

WEBINAR

From Antiaging to Skin Longevity: The Science & Innovation Behind the Shift

22nd May 2025



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Nanovex-Indermal



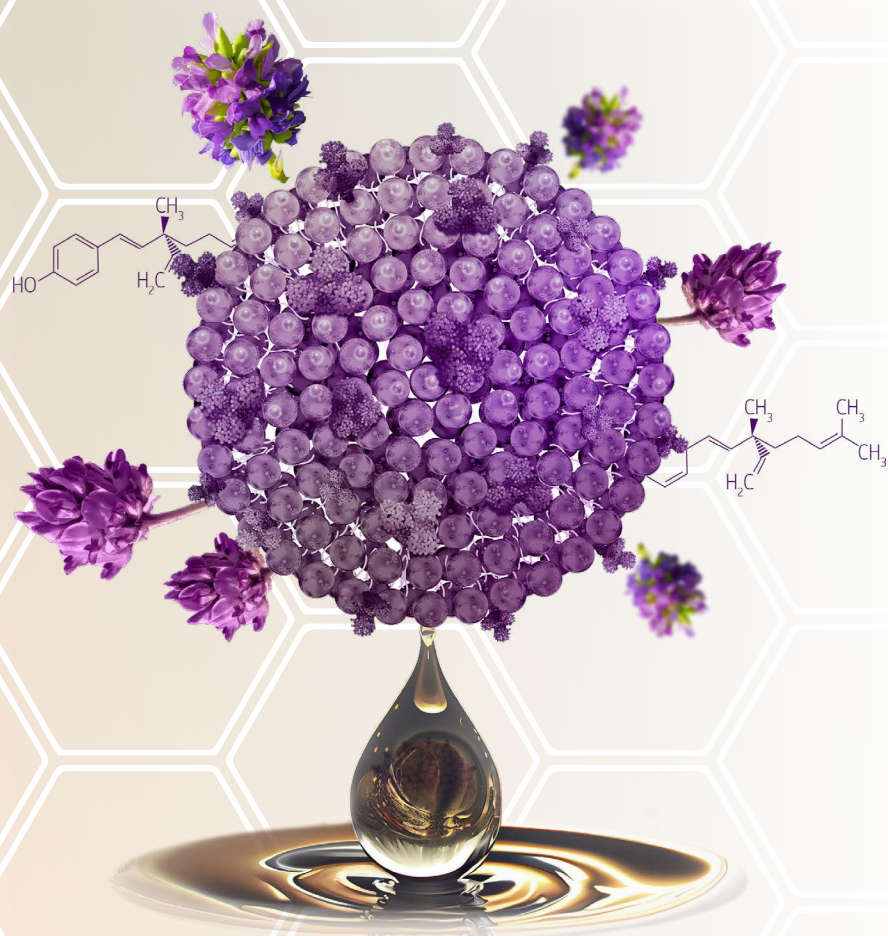
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Dermatologist at
CDI



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CEO at Nanovex -
Indermal

 **Indermal**
by Nanovex Biotechnologies

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The mindset behind the trend



2.



The biology behind the trend



3.



Turning the Trend into Strategy:
Formulation & Communication





1.

The mindset behind the trend



How familiar are you with the concept of Skin Longevity?



The Changing Narrative of Aging in Beauty

1990

2000

2010

2020

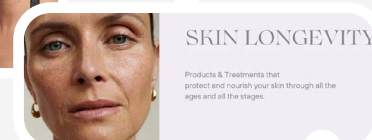
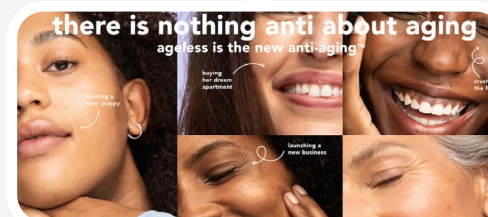
2030

Anti-ageing

Pro-ageing

Slow-ageing

Skin longevity



Antiaging vs. Skin Longevity: Two Different Philosophies

While both approaches address skin aging, they represent fundamentally different philosophies. One fixes the visible. The other protects the invisible.



Are you currently working on a product related to skin longevity?

Antiaging



Philosophy: Correct visible signs



Typical claims: “Erase wrinkles”, “Lifting effect”



Consumer mindset: “I want to fix what I see”



Focus: Immediate, visible results

Skin Longevity



Philosophy: Preserve skin functionality



Typical claims: “Support resilience”, “Strengthen your skin”

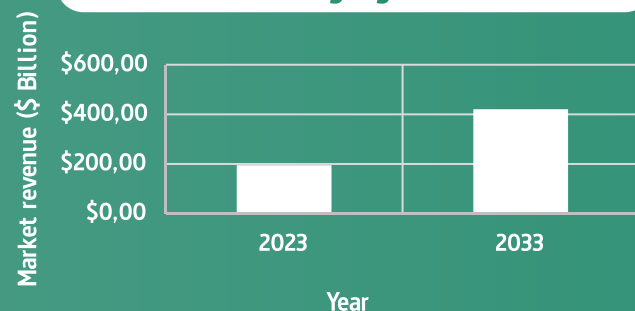


Consumer mindset: “I want my skin to stay strong and healthy for longer”



Focus: Long-term skin health

Growth of anti-aging skincare market



Driven by demand for holistic and preventive beauty solutions



67%

of consumers now prefer long-term skin health over instant results

(Source: Mintel, 2024)

Two complementary approaches to skin aging:

What each one targets—and how

Classical Anti-aging

Wrinkles/Loss of Firmness

Underlying processes:

- Collagen degradation
- Elastin breakdown
- Reduced fibroblast activity

Key ingredients:

- Retinol
- Vitamin C
- Firming peptides
- Bakuchiol
- Growth factors (e.g., EGF)

Pigmentation/Uneven skin tone

Underlying processes:

- Melanin overproduction
- Inflammation-induced hyperpigmentation

Key ingredients:

- Niacinamide
- Arbutin
- Vitamin C or derivatives
- Kojic acid
- Tranexamic acid

Texture / Skin Renewal

Underlying processes:

- Slower cell turnover
- Thickening of stratum corneum

Key ingredients:

- AHAs / BHAs
- Retinoids
- Enzymatic exfoliants (e.g., papain)



Skin longevity

Loss of resilience / Fragility

Underlying processes:

- Cellular senescence
- Chronic inflammation (inflammaging)
- Collagen fragmentation due to oxidation

Key ingredients:

- Biomimetic peptides
- Exosomes
- Adaptogens (e.g., ginseng, centella)
- Senolytics (fisetin, quercetin, resveratrol)

Dullness / Loss of radiance

Underlying processes:

- Oxidative stress
- Mitochondrial dysfunction
- Accumulation of damaged proteins (glycation)

Key ingredients:

- Ferulic acid
- CoQ10
- Glutathione
- Carnosine
- Polyphenols

Barrier weakness / Decreased regeneration

Underlying processes:

- Microbiome dysbiosis
- Disrupted skin barrier lipids
- Impaired methylation

Key ingredients:

- Prebiotics / Postbiotics
- Folic acid (spinach extract, methyl donors)
- Ceramides
- Hyaluronic acid
- Niacinamide (also supports barrier)



Check out our previous webinar on Hyperpigmentation

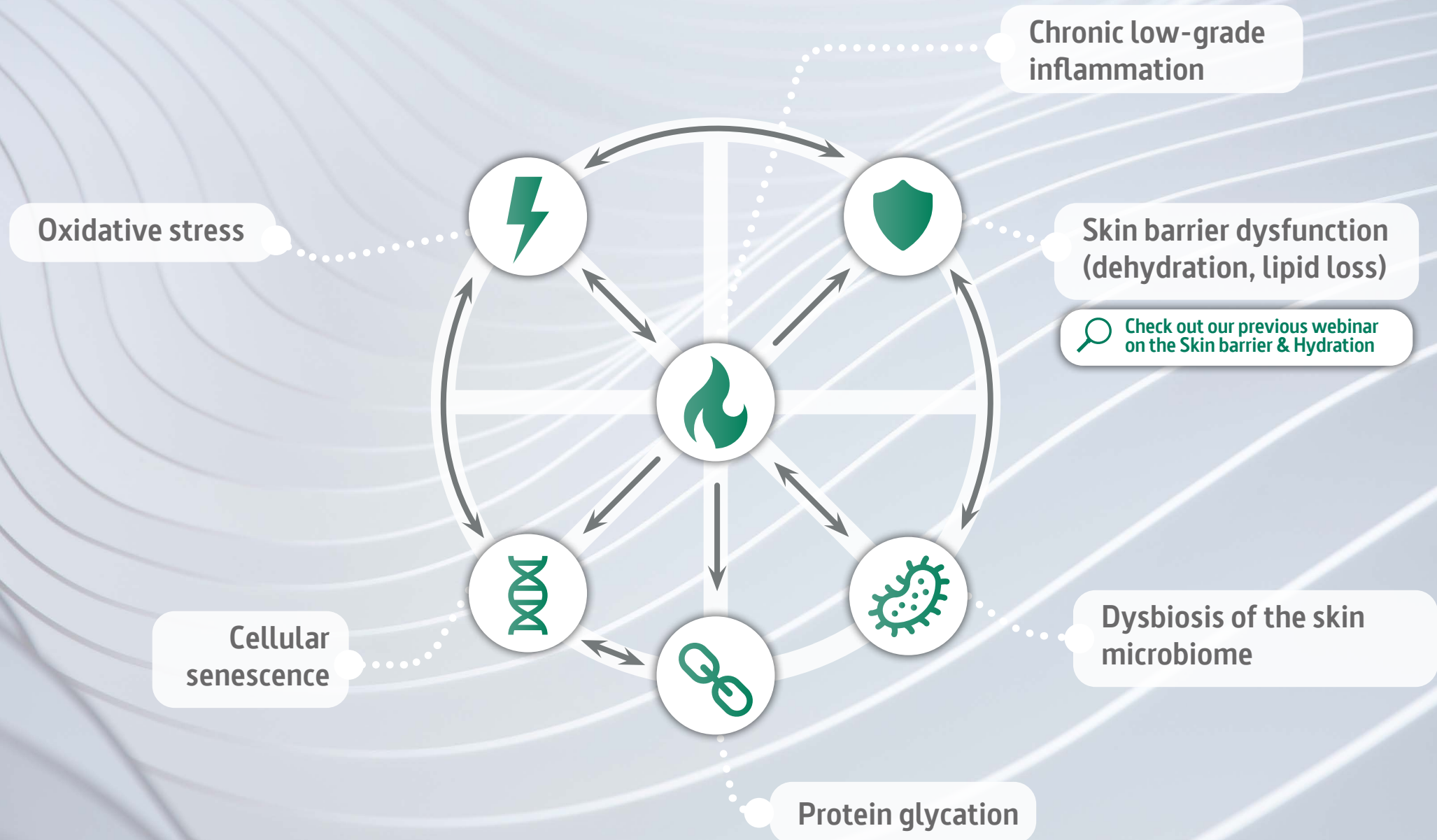


2.

The biology behind the trend

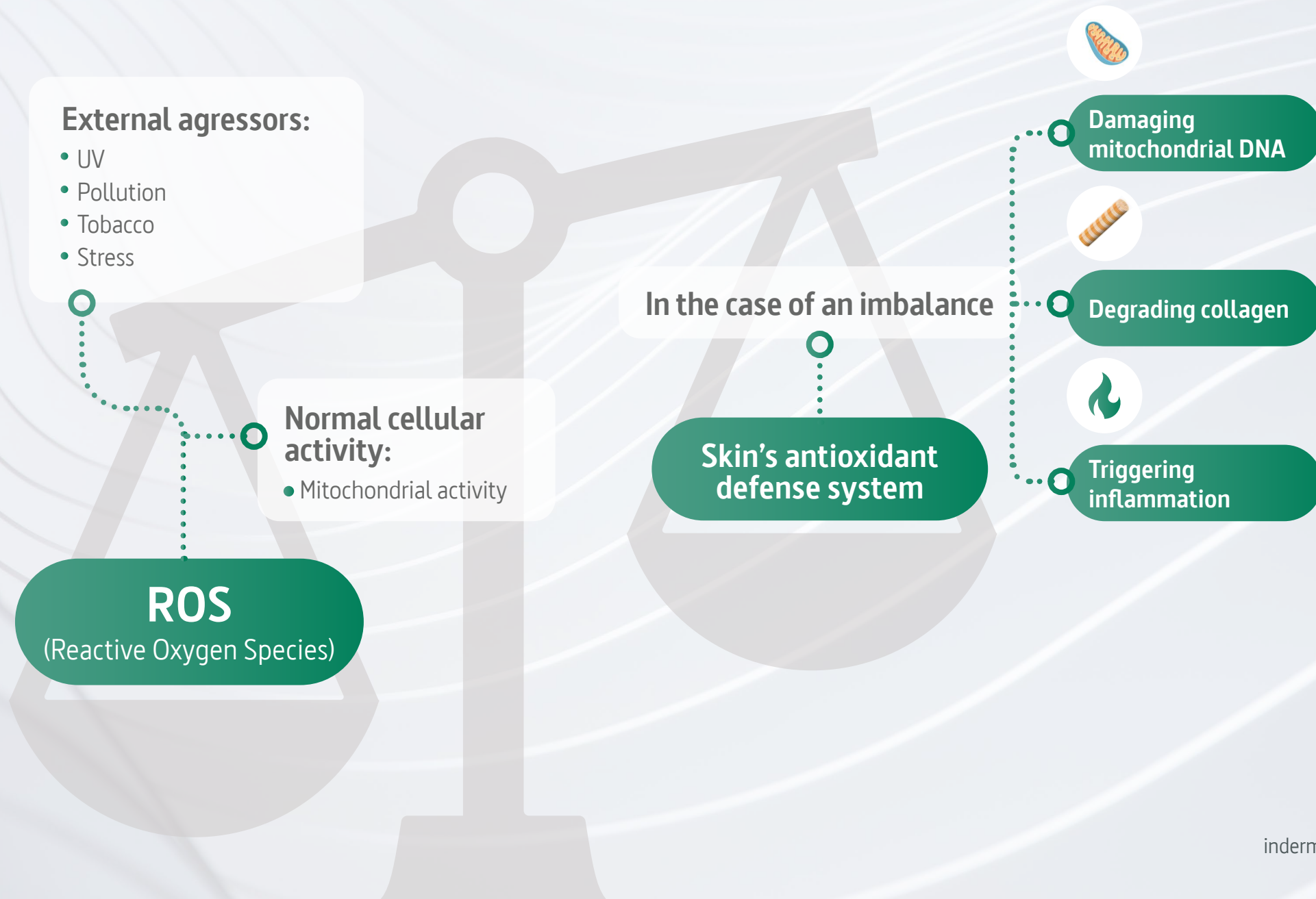
Molecular Axes Involved in Skin Longevity

The biology behind
the trend **2**



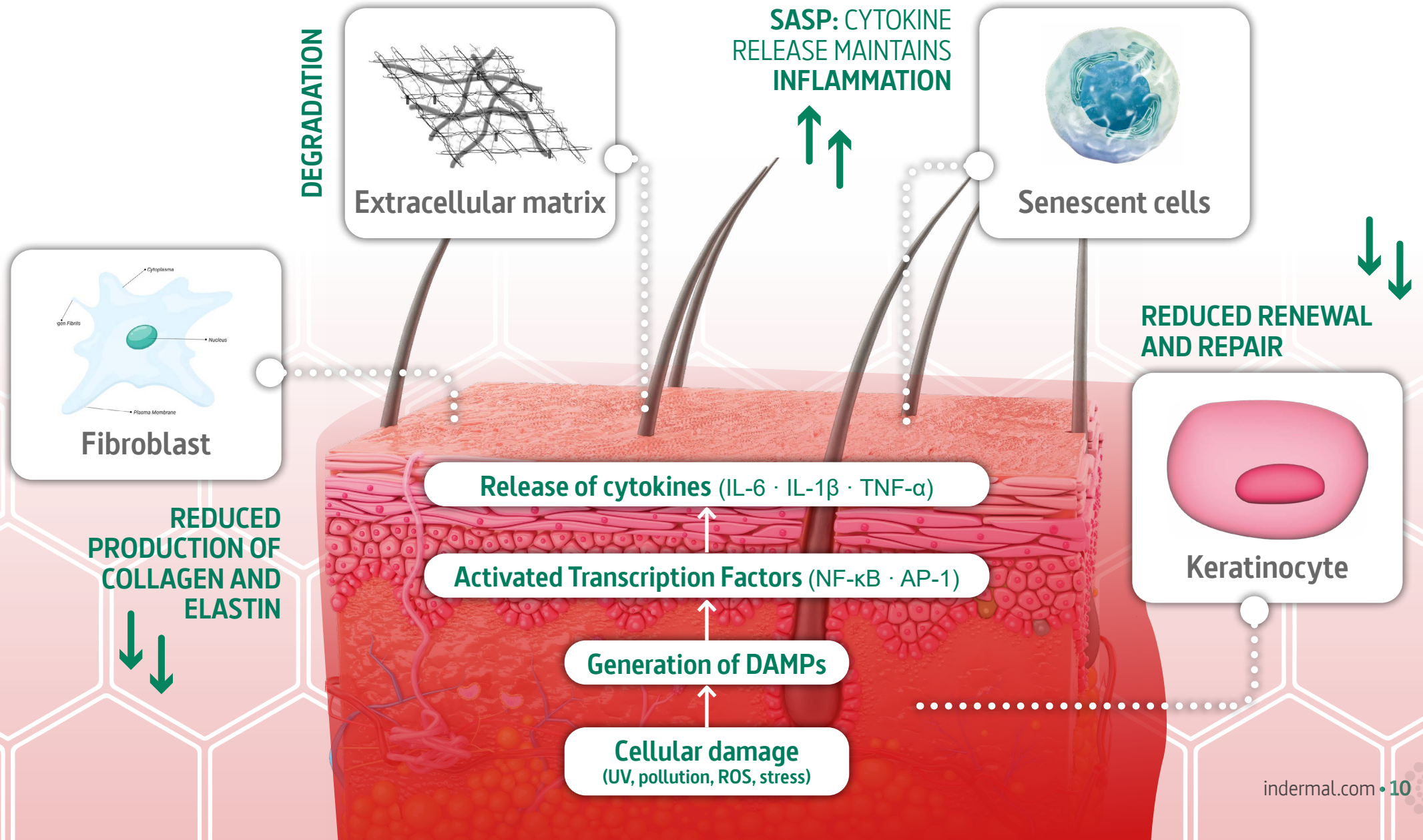
Molecular Axes Involved in Skin Longevity:

Oxidative Stress



Molecular Axes Involved in Skin Longevity:

Chronic low-grade inflammation (inflammaging)



Molecular Axes Involved in Skin Longevity:

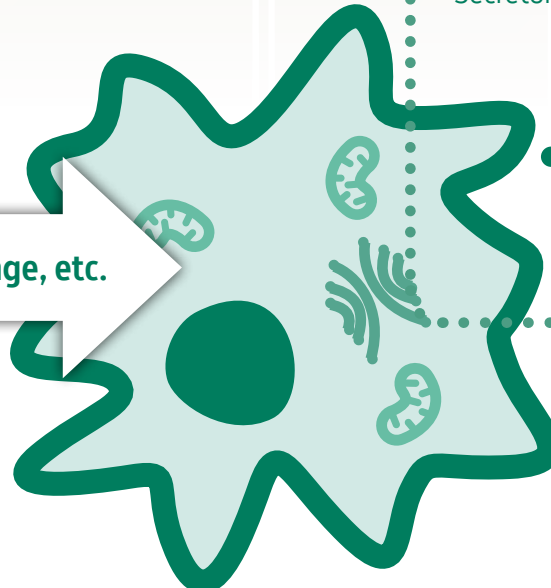
Cellular senescence



NORMAL CELL

- + Proliferates normally
- + Supports tissue repair
- + Maintains homeostatic signaling.

Stress, Damage, etc.



SENESCENT CELL

- + Permanently stop dividing
- + Metabolically active
- + Accumulate over time
- + Damaging secretions

SASP

(Senescence-Associated Secretory Phenotype)

SASP cytokines (IL-6, IL-8, TNF- α) promote chronic inflammation and immune imbalance.

Chronic low-grade inflammation

Oxidative stress

MMPs degrade the extracellular matrix and weaken skin structure

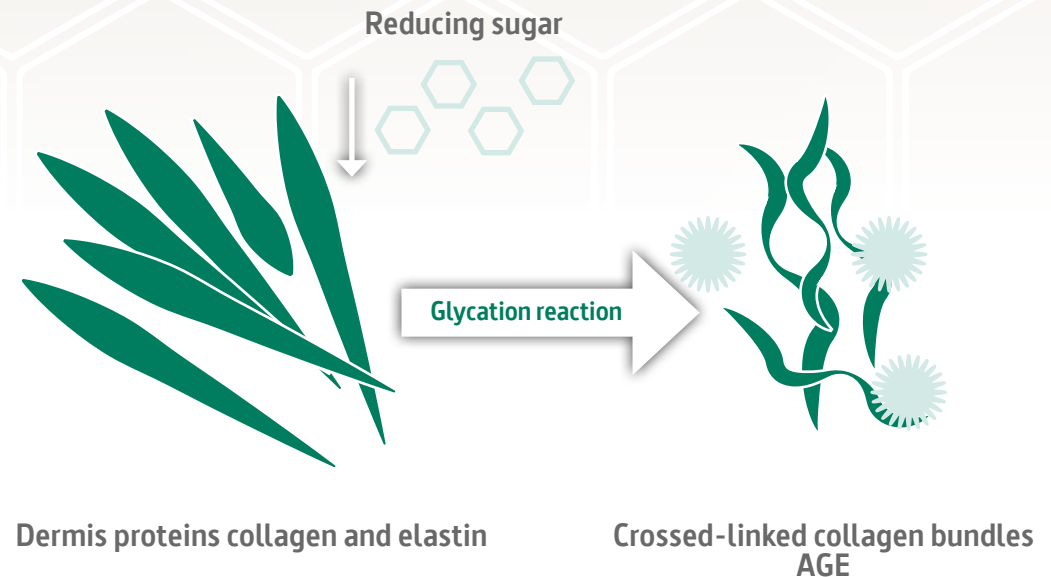
Paracrine signals disrupt neighboring healthy cell behavior

Molecular Axes Involved in Skin Longevity:

Protein glycation

What is glycation?

A spontaneous reaction between **sugars** (e.g., glucose) and long-lived proteins like **collagen** and elastin that leads to the formation of **AGEs** (Advanced Glycation End Products)



Structural impact

- + AGEs cause **cross-linking** of collagen fibers
- + Results in a **rigid, brittle and dysfunctional ECM**
- + Skin loses elasticity, resilience and firmness

Biological consequences

- + AGEs bind to **RAGE receptors**
- + Activate NF- κ B → triggers **chronic inflammation**
- + Increases **MMPs**, ROS and cellular stress → fuels inflammaging

Molecular Axes Involved in Skin Longevity:

Dysbiosis of the skin microbiome

Healthy microbiota

- + pH regulation
- + Prevents infections
- + Regulates local immunity
- + Participates in regeneration, wound healing, hydration and antioxidant defense

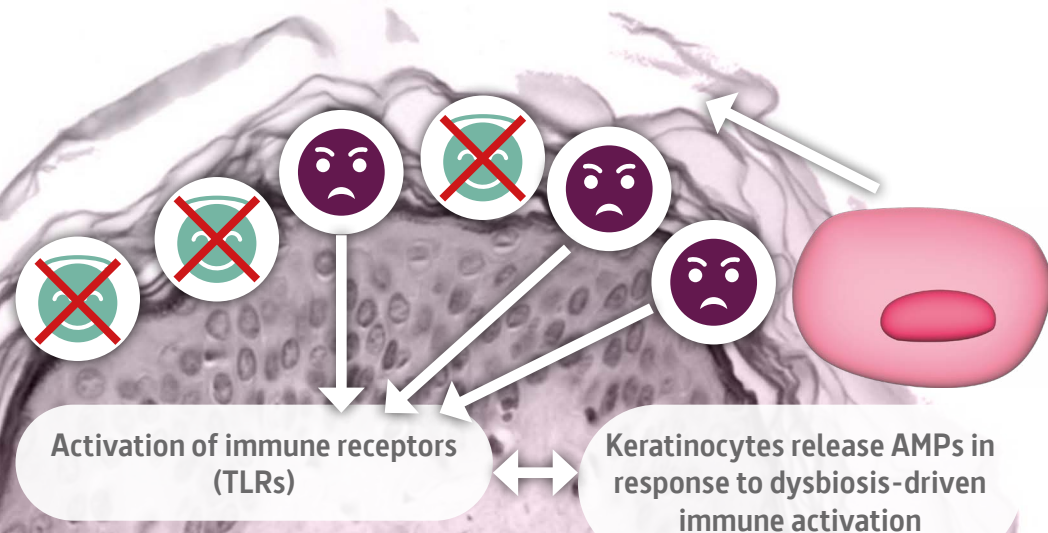


Dysbiosis

Harsh cleansers, UV, pollution, aging, stress, antibiotics

▼ Loss of beneficial species

▲ Overgrowth of opportunistic/
pathogenic bacteria → *S. aureus*,
Corynebacterium spp., etc.



Optimization of Skin molecular mechanisms

The biology behind
the trend **2**



Which of these aging processes do you find most relevant?

BIOLOGICAL AXIS

RELEVANT MOLECULAR TARGETS

ROLE IN SKIN LONGEVITY



Chronic low-grade inflammation

NF- κ B · AP-1 · IL-6 · IL-1 β · TNF- α · MMP-1

Downregulate inflammaging, preserve ECM and tissue function



Oxidative stress / Mitochondrial health

ROS · SOD · Catalase · Glutathione · NAD⁺/NADH · ATP synthesis

Prevent mitochondrial decline and maintain cellular energy



Cellular senescence

SASP · p16^{INK4a} · p21 · mTOR · SIRT1

Limit senescent burden, maintain regenerative capacity



Protein glycation / ECM damage

AGEs · RAGE · MMPs

Protect collagen flexibility and structural resilience



Skin microbiome balance

TLRs · AMP expression (e.g., LL-37, defensins) · microbial diversity · *S. aureus* ↓

Modulate local immunity and prevent inflammatory imbalance



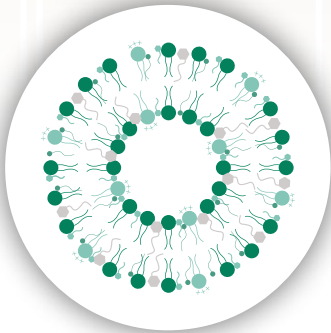
3.

Turning the Trend into Strategy: Formulation & Communication

Two smart delivery systems to support skin longevity at the biological level

Turning the Trend into Strategy: **3**
Formulation & Communication

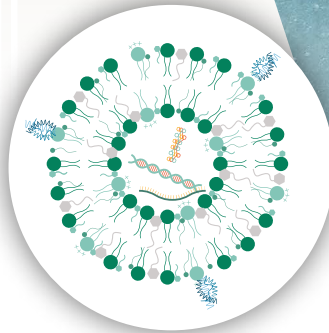
Two smart delivery systems to support skin longevity at the biological level



LIPOSOME

Concentric lipid bilayer

- + Pure compound encapsulated in a medical degree manufactured liposome
- + High specificity
- + One active ingredient



EXOSOME

Concentric lipid bilayer
Membrane proteins
Nucleic acids

- + Biocompounds encapsulated in a medical degree manufactured liposome
- + Powerful extract plus active ingredient
- + Multiple benefits
- + Synergies between ingredients

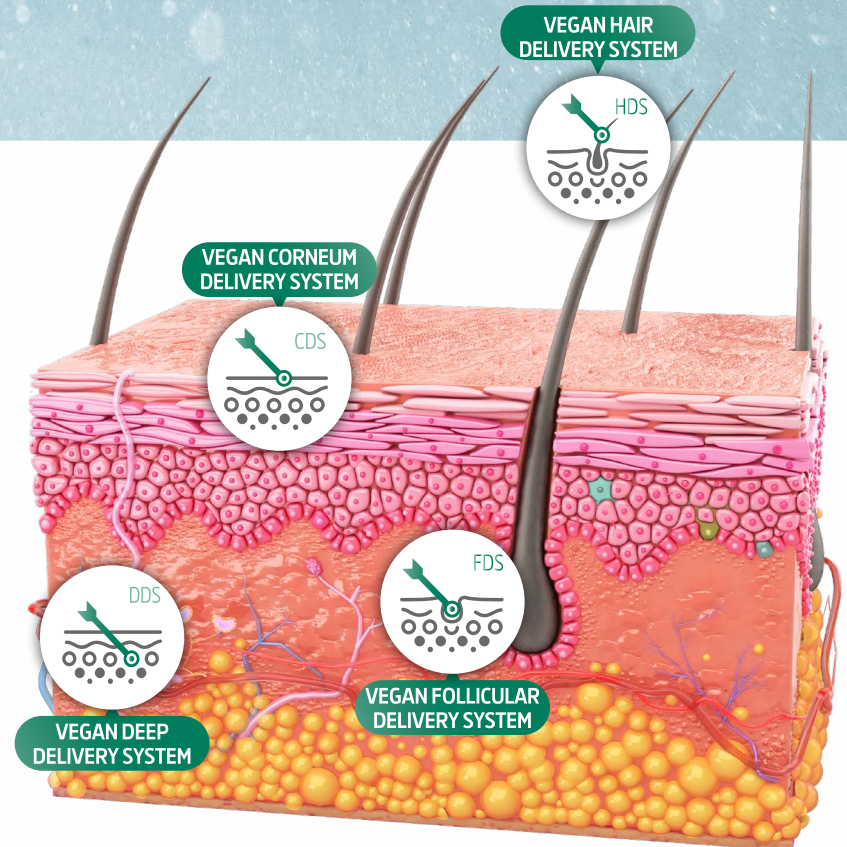
Enhanced results with targeted delivery:



Up to **x20** times penetration of ingredient in target layer

Up to **x40** times results compared to free ingredient

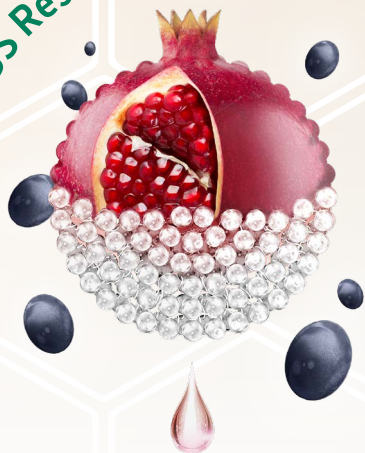
+70 % hydration in 30 min – sustained over 24 h



Ingredient categories relevant to Skin longevity

Turning the Trend into Strategy: **3**
Formulation & Communication

Vegan DDS Resveratrol



Antioxidants

- ☼ Coenzyme Q10
- ☼ Resveratrol
- ☼ Glutathione
- ☼ Ferulic acid
- ☼ Vitamin C
- 🧪 Vitamin E

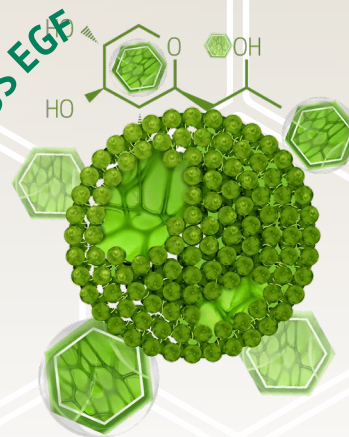
Vegan DDS Enoxolone



Antiinflammatory

- ☼ Bakuchiol
- 🧪 Botanical extracts (turmeric, centella)
- 🧪 CBD
- ☼ Glycyrrhetic Acid (Enoxolone)

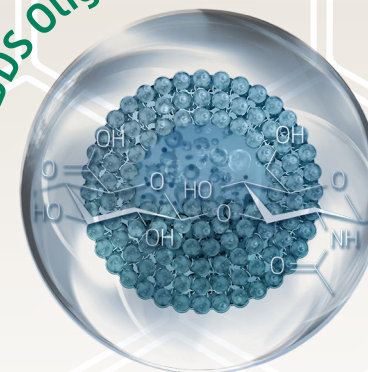
Vegan DDS EGF



Antisenescent

- ☼ Resveratrol
- 🧪 Fisetin
- 🧪 Quercetin
- ☼ EGF
- 🧪 Signaling Peptides

Vegan DDS Oligo HA



ECM Remodelers

- 🧪 Tensor peptides
- 🧪 Flavonoids
- ☼ Hyaluronic acid

☼ Available in INdermal portfolio

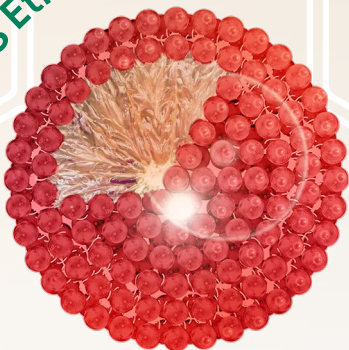
🧪 Available as bespoke encapsulation

Ingredient categories relevant to Skin longevity

Turning the Trend into Strategy:
Formulation & Communication

3

Vegan DDS Ethyl C



Antiglicants/Carbonil scavengers

- 🧪 Carnosine
- 🧪 Alpha-lipoic acid
- 🧪 Polyphenolic extracts
- 🧪 DMAE
- 🌿 Ethyl C

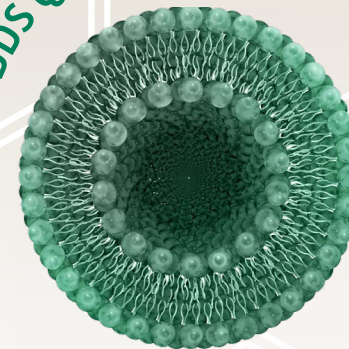
EXO FDS Azelaic Fusion



Microbiome modulators, prebiotics, postbiotics

- 🧪 Inulin
- 🧪 α -glucooligosaccharides
- 🌿 Azelaic acid
- 🌿 Niacinamide
- 🧪 β -glucans

Vegan DDS Q10



Adaptogens /Mitochondrial activators

- 🌿 Coenzyme Q10
- 🧪 NAD+ boosters
- 🧪 Ginseng
- 🧪 Lipoic acid

🌿 Available in INdermal portfolio

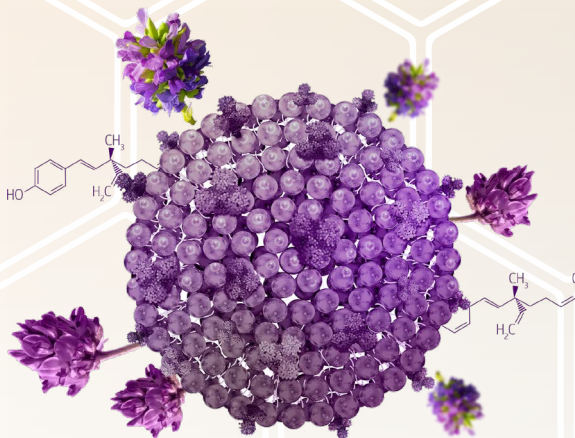
🧪 Available as bespoke encapsulation

Formulating for Skin longevity oriented claims

Turning the Trend into Strategy:
Formulation & Communication

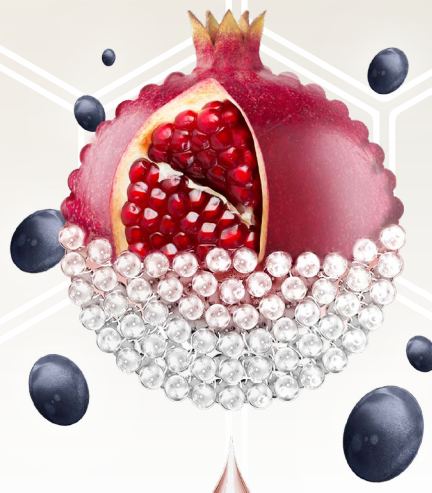
3

A synergic combination of INdermal actives that target biological concerns in skin longevity



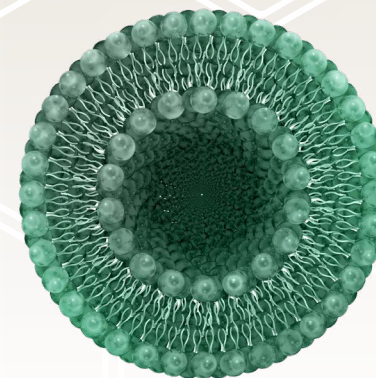
EXO DDS Bakuchiol

- Stimulates collagen,
- Reduces inflammation (inflammaging),
- Antioxidant
- Retinoid-like action without irritation
- Encapsulated in powerful avocado based biomimetic exosome.



Vegan DDS Resveratrol

- Powerful antioxidant
- Modulates cellular senescence
- Reduces silent inflammation



Vegan DDS Q10

- Supports mitochondrial function
- Protects against oxidative stress and maintains cellular energy.

Have you ever worked with INdermal before?



AVOCADO BIOMIMICRY FOR FUNCTIONAL SKIN REJUVENATION

Deep delivery avocado-based exosome for synergistic skin regeneration

1% Bakuchiol encapsulated

Avocado polyphenols:

Concentrated in the exosome interior

indermal.com • 20

Beyond Anti-Aging



EXO DDS Bakuchiol

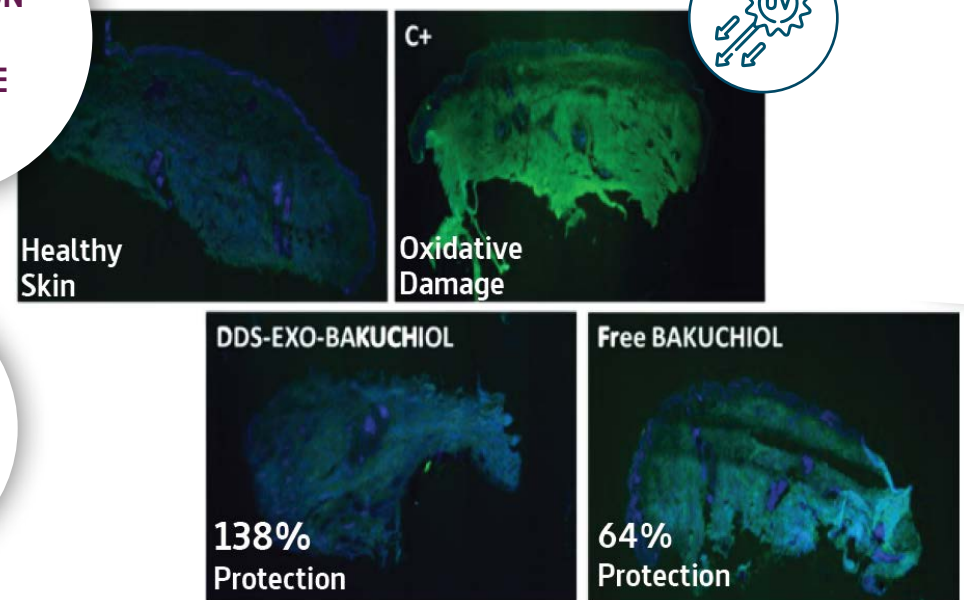
**MORE THAN
TWICE AS
EFFECTIVE AS
FREE
BAKUCHIOL**

**138% MORE
PROTECTION
AGAINST
OXIDATIVE
STRESS**

**PROLONGED
ANTIOXIDANT
DEFENSE =
HEALTHY AGING**

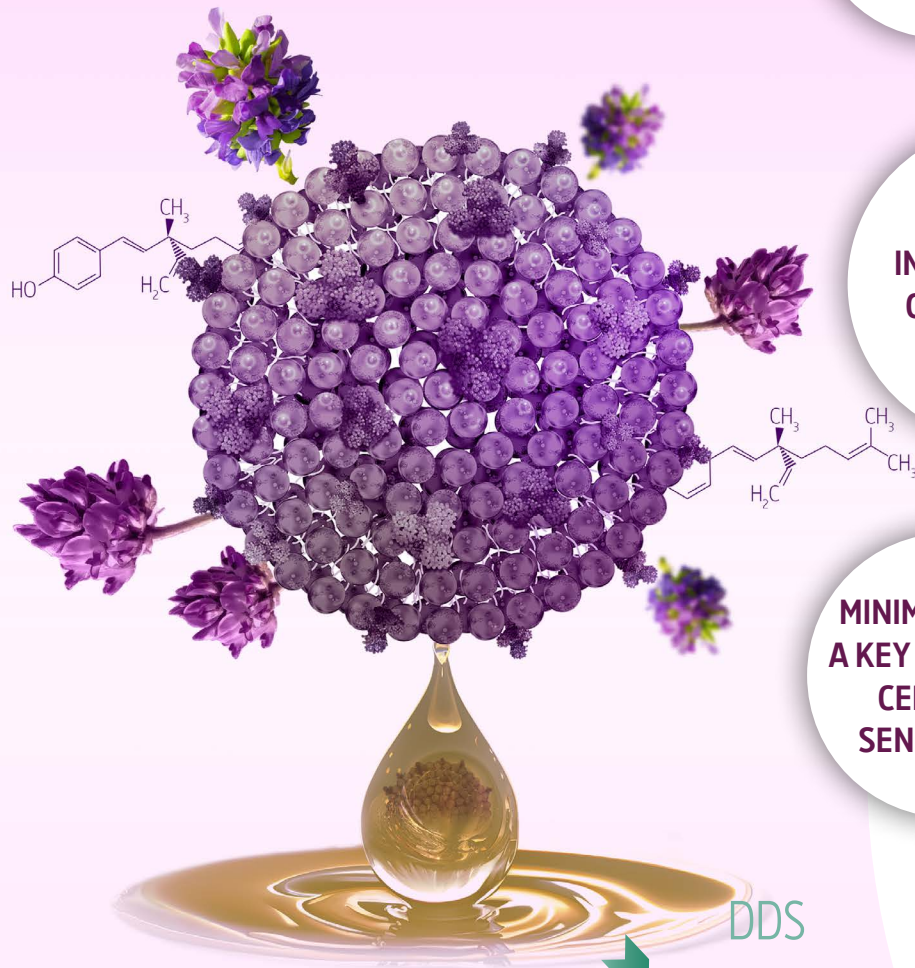
Molecular protection against oxidative aging

7-day *ex-vivo* treatment with 5% EXO DDS
Bakuchiol gel after UV-induced stress, compared
to same concentration of free bakuchiol



Lower fluorescence corresponds to reduced
oxidative damage, highlighting the efficacy of
the antioxidant treatment

Beyond Anti-Aging



**-177% IL-6
REDUCTION VS.
CONTROL**

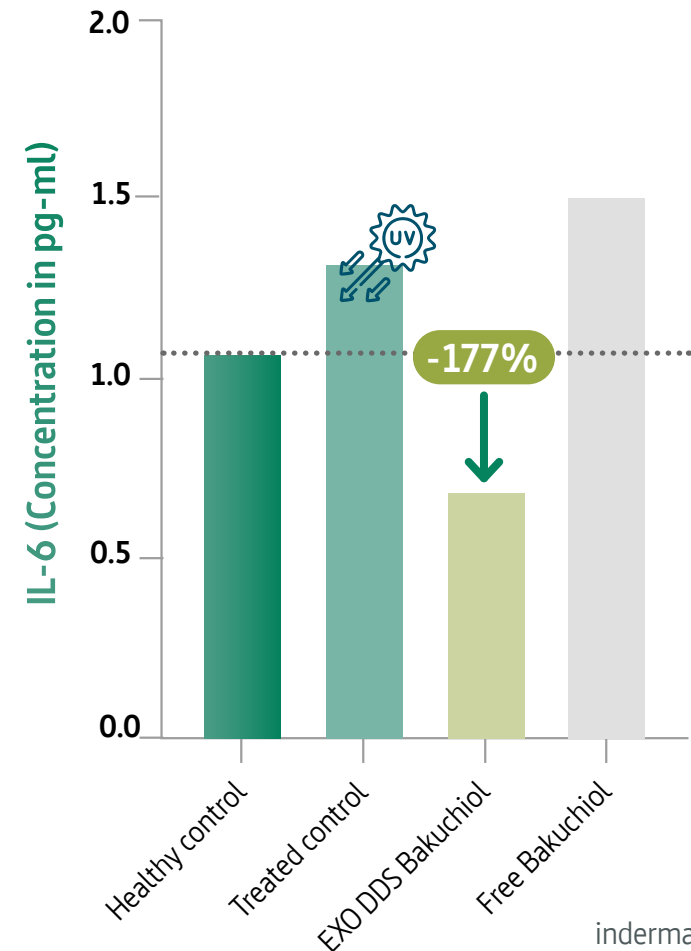
**BREAKS THE
INFLAMMATORY
CYCLE OF SKIN
AGING**

**MINIMIZES IL-6:
A KEY DRIVER OF
CELLULAR
SENESCENCE**

EXO DDS Bakuchiol

Reducing Silent Inflammation: Targeting IL-6 for Functional Skin Longevity

7-day *ex-vivo* treatment with 5% EXO DDS Bakuchiol gel after UV-induced stress, compared to same concentration of free bakuchiol



Beyond Anti-Aging

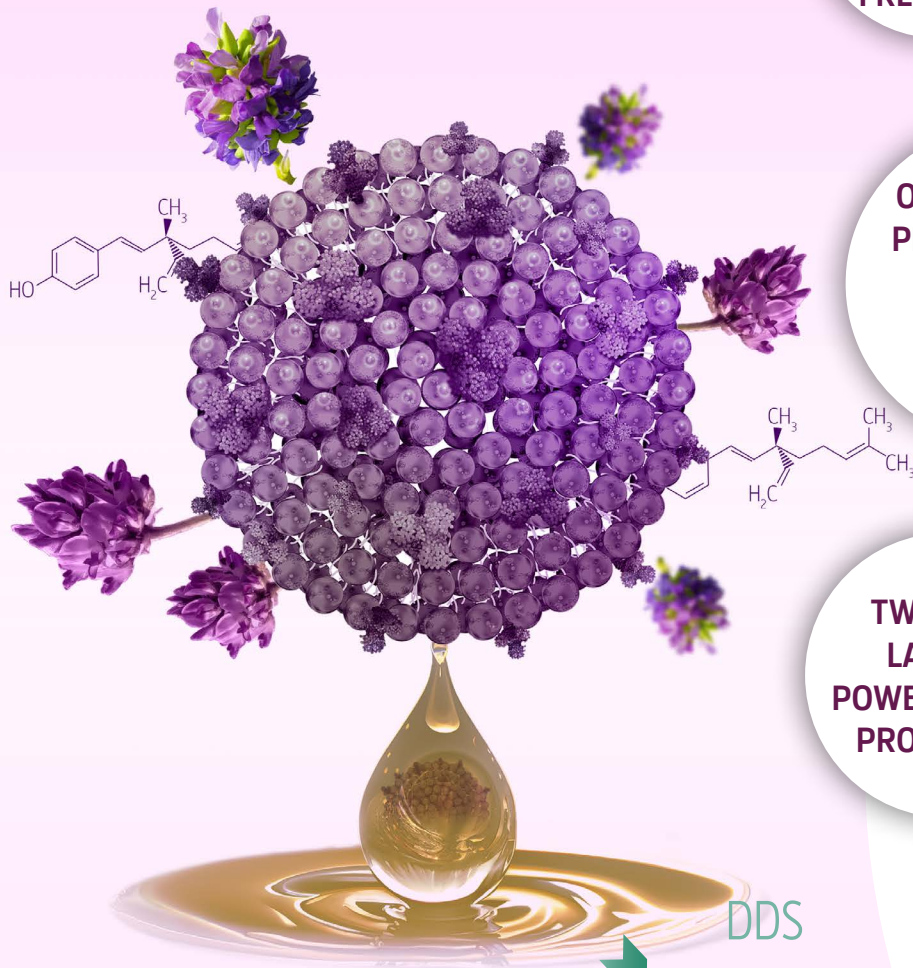
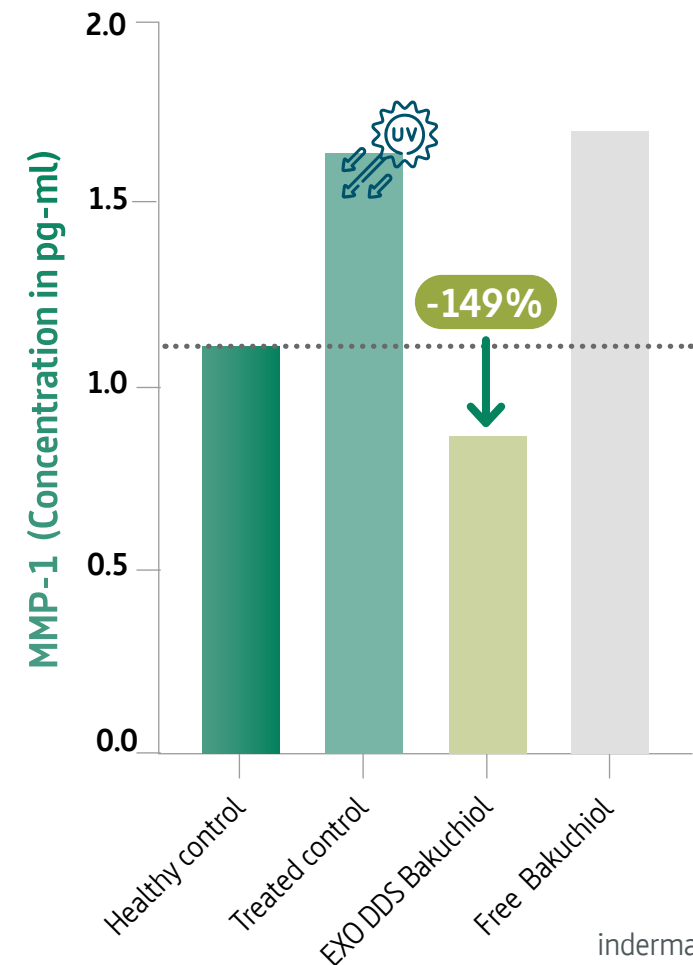
EXOSOME
SYNERGIES
MULTIPLIES
RESULTS VS.
FREE FORM

OUTPERFORMS
PHYSIOLOGICAL
BALANCE IN
COLLAGEN
DEFENSE

TWICE THE
LASTING
POWER: 72 H OF
PROTECTION

Protecting Collagen Integrity and Sustaining ECM Resilience

7-day *ex-vivo* treatment with 5% EXO DDS Bakuchiol gel after UV-induced stress, compared to same concentration of free bakuchiol



EXO DDS Bakuchiol

Beyond Anti-Aging

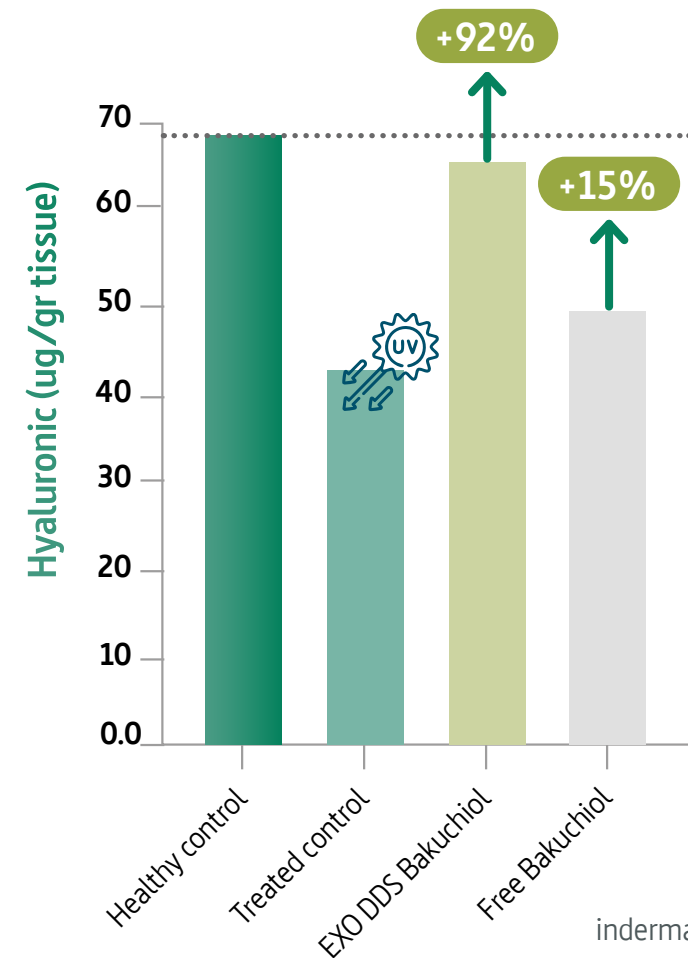
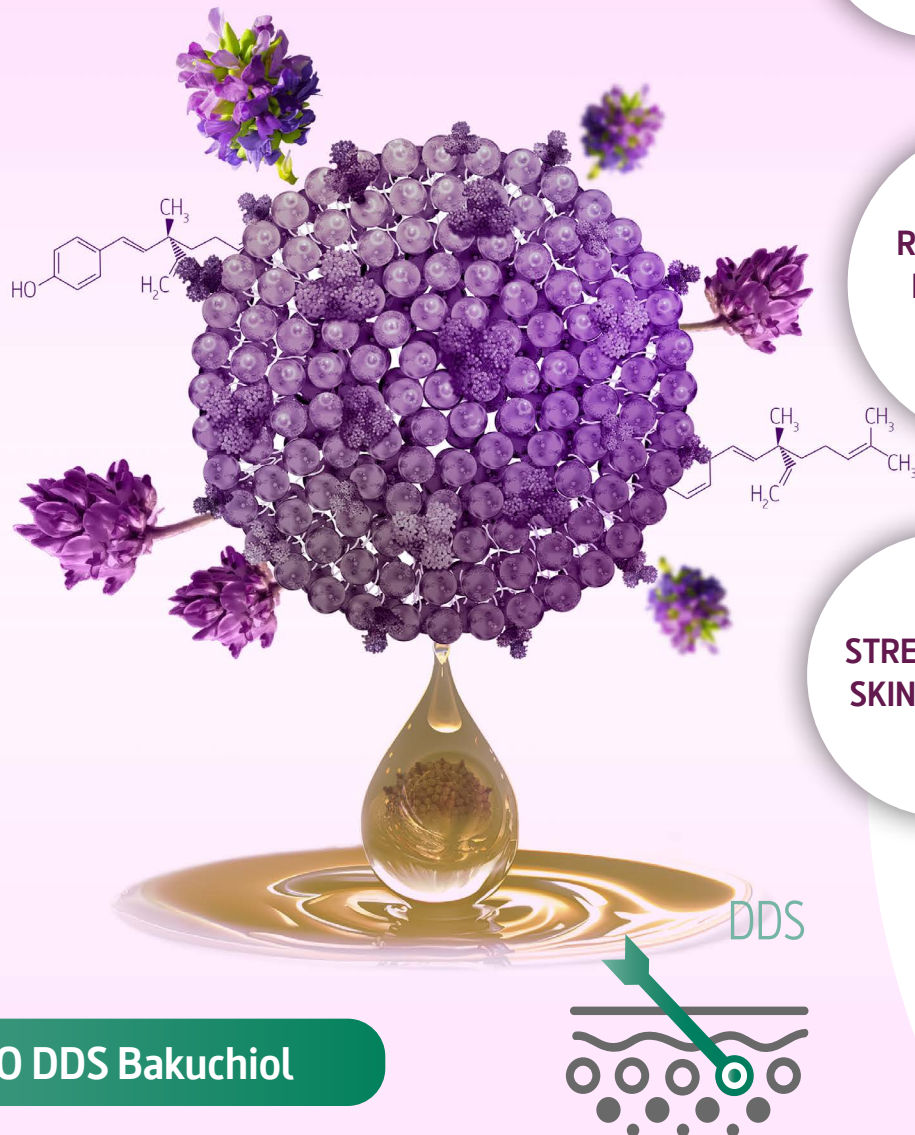
6 TIMES MORE
HYDRATING
THAN FREE
BAKUCHIOL

RESTORES SKIN
DENSITY AND
BOUNCE

STRENGTHENS
SKIN BARRIER

Reactivating Hydration Mechanisms to Preserve Skin Vitality

7-day *ex-vivo* treatment with 5% EXO DDS Bakuchiol gel after UV-induced stress, compared to same concentration of free bakuchiol



Vegan DDS Resveratrol

Targeting Multiple Axes of Biological Aging



Potent antioxidant that neutralizes free radicals and minimizes DNA and protein damage



Combats inflammaging with a soothing action, suitable for sensitive skin types



Modulates longevity-related pathways such as SIRT1 and mTOR, helping delay cellular senescence



Regulates structural proteins and lipid-regulating factors essential for epidermal hydration and barrier function



Vegan DDS Q10

Mitochondrial Defense & Senescence Modulator



Antioxidant

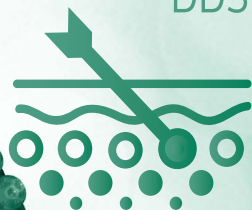
Reduces electron leakage in mitochondria, preventing intracellular oxidative damage—particularly to membrane lipids—and improving bioenergetic efficiency



Antisenescence

Reduces the activation of cell cycle arrest pathways and supports the maintenance of cellular proliferative capacity















DDS



A Comprehensive Strategy for Skin Longevity

Turning the Trend into Strategy: **3**
Formulation & Communication

Together, these ingredients offer a well-rounded, evidence-based strategy to promote skin longevity

	EXO DDS Bakuchiol	Vegan DDS Resveratrol	Vegan DDS Q10
 Oxidative stress / Mitochondrial health	✓ 	✓	✓
 Cellular senescence	✓ 	✓	✓
 Chronic low-grade inflammation	✓ 	✓	
 Skin barrier / Hydration	✓ 	✓	
 Protein glycation / ECM damage			

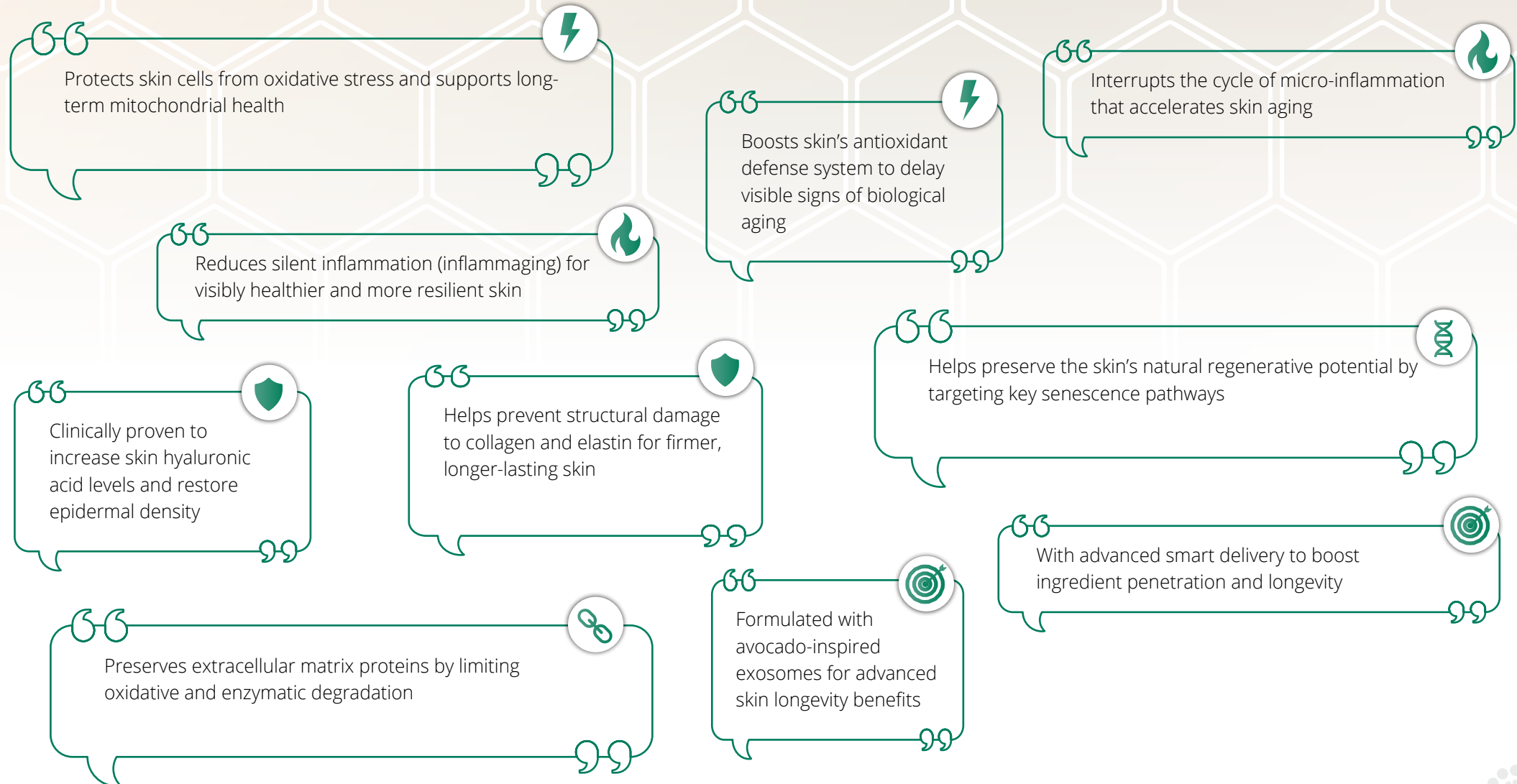
Proven efficacy results 

Wide scientific evidence 

Indirect effect 

From Actives to Claims: Translating Skin Longevity into Product Language

How to translate functional benefits into relevant, compliant and consumer-friendly claims



Formulating for Skin longevity oriented claims

Turning the Trend into Strategy:
Formulation & Communication **3**

? Do you have a different idea?
A unique combination of ingredients?

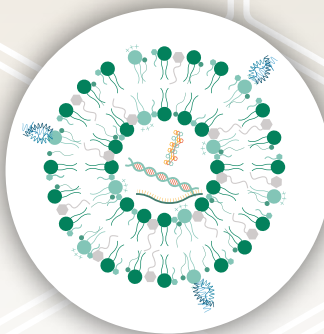
! We create custom encapsulations tailored to your needs.



LIPOSOME

Concentric lipid bilayer

- + Pure compound encapsulated in a medical degree manufactured liposome
- + High specificity
- + One active ingredient

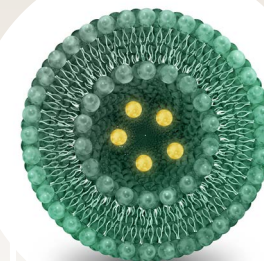


EXOSOME

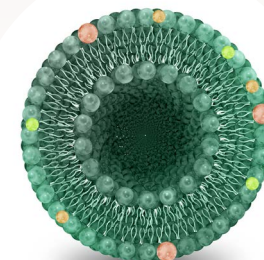
Concentric lipid bilayer Membrane proteins Nucleic acids

- + Biocompounds encapsulated in a medical degree manufactured liposome
- + Powerful extract plus active ingredient
- + Multiple benefits
- + Synergies between ingredients

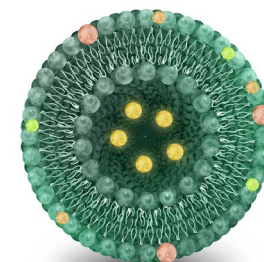
ENCAPSULATION
OF YOUR ACTIVE



DESIGN YOUR
UNIQUE NANOVESICLE



BOTH OPTIONS:
ENCAPSULATION OF YOUR ACTIVE
IN YOUR UNIQUE NANOVESICLES



Q&A Section

Going to suppliers' Day NYC?



Meet 1:1 with us



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by Nanovex Biotechnologies