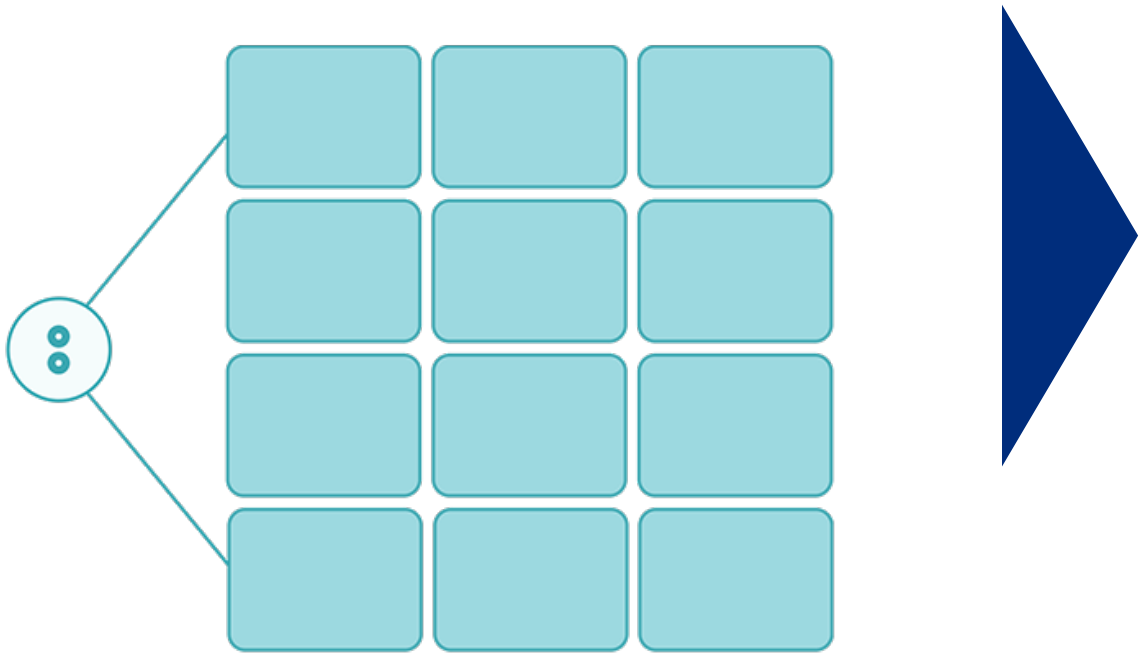
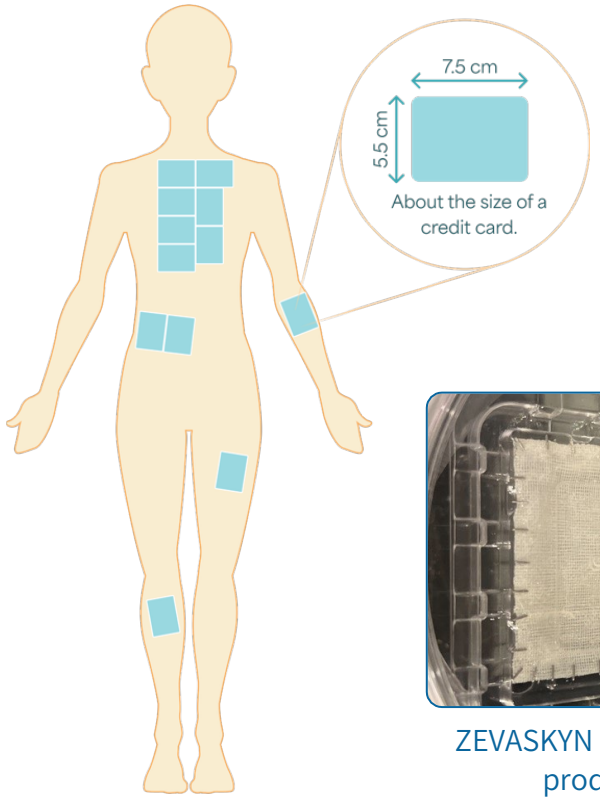
Up to 12 ZEVASKYN® Sheets Can Be Applied in One Surgical Session

Two 0.8 cm punch biopsies → **up to 12 ZEVASKYN® sheets**



ZEVASKYN sheets can be **joined together to treat larger wounds** on your front, back, or sides, or used **individually for smaller wounds**



ZEVASKYN cellular sheet production

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ZEVASKYN® Cumulative Clinical Trials Experience

Durable wound healing and reduction in pain and itch

- **Wound healing and reduction of pain and itch** seen with treatment, even in tough large, chronic RDEB wounds
- Sustained wound healing and long-term safety

Favorable long-term safety profile

- **No serious adverse events (SAEs)** related to ZEVASKYN (most common AE was pain related to surgery)[1,2]
- **No squamous cell carcinoma** (SCC) at treated sites[1,2] with longest follow-up time of 11 years (occurrences in non-treated sites)[2]
- **No positive replication competent retrovirus** (RCR)[2]

Study	# Treated patients	# wounds treated
Phase 1/2a	7	42
Phase 3	11	57
Phase 3b	5	45
Total	**18[3]**	**144**

- Treated **multiple, different anatomical locations**, including anterior or lateral, posterior, extremities and trunk[2]
- Treated **large wound areas** (up to 240 cm^2)[1,2]

1. Phase 3 VIITAL study : 43 treated wounds vs matched control wounds in 11 patients with RDEB in a multicenter, randomized, intrapatient-controlled study.
2. Phase 1/2a study : 38 treated wounds in 7 patients with RDEB in an open-label, single-arm study.
3. 18 unique patients as all Ph3b patients are repeat patients from Phase3

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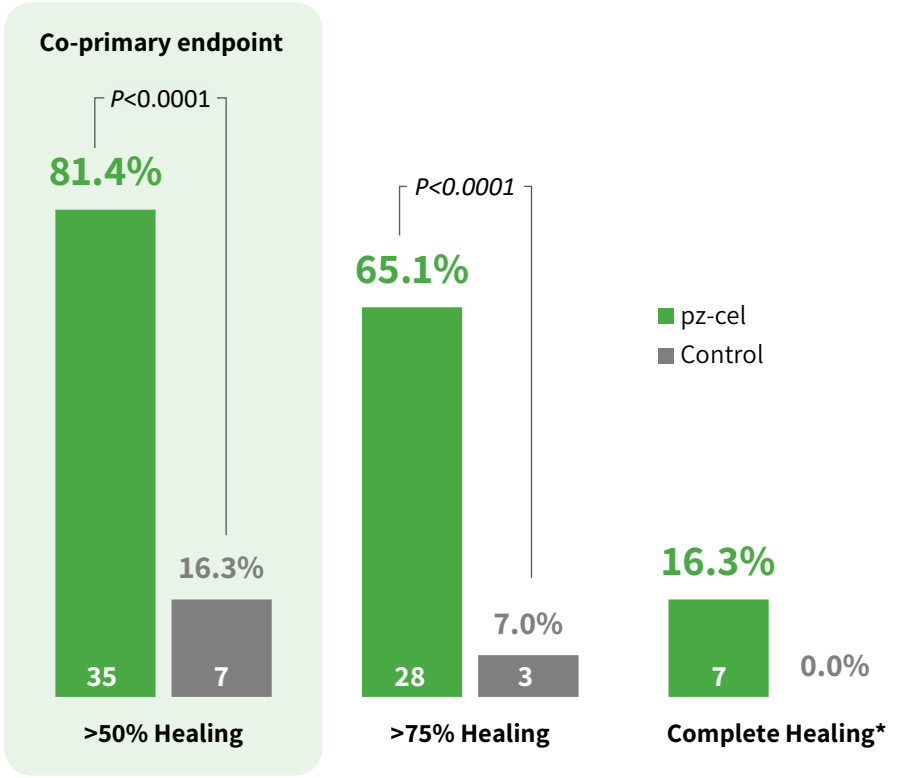
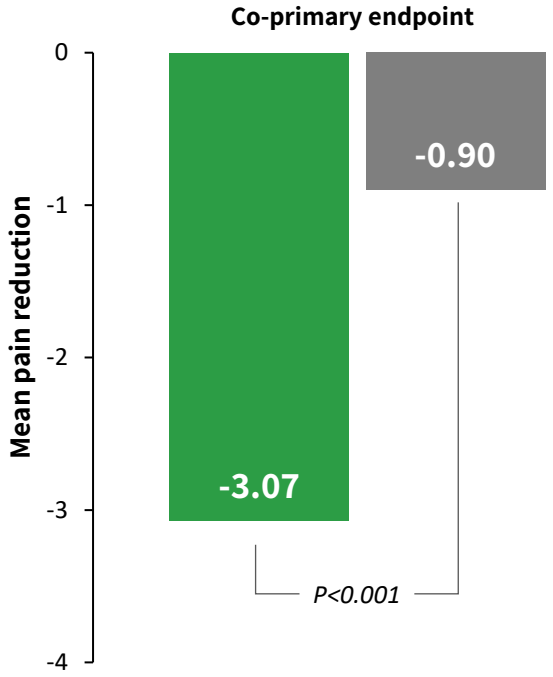
Significant Wound Healing and Reduction in Pain[1] Reported With ZEVASKYN®

Wound healing
from baseline at Week 24



N=	43	43	43	43	43	43

Pain reduction
from baseline at Week 24



N_1=	43	42

Phase 3 VIITAL study topline results:

- ZEVASKYN evaluated in 43 randomized large chronic wound pairs and 14 non-randomized wounds in 11 patients with RDEB
- Baseline wounds >20 cm^2, open for 5 years (median)
- Met both co-primary endpoints for wound healing and pain reduction at six months
- ZEVASKYN was well-tolerated with no serious treatment-related adverse events observed, consistent with past clinical experience

Healed wounds at Week 24 were confirmed ≥2 weeks later to be included. Complete wound healing defined as re-epithelialization with no drainage or erosion and presence of only minor crusting.
1. Pain assessed using Wong-Baker FACES rating scale (0-10). Pain reduction calculated as difference between baseline and postbaseline pain scores.
Abbreviations: N, number of total wounds with non-missing healing improvement category; N_1, total number of wounds with non-missing pain reduction score.

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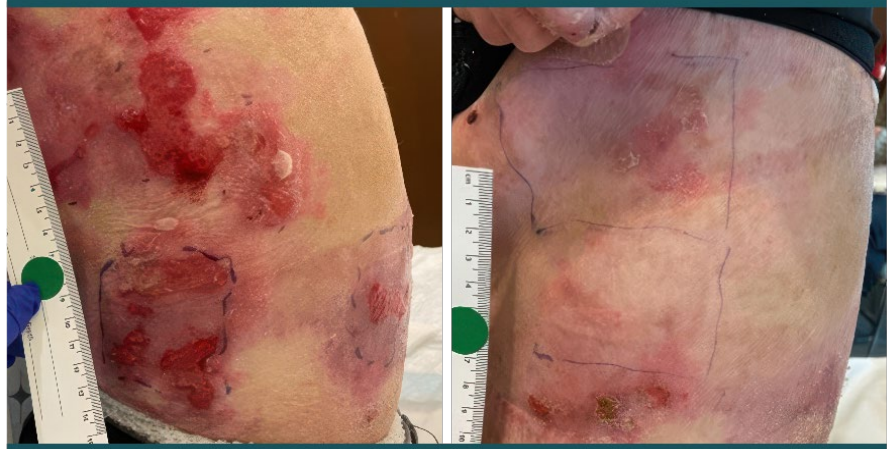
Example RDEB Wounds Before and After ZEVASKYN® Treatment

BEFORE AFTER ZEVASKYN

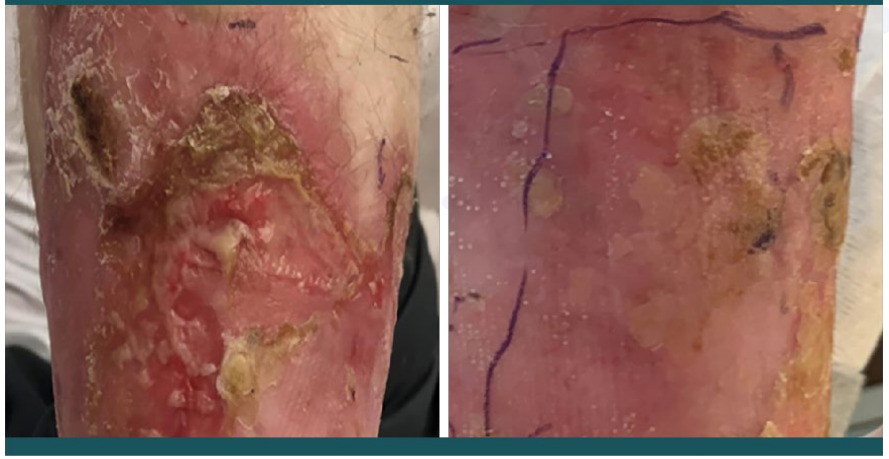
Left thigh

Left torso

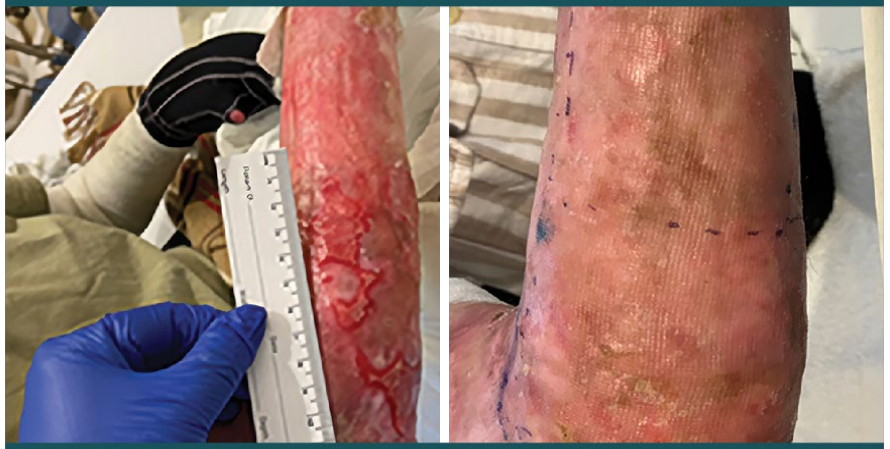


BEFORE AFTER ZEVASKYN

Left leg



Right arm



Source: Phase 3 VIITAL study patient; wounds scored as at least 75% healing at week 24; individual results vary
Wound healing scoring was Investigator-assessed per predefined criteria.

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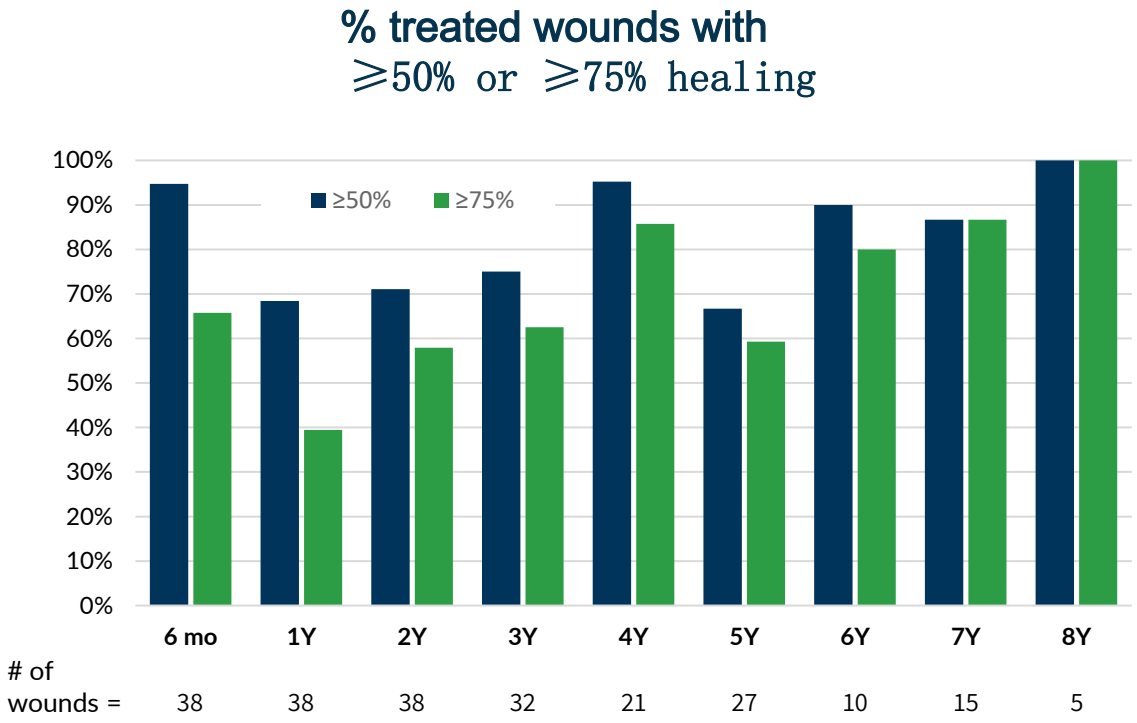
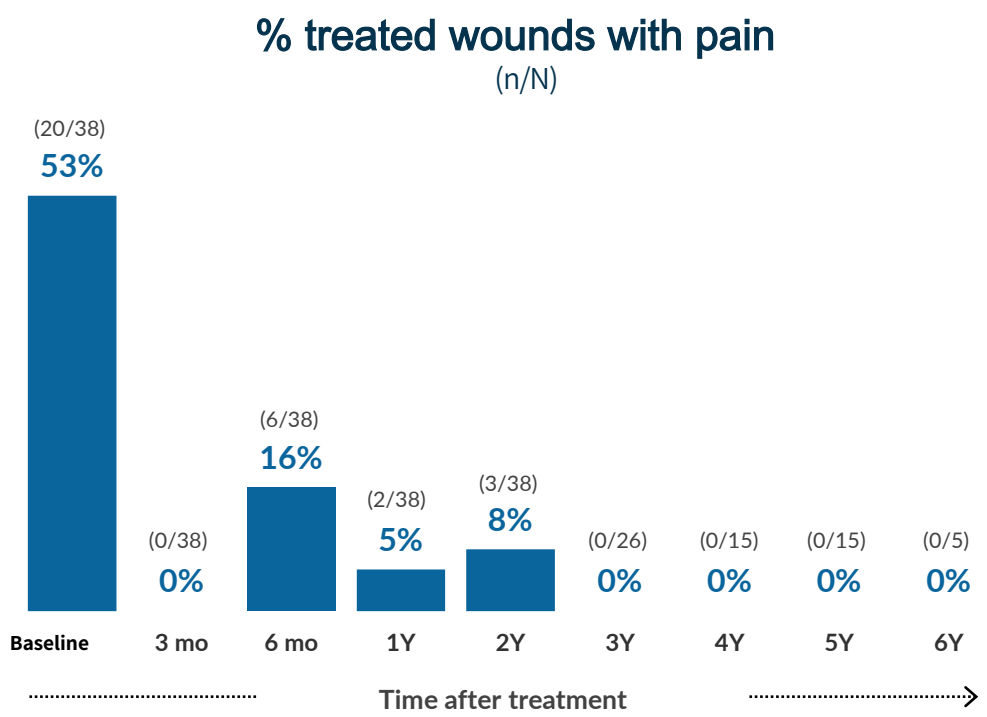
Multi-Year Wound Healing and Pain Reduction After Single Application of ZEVASKYN® in Phase 1/2a study





Phase 1/2a study key patient characteristics:

- Baseline wounds remained open for average of 11 years
- Average treated body surface area >100 cm^2

Source: So et al. Orphanet Journal of Rare Diseases (2022) 17:377

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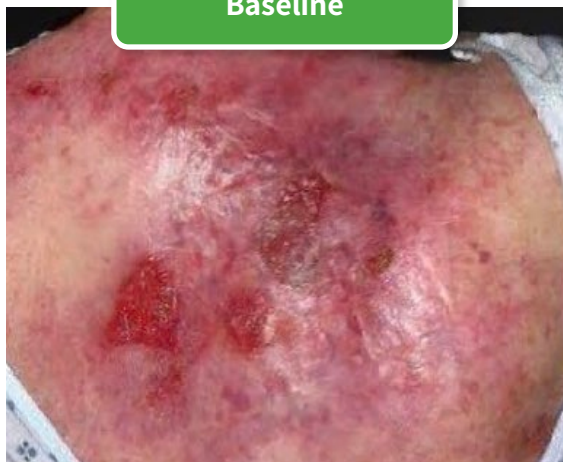
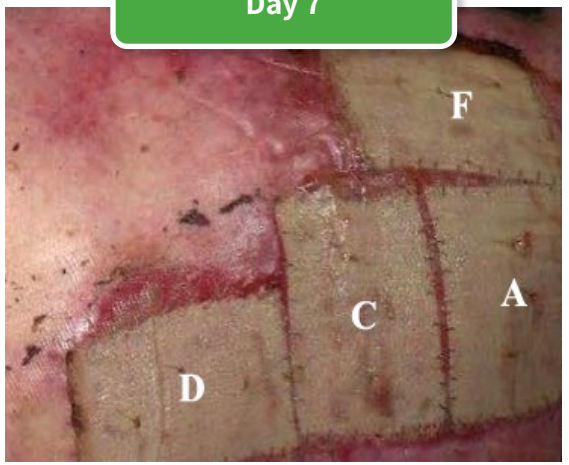
Multi-Year Wound Healing After One-Time Zevaskyn Application

Baseline



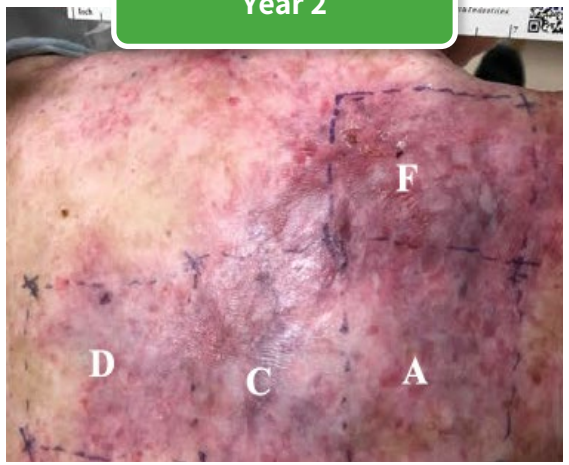
Upper back

Day 7



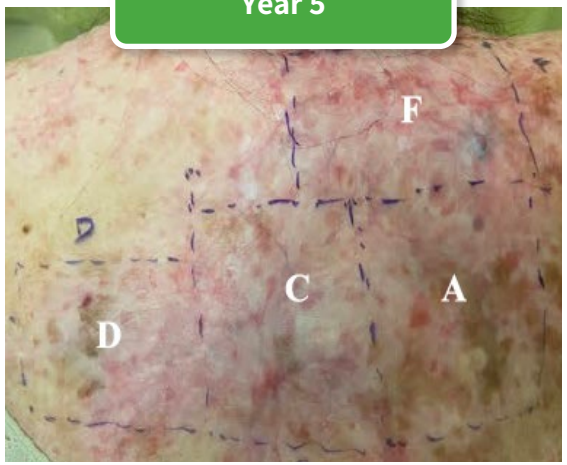
Upper back

Year 2



Upper back

Year 5



Upper back

Source: Phase 1/2a study patient (So et al. Orphanet Journal of Rare Diseases (2022) 17:377); individual results vary
Wound healing scoring was Investigator-assessed per predefined criteria.

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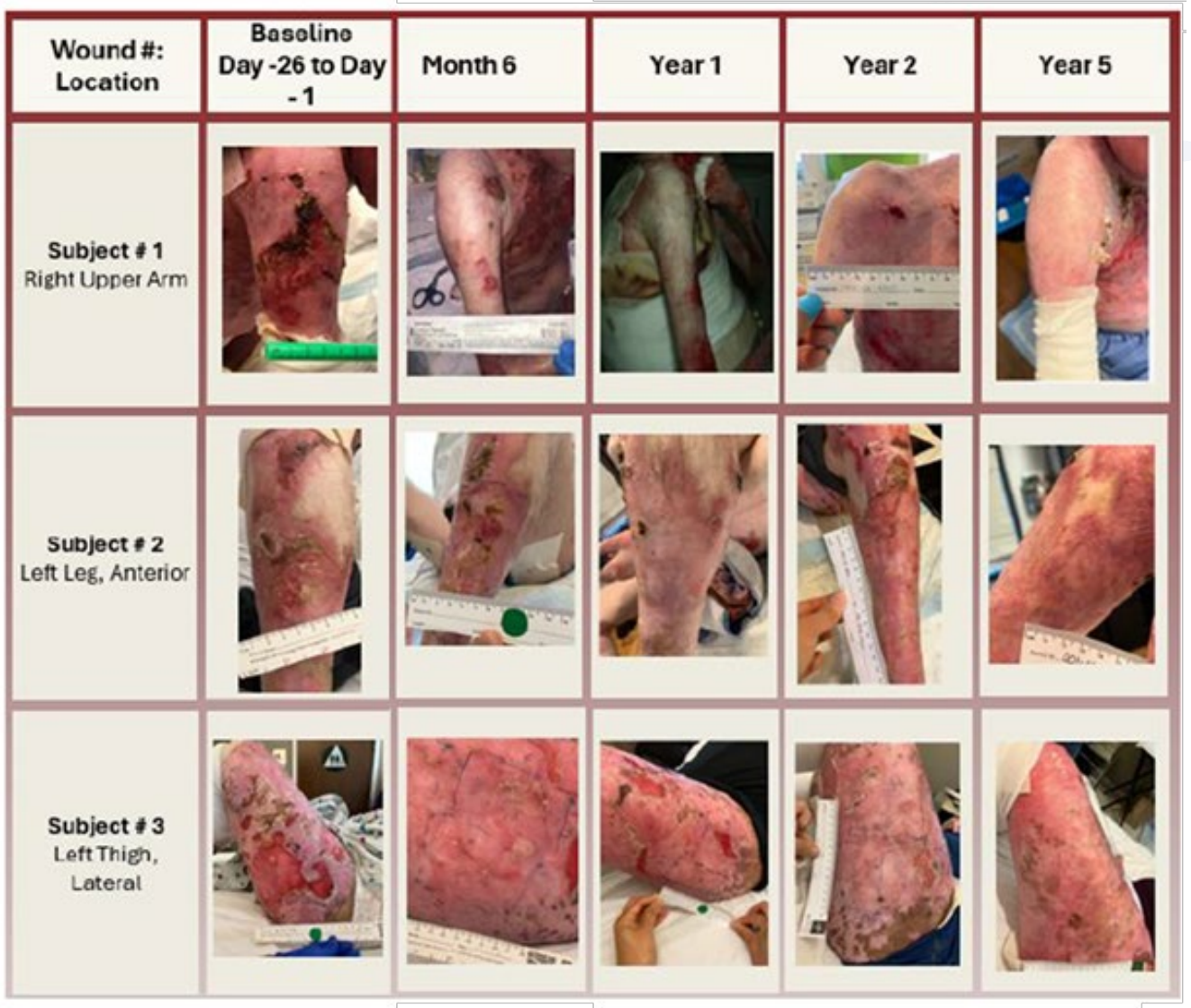
Presentation at SID2026 on Sustained Wound Healing and Long-term Safety: 12-year Case Report and 5-year Phase 3 Data (below) and 12-year Case Report



Individual results may vary

Eid E et al. "Sustained wound healing and long-term safety of prademagene zamikeracel in recessive dystrophic epidermolysis bullosa (RDEB): five-year results from the VIITAL™ phase 3 trial". Society for Investigative Dermatology (SID) 2026

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Significant US Commercial Opportunity for ZEVASKYN®

~1,300 US DEB patients[1];
~750 RDEB ZEVASKYN-eligible patients

Anticipate average **2 treatment cycles** per patient
to cover impacted body areas (**~1,500 treatment opportunities**)

$3.1M WAC per each treatment;
>$4B cumulative revenue opportunity in the US

Strong early payer coverage and reimbursement

Cash flow positive upon treating >3 patients per month*

1. Claims Analysis 2024
* Not including R&D spend on potential new pipeline programs

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Expanded QTC Network Enhances Patient Access

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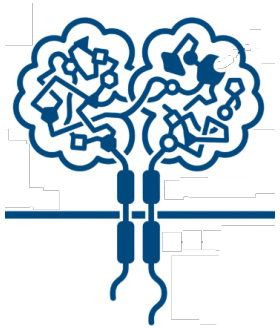
Leveraging Cell Therapy Core Competencies to Advance A Novel Pipeline

PSMA SIR-T™ for Advanced Prostate Cancer

PSMA SIR-T™ Has the Potential To Unlock Cell Therapy For Prostate Cancer Patients With A High Unmet Need



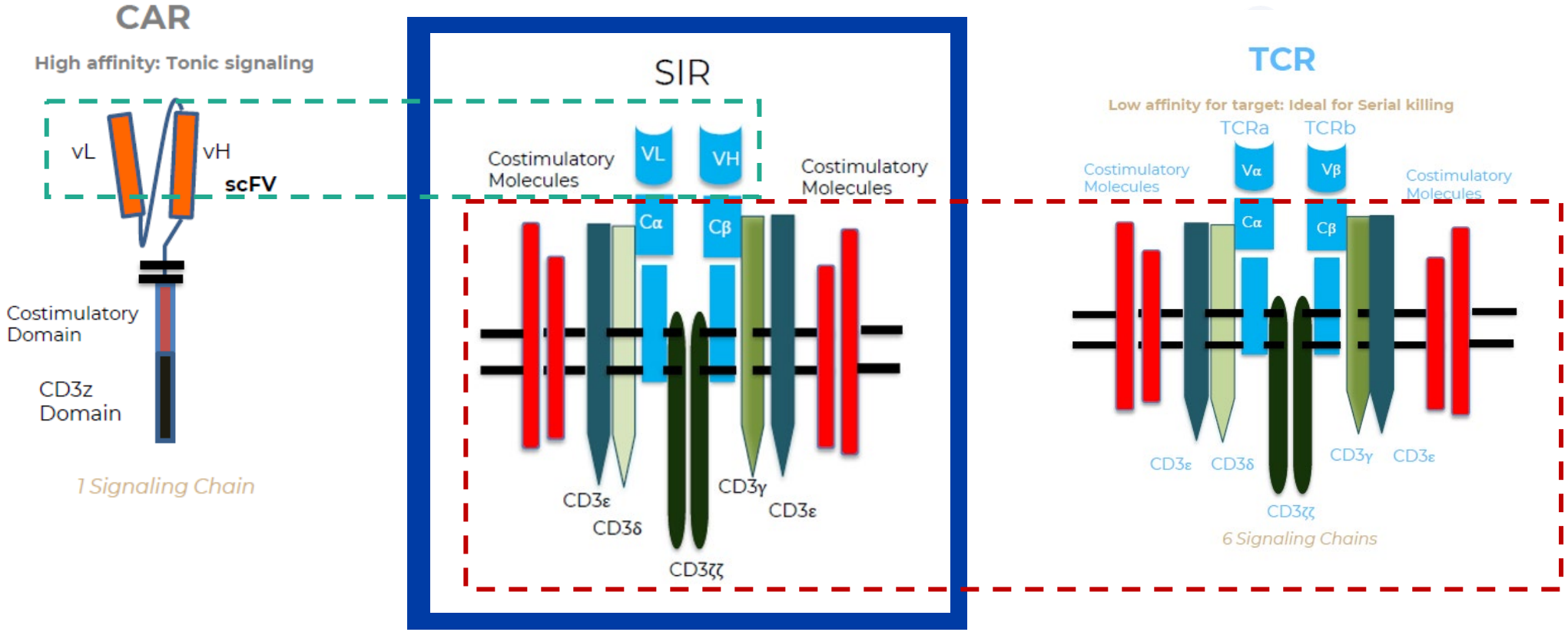
- PSMA is a validated target in prostate cancer, but CAR-Ts and other immunotherapies targeting PSMA have failed to deliver durable efficacy and acceptable safety profiles
- PSMA SIR-T™ is a radically novel engineered T-cell technology with the potential to unlock cell therapy in prostate cancer
- Global KOLs in prostate cancer are eager to participate in human trials with PSMA SIR-T™

- Advanced prostate cancer claims >30,000 lives in the US annually
- High mortality despite advances (e.g., combinations with androgen receptor pathway inhibitors and radioligand therapies)

Synthetic Immune Receptor Combines the Best of CAR and TCR

SIR-T™

- Designed to overcome the fundamental limitations of CARs
- Retains the full signaling strength, complexity, and physiological regulation of a TCR
- Exceptional in vivo responses vs. CAR T cells in preclinical models, with less inflammatory cytokine release



Click here to view a talk on SIR-T™ technology from its founder Preet M. Chaudhary, M.D., Ph.D.

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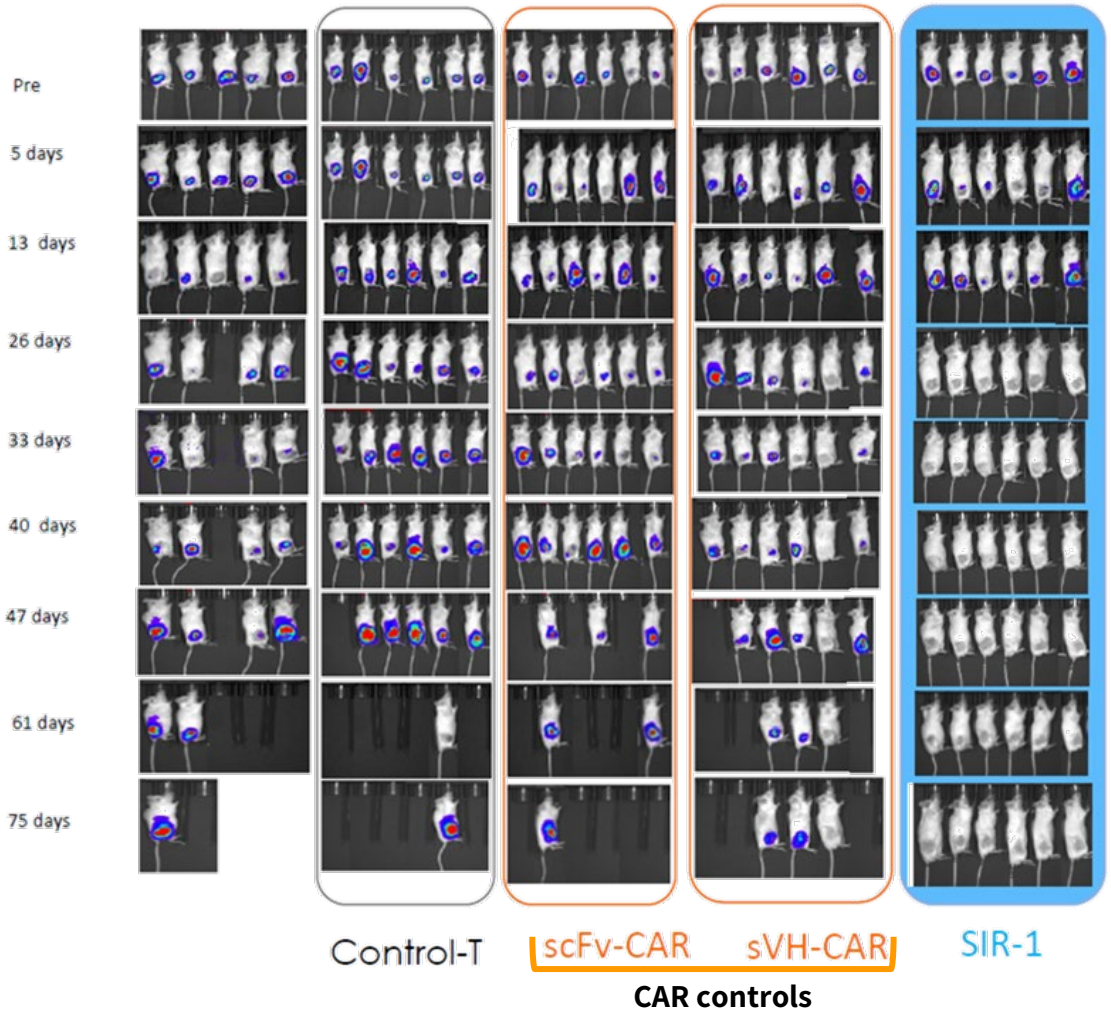
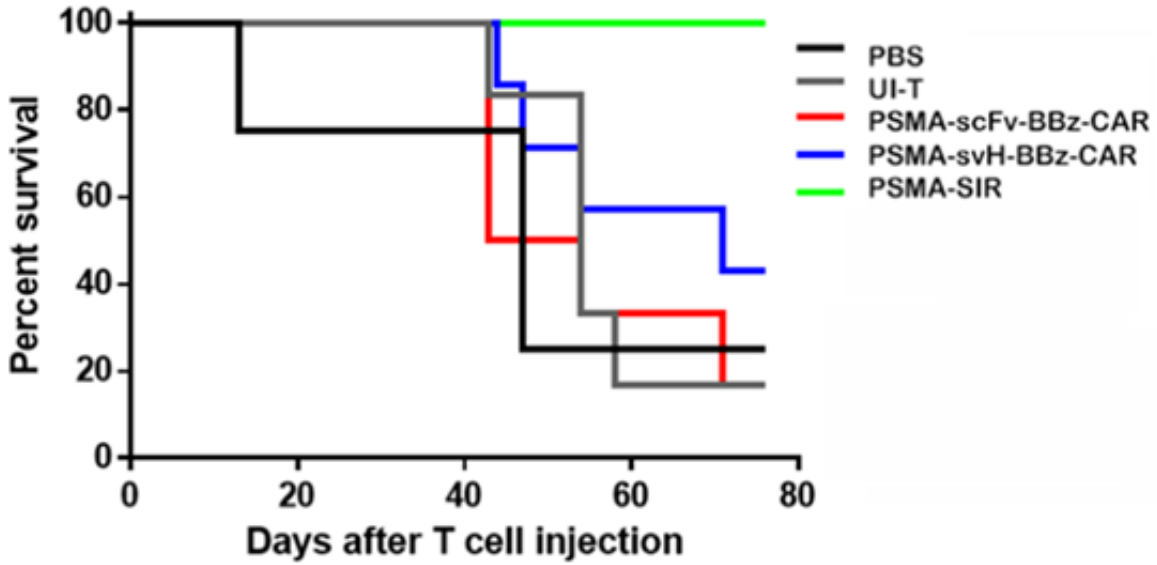
PSMA-SIR-T™ Demonstrated Better Tumor Remission and Durability Compared to CAR Controls with the Same PSMA Binding Domain





IND Submission & Phase 1 clinical trial initiation planned in 2H 2027

Preclinical data generated in prostate tumor-bearing mice.

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Anchored by ZEVASKYN® and Unique Capabilities to Commercialize Complex Genetic Medicines, Abeona is Poised to Break Out

Significant support of ZEVASKYN® from the RDEB community and commercial launch on positive trajectory

$8.7M* net product revenue Q1 2026, **an increase of $6.3M Quarter over Quarter**

Pipeline expansion into solid tumor oncology with PSMA program, a multi-billion-dollar opportunity