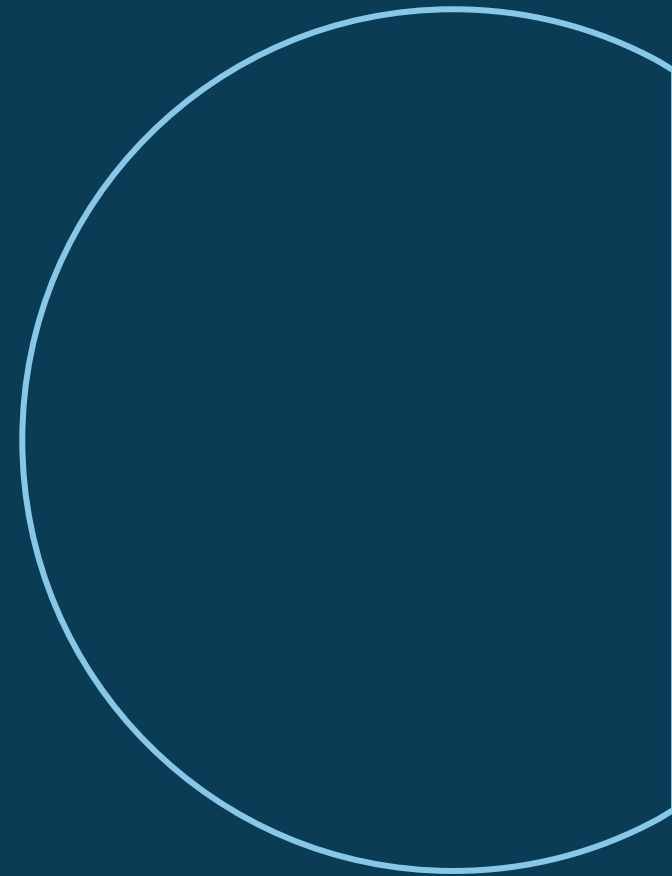
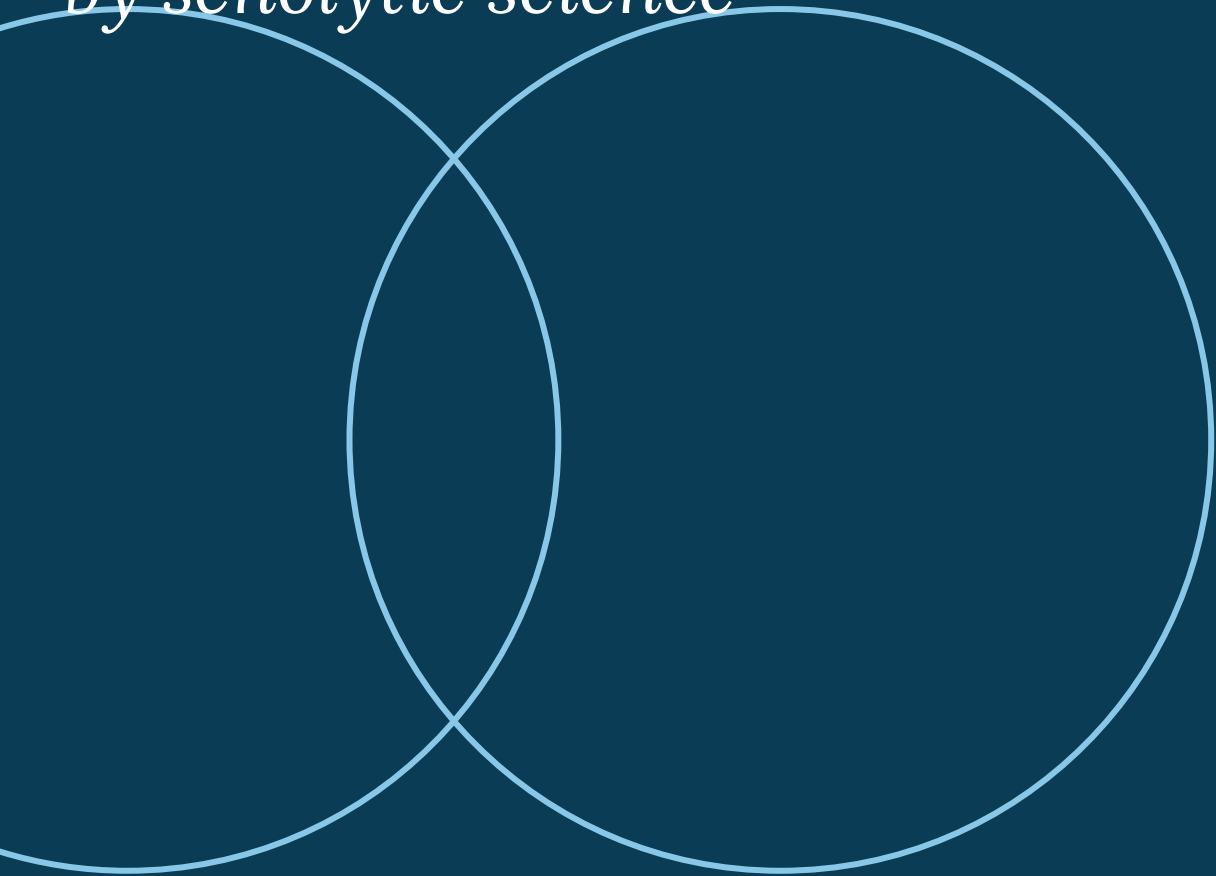


ETERWELL™ HAIR

*Hair longevity powered
by senolytic science*



TRENDS

“Hair care is the new skincare”

Nicolas Hieronimus, L'Oréal Group CEO

Increasingly, consumers are realizing that hair care goes far beyond the strands. It starts at the root.



The search for hair care is starting to mirror key trends in skincare



The search for hair care is starting to mirror key trends in skincare

36% of hair care professionals worldwide have looked for relevant applications and active ingredients*.

Consumers are paying more attention to the overall health of their hair.

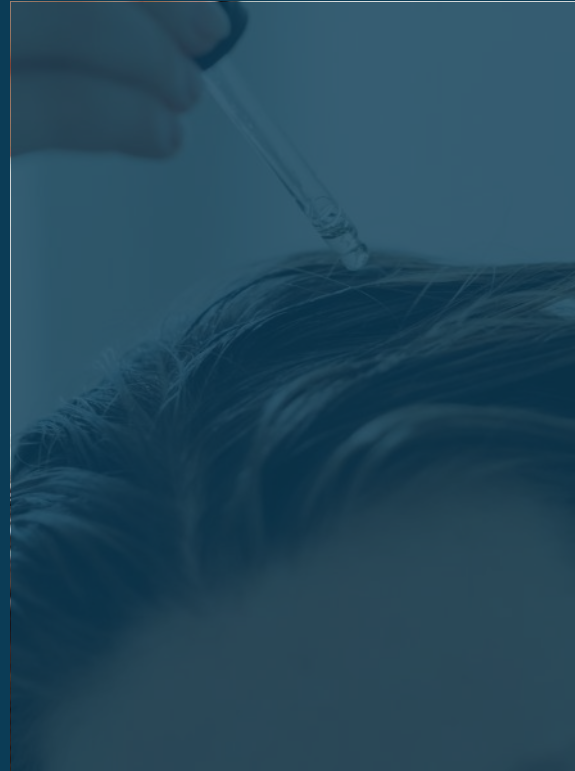
First-aid approach: solutions based on the environment and different stages of life.

Therapeutic Hair Practices: Consumers are maintaining their hair care rituals at home while now integrating therapeutic head care for a more holistic approach.



The search for hair care is starting to mirror key trends in skincare

67% of global consumers are looking for eco-friendly beauty products.*



And yes, aging is a primary motivation when it comes to hair care

Consumers want their hair to age healthily and stay naturally beautiful. They're looking for proactive solutions for this purpose.

Top global hair concerns (2022)*

58%

Aging hair

54%

Damaged hair

42%

Scalp problems

A person wearing a blue and white vertically striped shirt is shown from the chest down, reaching out with their right hand to touch tall, golden-brown grass. The background is a clear, light blue sky. The overall mood is serene and natural.

In this context, longevity is the buzzword

TRENDS

In this context, longevity is the buzzword

An anti-aging hair care line must embrace the concept of longevity.

Preventive approach: care that extends the health expectancy of hair

Hair care tailored to different stages of life

Focus on targeting the root causes of hair aging: what do hair follicles need to grow healthy hair?

TRENDS

Consumers are realizing that longevity is closely linked to hair follicles

13% of users in the category mentioned hair follicles in 2022 (+2 p.p. compared to the previous year).

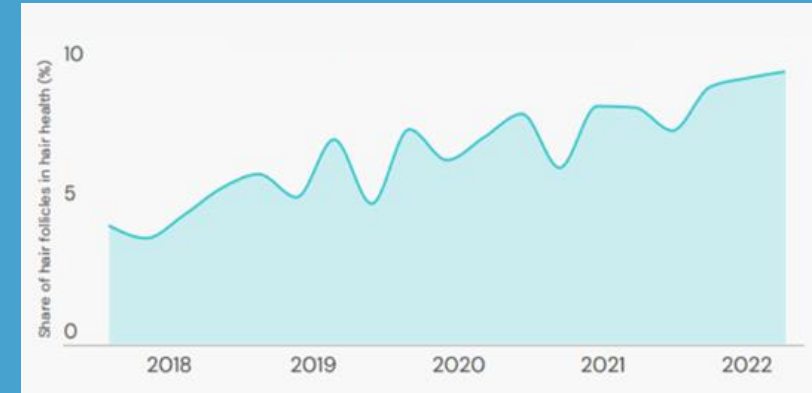
Gentle exfoliating products are becoming more appealing

Some ingredients stand out as solutions to deal with the buildup of residue caused by daily hair care, balancing the scalp, encouraging healthy hair growth.

Hair stimulation

Many brands have recommended scalp massages with tools or devices that help to increase blood circulation in the area.

Conversation on healthy hair follicles rises on social media



What's Next?

Actives and technologies designed to stimulate hair follicles.

TRENDS

We are stepping into the era of hair cellular beauty, where hair root care reaches a new level

We know it's not possible to stop the passage of time, but science has already proven that we can slow down biological aging by addressing root cause.

Essentially, **science-backed products designed to boost the hair's cellular processes** are a solution to help follicles resist aging.

VOGUE
beauty
awards 2024

BEST LUXURY ANTI-AGING HAIRCARE BRAND



KORE

TRENDS

When it comes to cellular processes, it's impossible not to mention senolytic science

And, following the latest trends in skin care, there is still space to explore senolytic science in hair care.

"Formula inspired by the science of cellular reprogramming, which integrates the revolutionary field of senescence for the first time in a night cream"



The senolytics concept applied to hair care



As time goes by and various stressors take their toll, hair follicles lose efficiency, disrupting the natural renewal process of the hair.

This is due to many cells becoming inactive and remaining in the hair system as “zombie cells,” essentially damaging healthy cells by triggering an inflammation cycle that affects the volume and appearance of the hair.

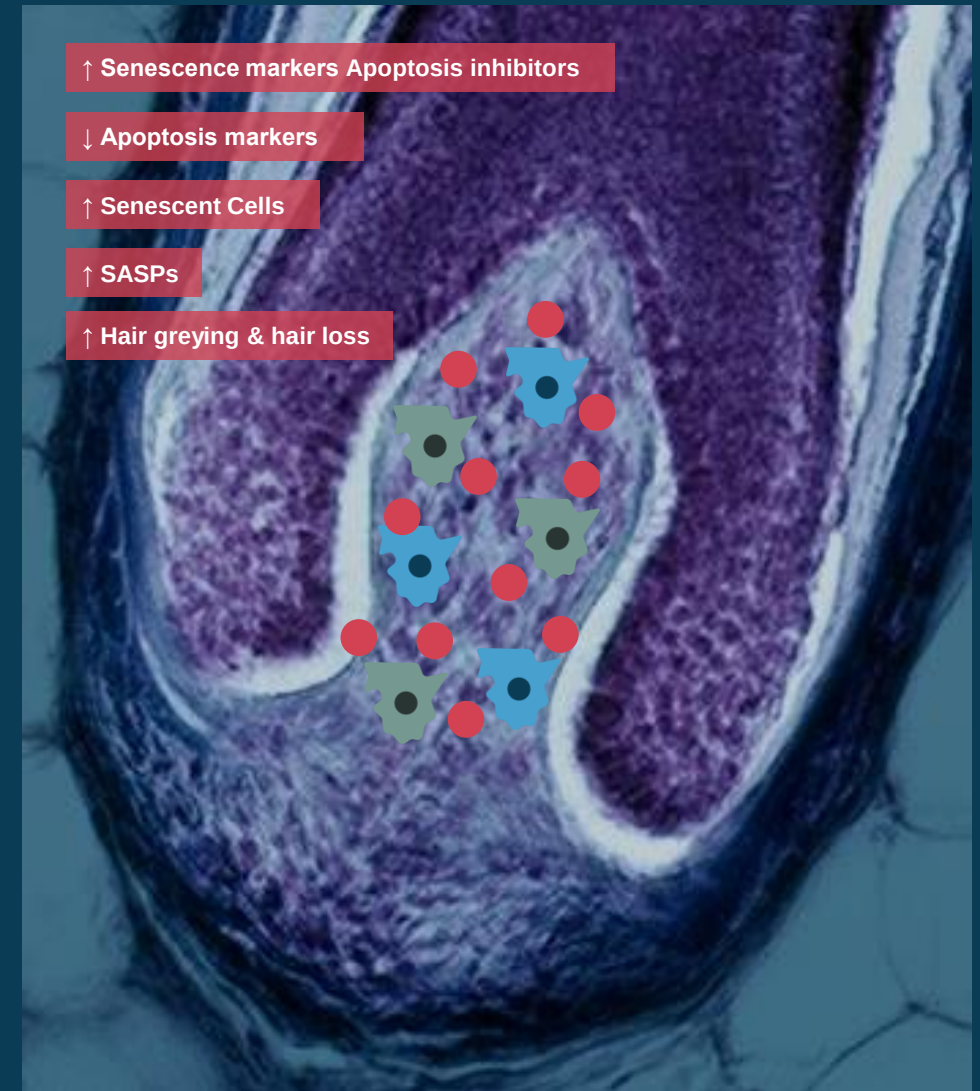
The build up of these cells, called senescent cells, must be removed for optimal hair renewal.

WHAT'S NEXT

Let's take a closer look at the process of senescence and how it impacts hair health

Senescent cells lose their ability to divide and properly produce key proteins like melanin, keratin, and KAP. As a result, they release SASPs (senescence-associated secretory phenotype), which also push surrounding cells into an undesirable senescent state.

The accumulation of senescent cells leads to aging with the aging phenotype.



Normal Follicle
Dermal Papilla
Cells



Senescent
Follicle Dermal
Papilla Cells

● SASP

How can senolytic science support the development of a solution capable of reprogramming hair cells and eliminating those that hinder the process, while supporting the healthy function of the remaining cells?

Using advanced technology and scientific expertise in the development of holistic and sustainable solutions, we set out to find the answer.



Relying on exclusive hair senolytic capabilities

1. Experts with extensive experience in senescence knowledge field
2. Key *in vitro* models: skin and hair senolytics, along with senescence marker assays - Over 3,000 conditions tested
3. Design and identification of senolytic compounds using AI
4. *Ex vivo* and *in vivo* experience with multi-omics and 3D analyses
5. Automation and robotics

1

dsm-firmenich ●●● internal scientific expertise

2



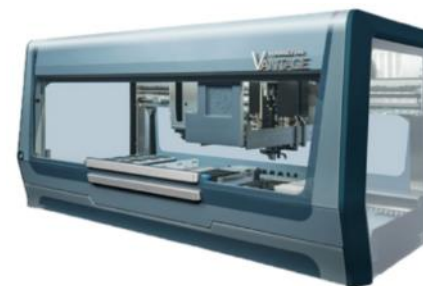
3



4



5



We developed the first and only test model for hair senescent cells



By testing our bioactives on hair follicles*, we discovered an ingredient that goes beyond consumer expectations!

We present a groundbreaking solution that will redefine the concept of anti-aging hair care.

*Senescent Follicle Dermal Papilla Cells

ETERWELL™

*Hair longevity powered
by senolytic science*

HAIR

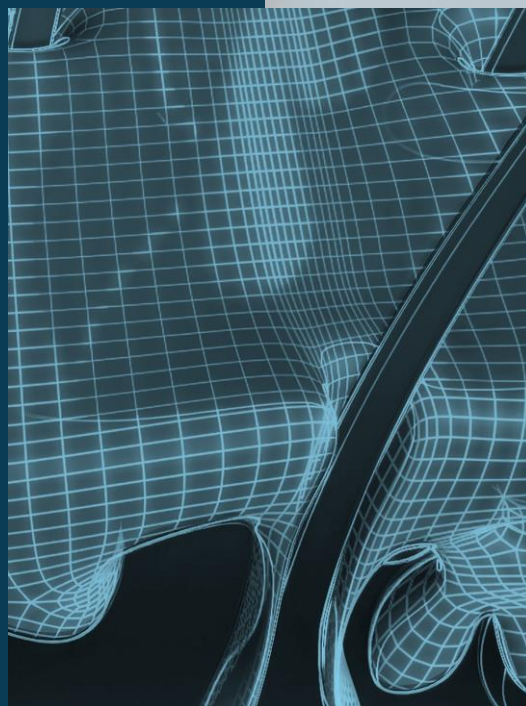


INTRODUCING

ETERWELL™ HAIR

ETERWELL™ HAIR works at the cellular level to remove harmful senescent cells from the follicles, reduce inflammation, balance the scalp, help prevent hair loss, and promote hair density.

Giving new life and increased longevity to the hair, which start to naturally renew.



MODE OF ACTION

ETERWELL™ HAIR

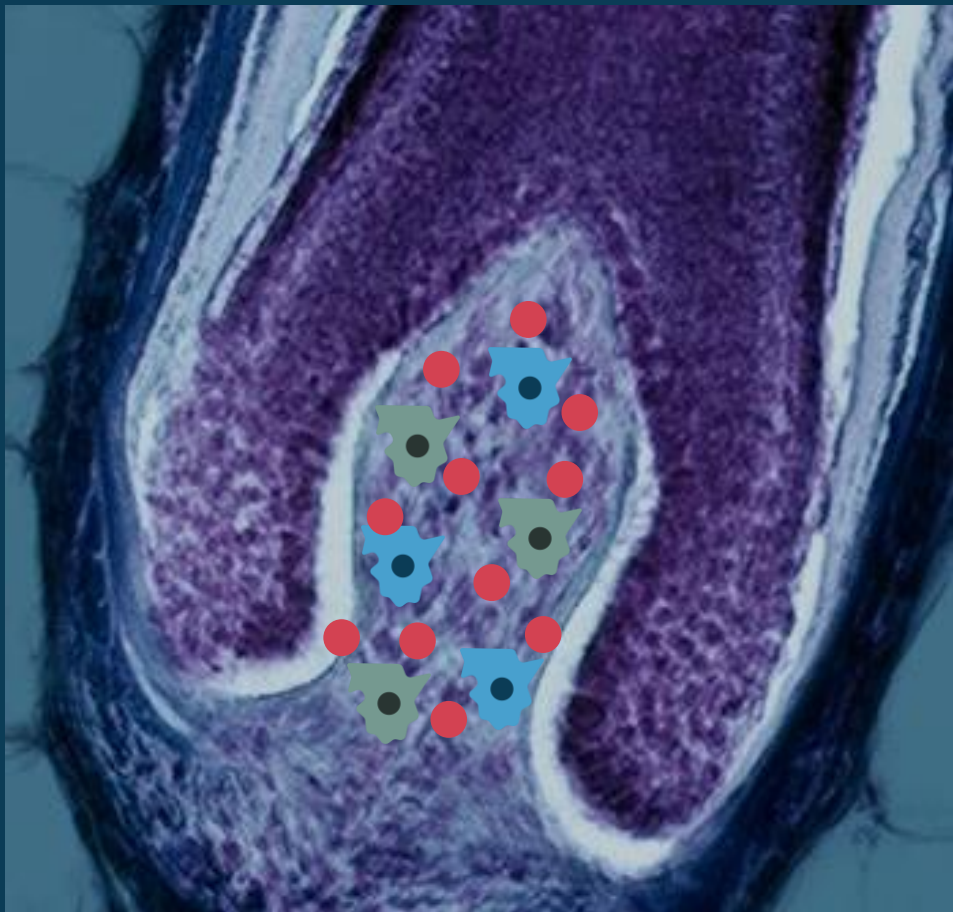
Key benefits

- Hair care healthy aging acting at the cellular level
- Helps reboot the natural hair revival processes
- Increases hair longevity impaired by folliculo-destructive senescent cells*
- Helps prevent hair loss**
- Significantly improves hair density** by average 5% in 5 months and up to 28% for the best volunteer
- Helps slow down the premature ageing of hair
- Calms sensitive, irritated, and dry scalp
- Reduces inflammaging (reducing the expression of inflammatory cytokines induced ICAM-1)*
- Efficient at low concentration***

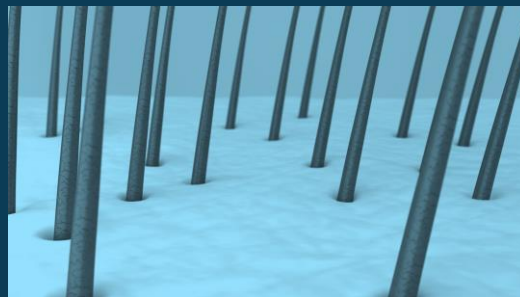


MODE OF ACTION

ETERWELL™ HAIR



- Acts on the hair root at the cellular level, clearing only senescent cells by targeted apoptosis
- Reduces SASPs
- Increases functional Keratin
- Improves hair density and hair longevity
- For young, healthy-looking hair*



Normal Follicle
Dermal Papilla
Cells



Senescent
Follicle Dermal
Papilla Cells



SASP

**A truly senolytic active
ingredient, with complete
proof of action *in vitro*
and *in vivo***

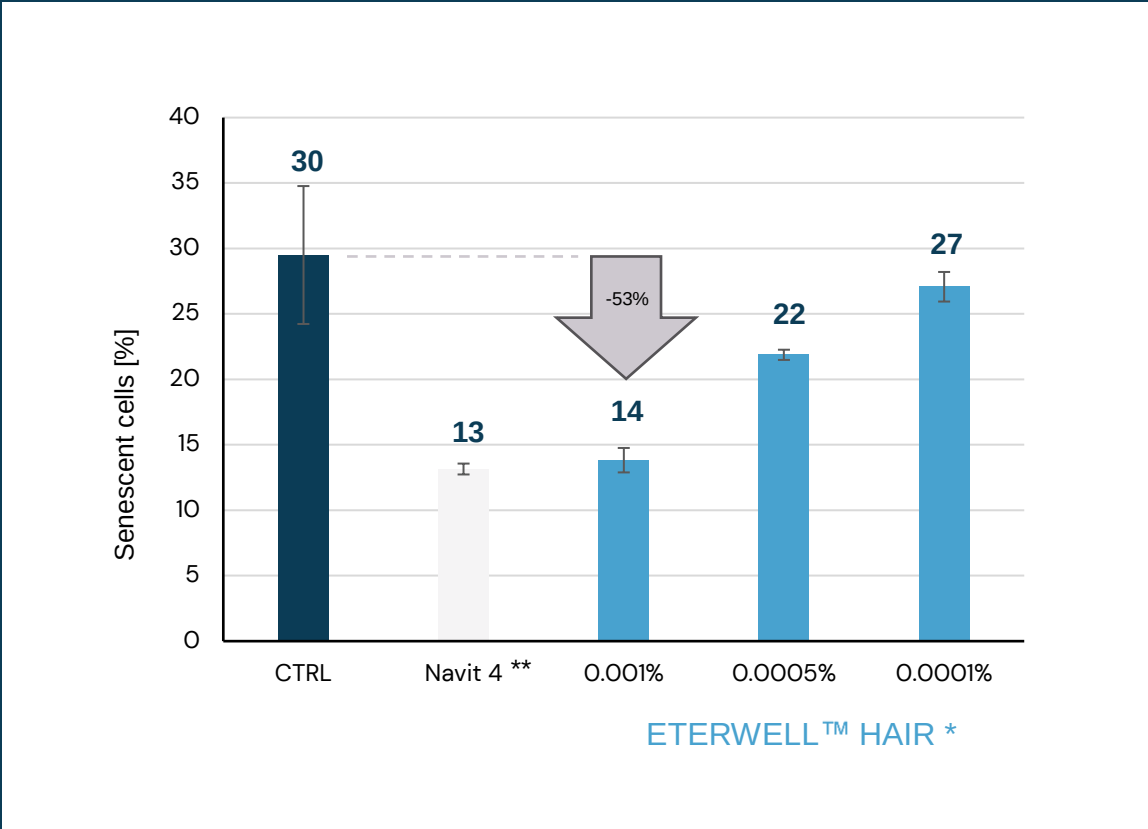
IN VITRO RESULTS

Less senescent cells,
more longevity for hair

- Highly potent in our in vitro model mimicking aged hair follicles
- Model uses H₂O₂-induced senescent Follicle Dermal Papilla Cells
- Significant and dose-dependent senolytic activity

Treatment of Follicle Dermal Papilla Cells	Flow cytometer + Senescence-associated beta-galactosidase marker
70% normal 30% senescent	

53% less senescent cells
with 0.001%* ETERWELL™ HAIR



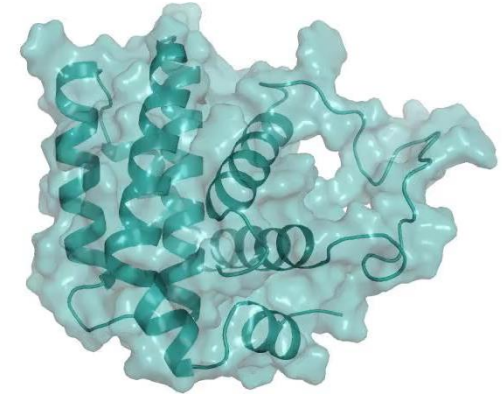
With a clear Senolytic mode of action

BCL-2 is a protein that inhibits apoptosis, the natural process that occurs when a cell intentionally “decides” to die after being damaged or becoming senescent.

This anti-apoptotic protein will keep senescent, “zombie cells” alive.

BCL-2 needs to be inhibited or neutralized to unlock the apoptotic process and clear the senescent cells from the cellular environment.

BCL-2 inhibition demonstrates a clear Senolytic process.



0.001%* of
ETERWELL™ HAIR
inhibits 66% of
BCL-2 In Vitro

Time Resolved
Fluorescence Resonance
Energy Transfer
(TR-FRET assays)

Clinical study design: testing on those who need our solution the most

In vivo study with 2 groups, one placebo and one with 0.5% ETERWELL™ HAIR

- Two groups of 30 volunteers each
- Groups composed of female and male with general hair loss (>90 hairs lost in a combined wash and comb test)
- Age: 30–65 yo
- One Group of 30 volunteers using PLACEBO
- One Group of 30 volunteers using a leave on formula containing ETERWELL™ HAIR 0.5%
- One daily application of scalp serum (no rinse)
- Five months study
- Evaluation of the Anagen (growing phase of the follicle) vs Telogen (resting phase of the follicle) phases of hair
- Measurement of the hair density
- Proteomics analysis on hair sampling

GROUP 1:
Placebo

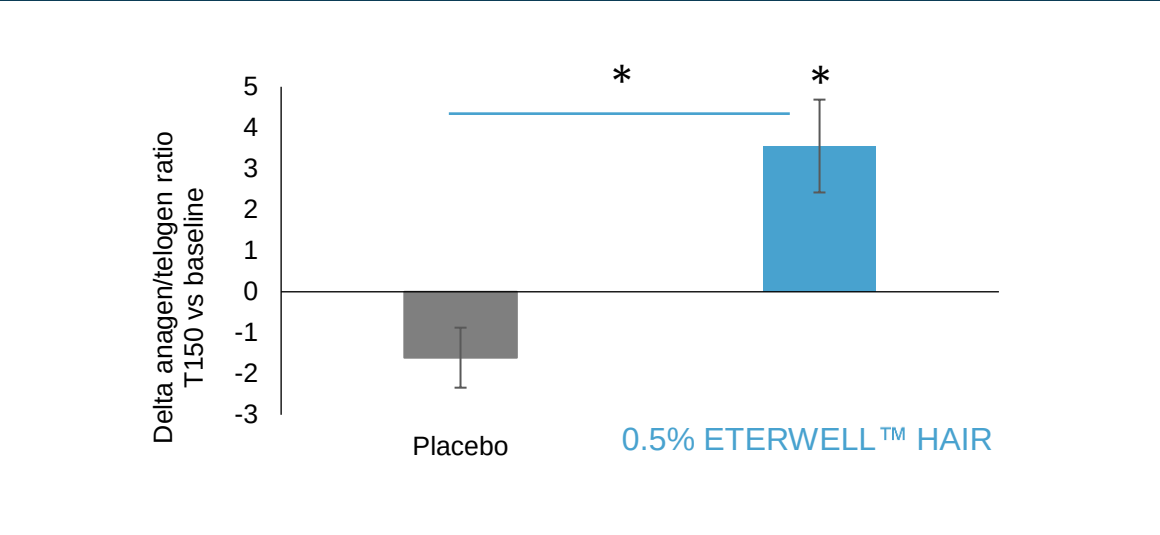
GROUP 2:
ETERWELL™ HAIR
0.5%

IN VIVO RESULTS

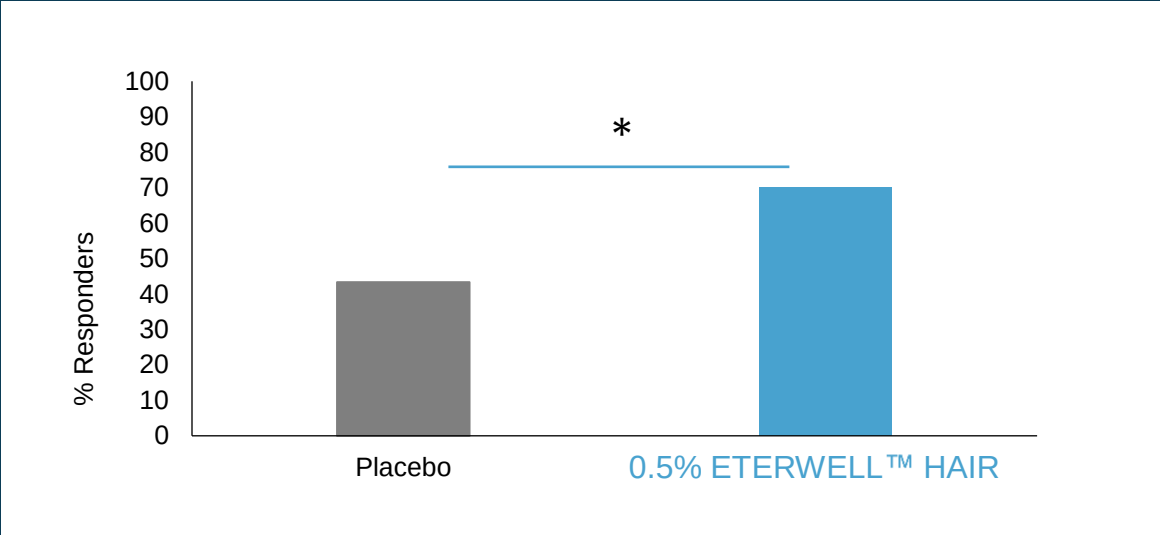
Clear improvement of the hair vitality
Anagen/Telogen ratio measurement

"AT ratio" is a way of measuring the health of the hair, comparing the number of hairs in the growth phase (anagen) with those in the resting or shedding phase (telogen).

The higher the ratio, the more vitality and health the hair will show.



The number of hair follicles in the growth phase (anagen) increased, while those in the resting phase (telogen) decreased. **This improvement of +5.2 was significant compared to the placebo (*p<0.05)**

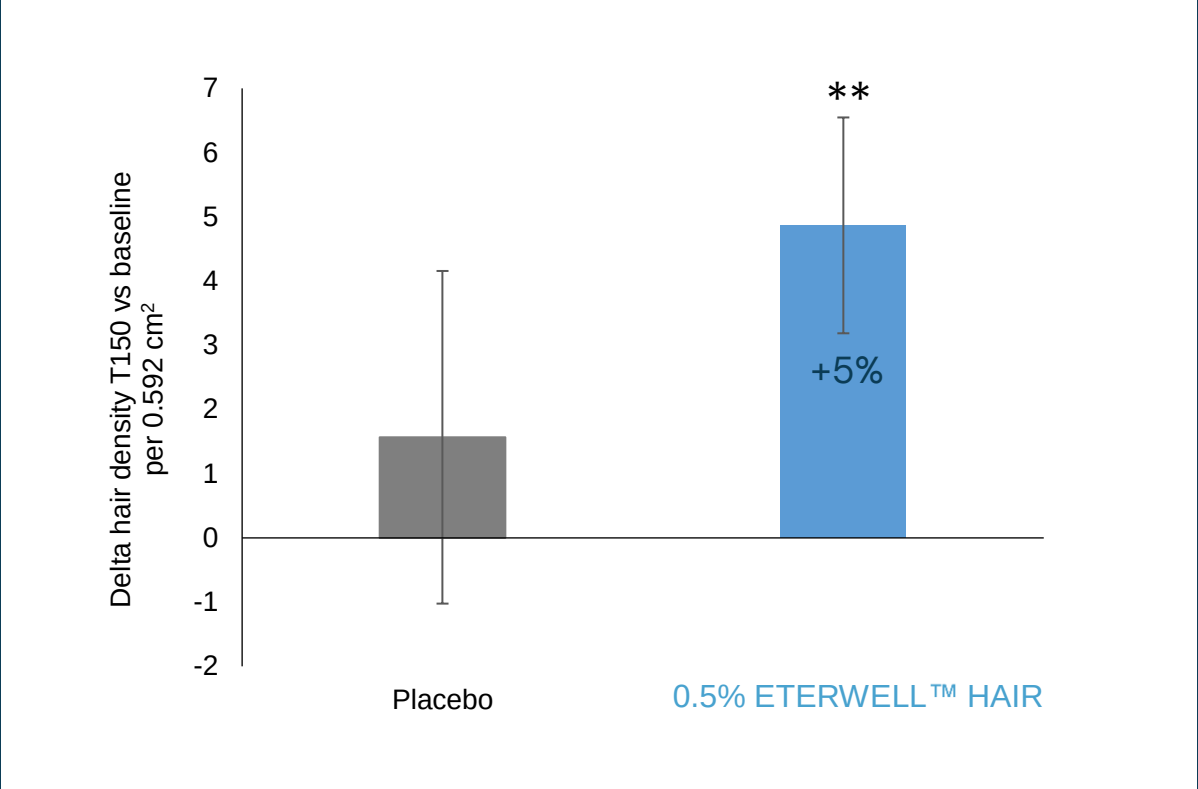


70% of the volunteers who used the active formulation showed improvement in the ratio between the growth and resting phases, compared to fewer than 45% in the placebo group (*p<0.05).

IN VIVO RESULTS

Showing highly significant hair density increase

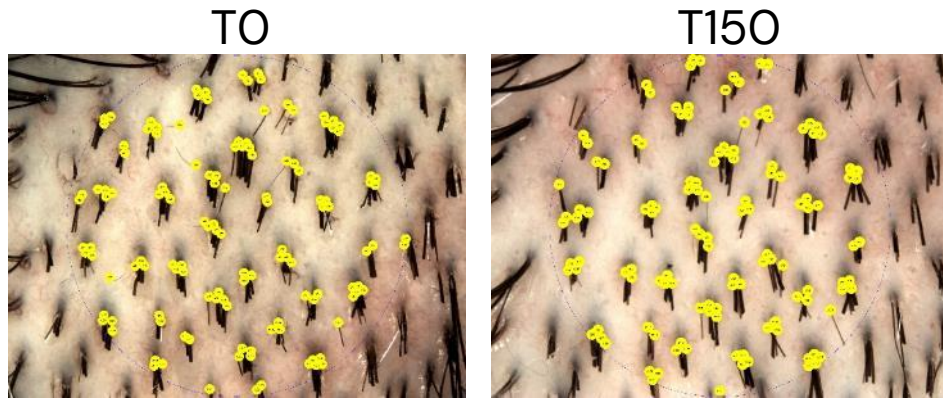
Hair density is significantly increased (average + 5%, up to 28% for the best volunteer) and outperforming the placebo.



Error bars = standard error of the mean.
**p<0.01 T150 vs baseline

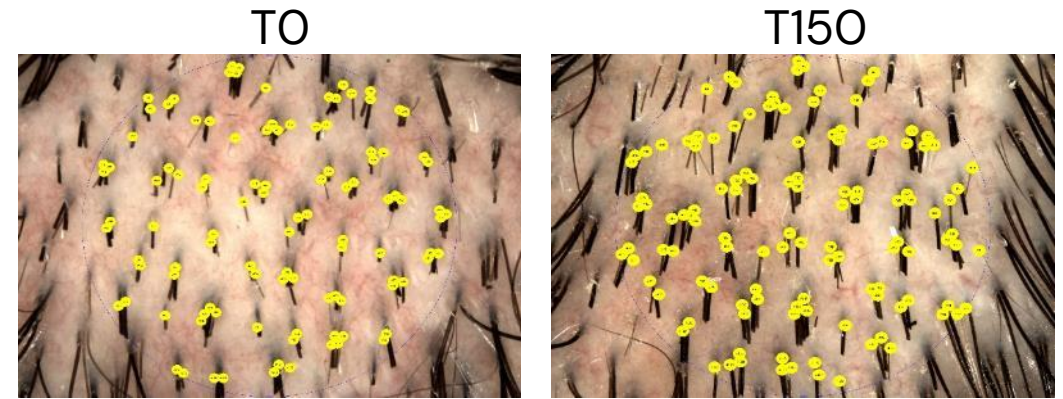
IN VIVO RESULTS

Showing highly significant hair density increase
with proven photographic evidence



Placebo – Volunteer #10P

Placebo

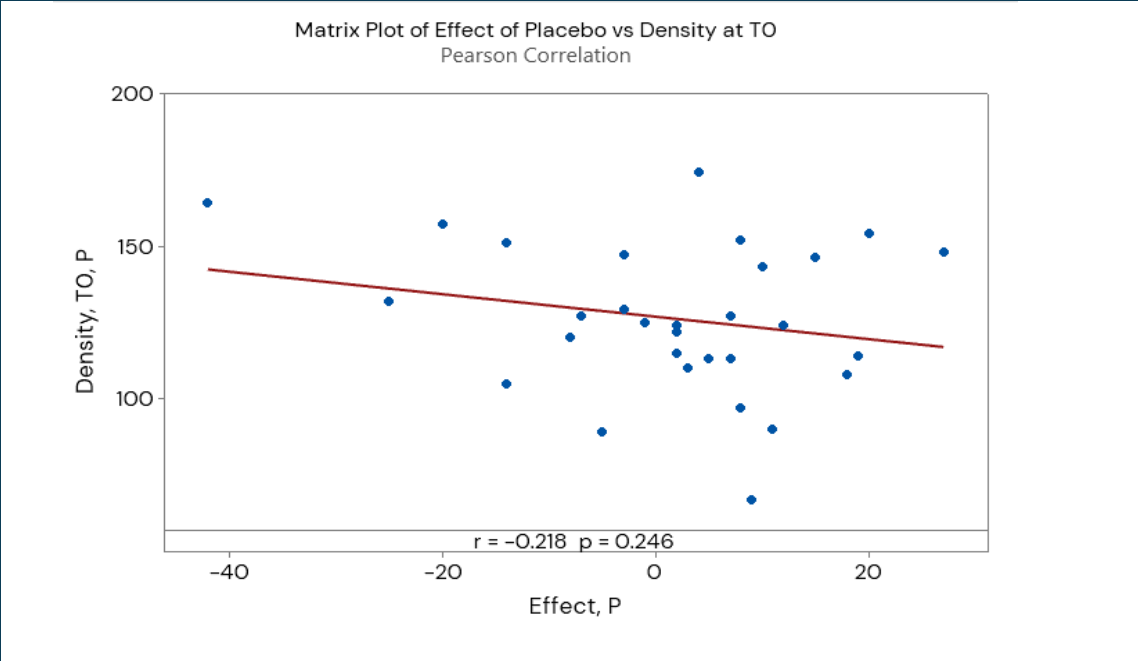


0.5% ETERWELL™ HAIR –Volunteer #19A

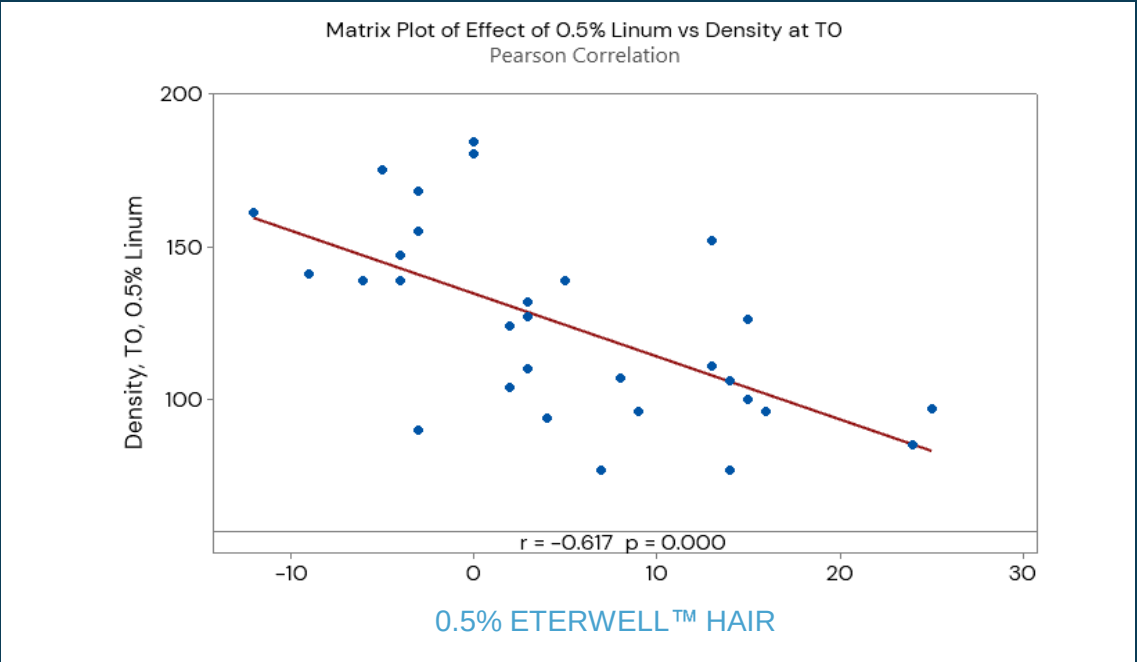
Average 5% hair density increase after 150 days
Up to 28% increase for the best volunteer

IN VIVO RESULTS

Showing highly significant hair density increase, especially for low hair density volunteers:
Hair density, placebo group vs test group



No significant correlation between hair density at T0 and placebo effect.

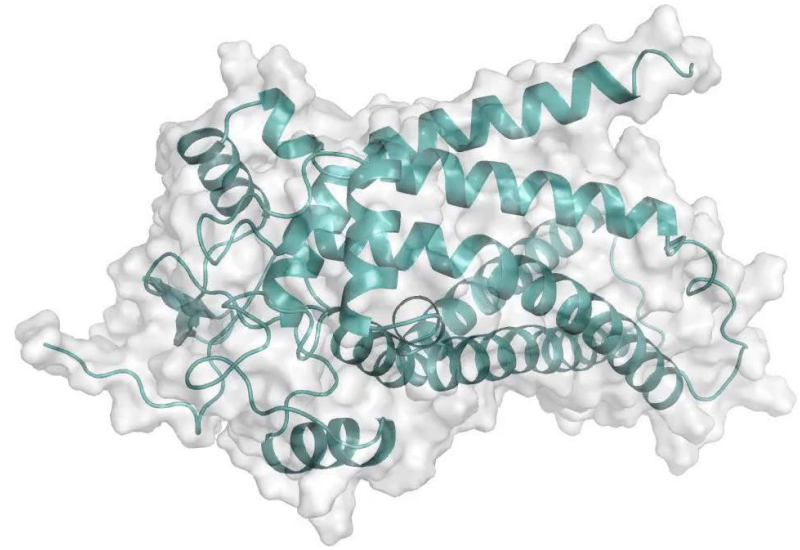


Significant negative correlation between hair density at T0 and ETERWELL™ HAIR effect.

The less hair the volunteers had,
the more ETERWELL™ HAIR increased hair density

Proteome analysis

Proteome analysis is the study of proteins that are present in hair strands and the scalp. This analysis explores how these proteins interact and how their functions can affect hair growth, health, and structure.

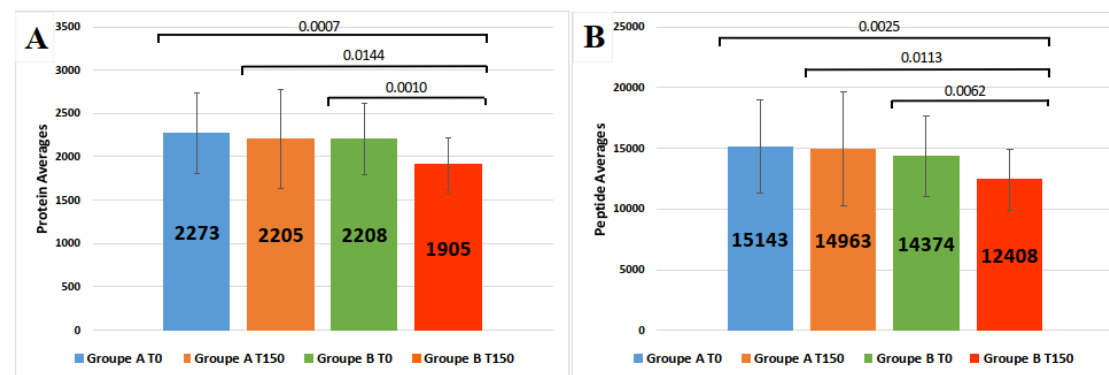


Overall proteins

In our analysis, we identified that after 5 months, using the placebo did not significantly affect the number of identified proteins, whereas using ETERWELL™ HAIR led to a reduction in the diversity of expressed proteins.

This reduction in diversity could indicate that ETERWELL™ HAIR is regulating and stabilizing the hair's protein environment!

A significant reduction in the number of different proteins when using ETERWELL™ HAIR, from 2,208 different types to 1,905.



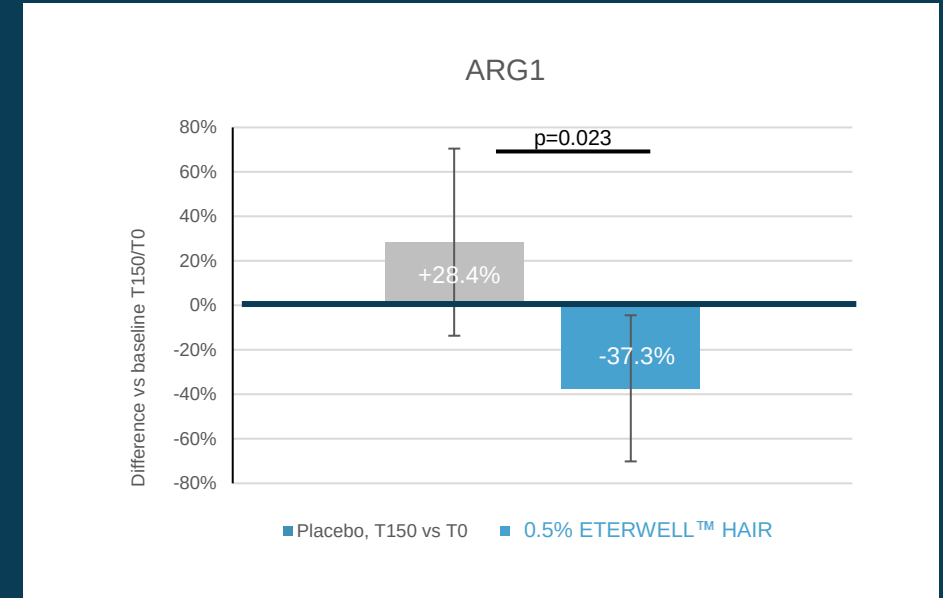
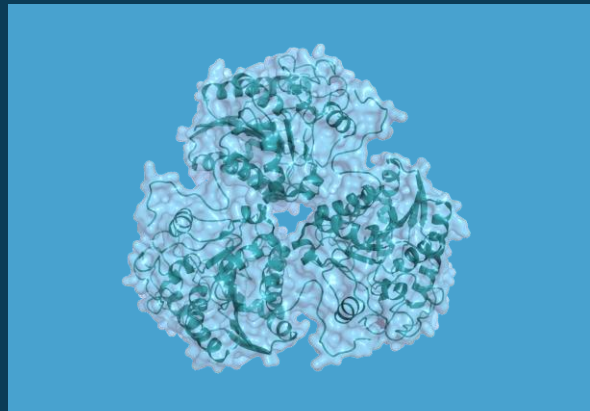
(A) Number of identified proteins. (B) Number of identified peptides. Without contaminants. Standard deviations are displayed as error bars.

blue & orange PLACEBO, green & red ETERWELL™ HAIR

Inhibition of Arginase-1 (ARG1)

ETERWELL™ HAIR lowered the levels of Arginase-1: an enzyme that breaks down Arginine, which is a key building block of keratin and the primary material that makes up hair.

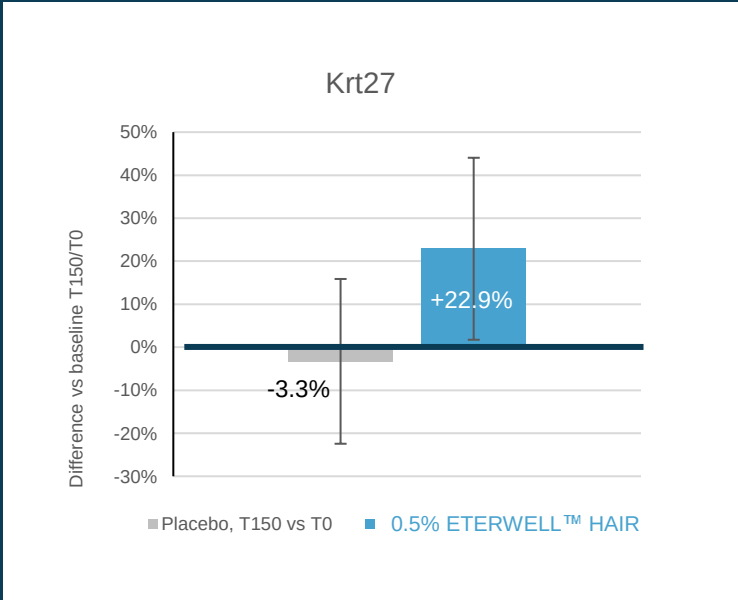
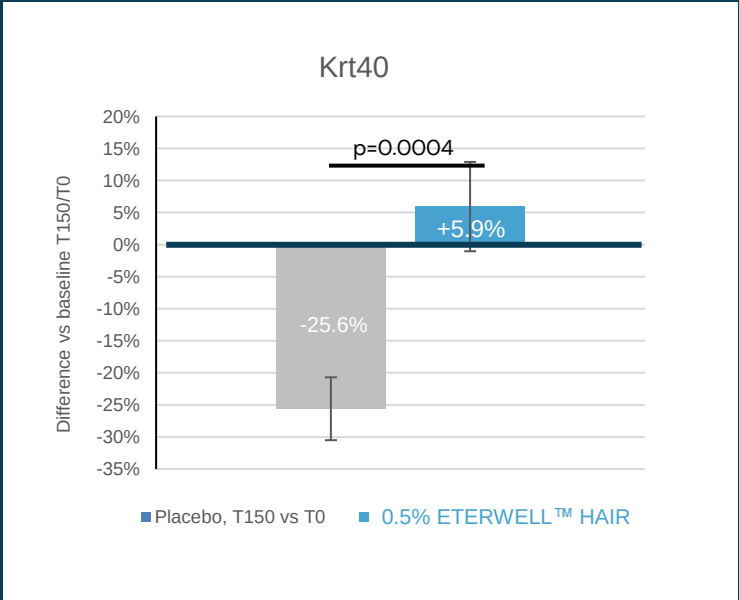
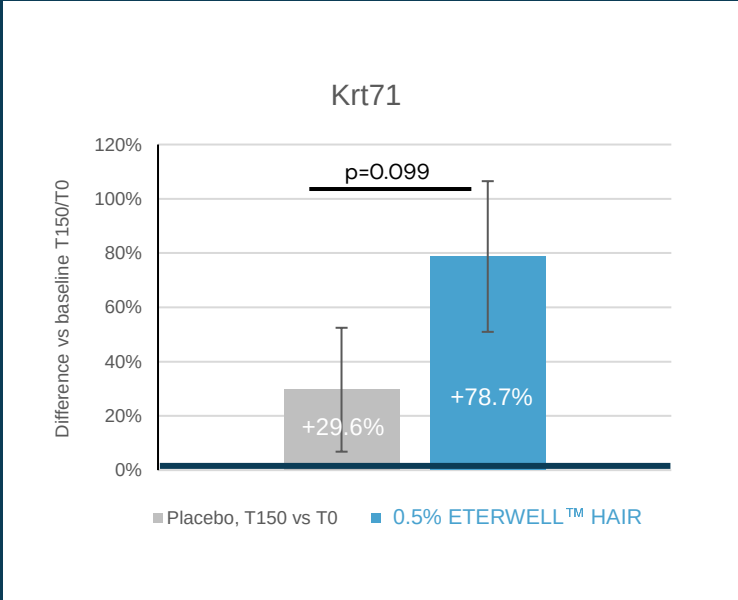
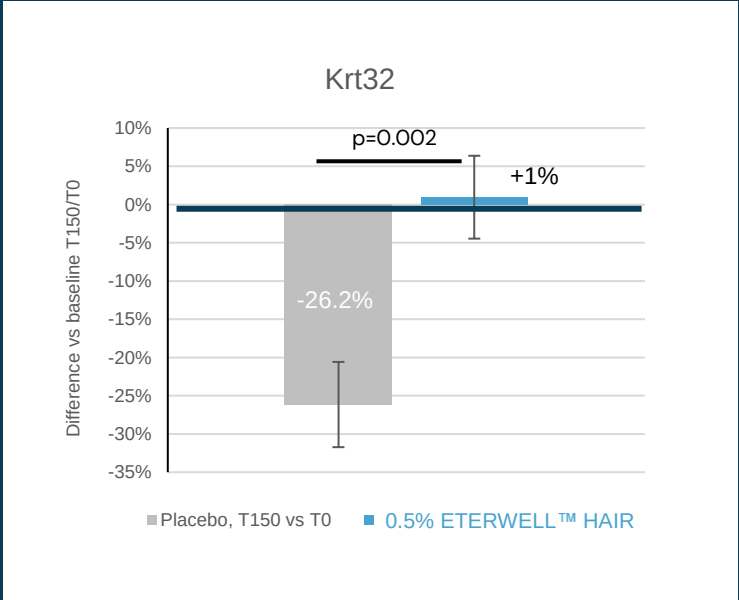
This points to a positive impact on the hair renewal cycle and density.



Increase in hair keratin

While reducing destructive enzymes, ETERWELL™ HAIR also boosted hair keratin levels over time when compared to the placebo group.

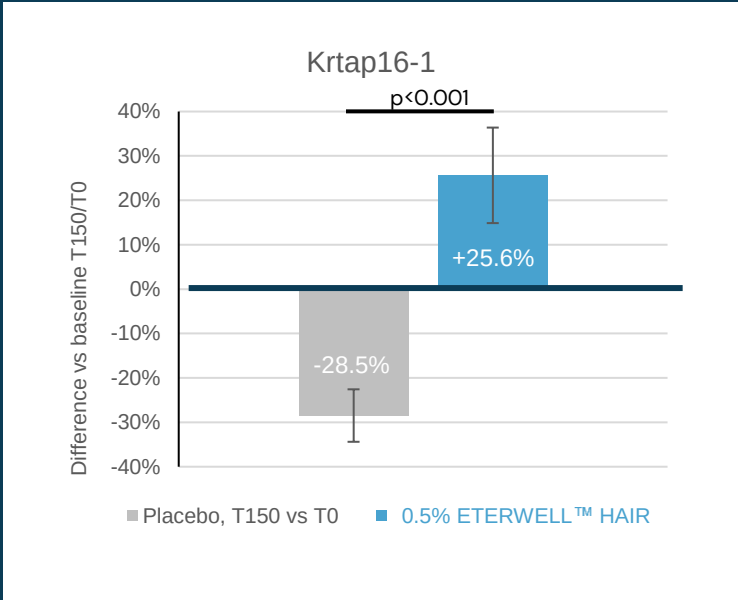
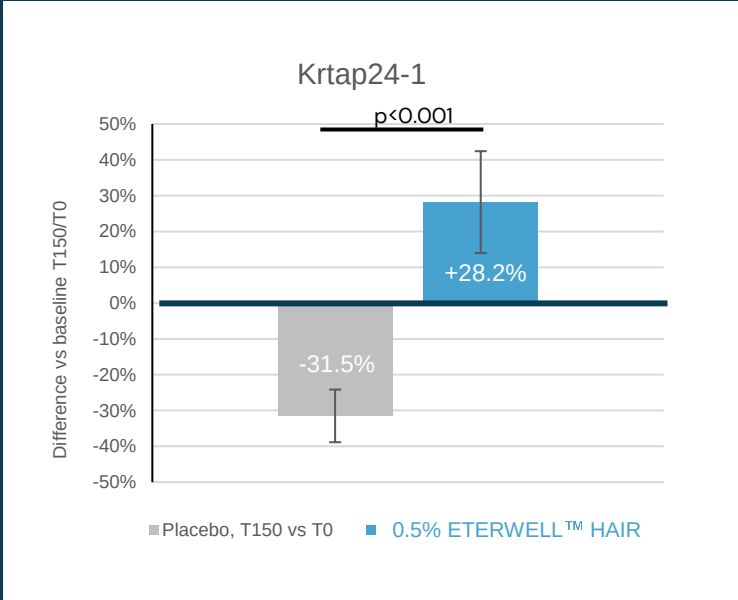
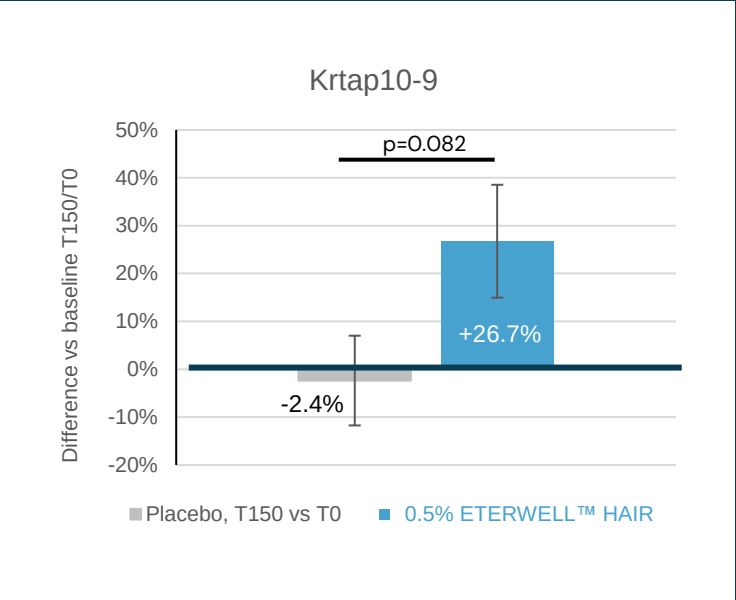
We can expect active formation of the hair shaft with thicker, fuller and better-quality hair.



Increase in keratin-associated proteins

ETERWELL™ HAIR not only boosted keratin levels but also increased proteins essential for the proper formation of keratin in the hair fiber.

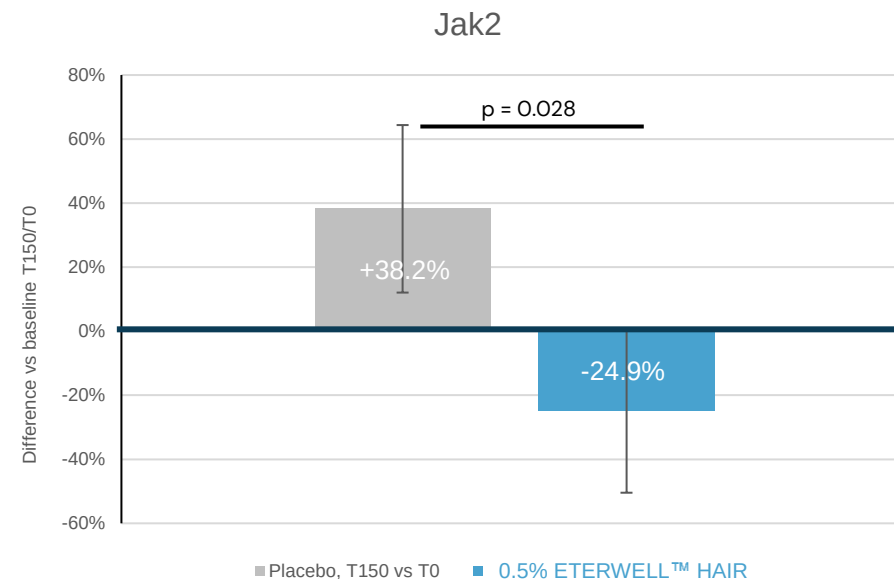
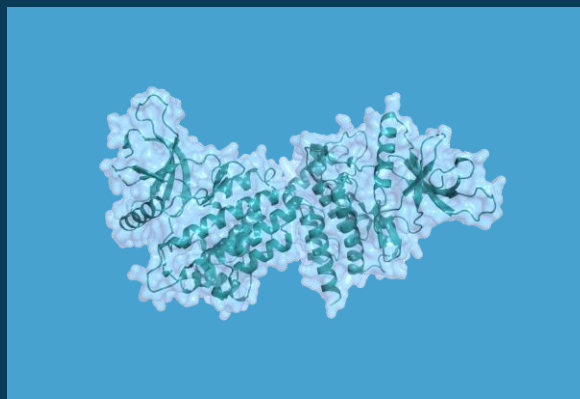
We can expect stronger, more resilient, and better-protected strands, resulting in higher-quality hair.



Alopecia promotor inhibition

The results also point to a reduction in Janus Kinase 2 (JAK2), a protein that has been studied for its impact on alopecia (hair loss).

This not only confirms but also explains the significant improvement in hair density observed in the *in vivo* studies.

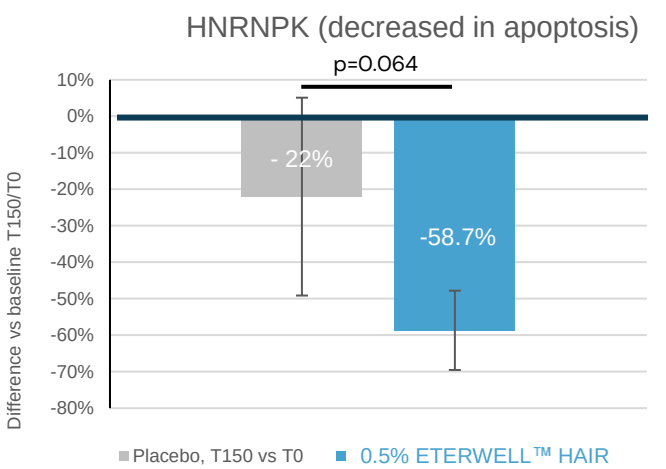
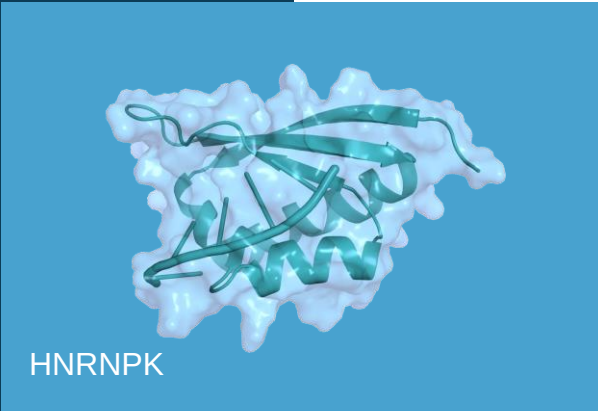
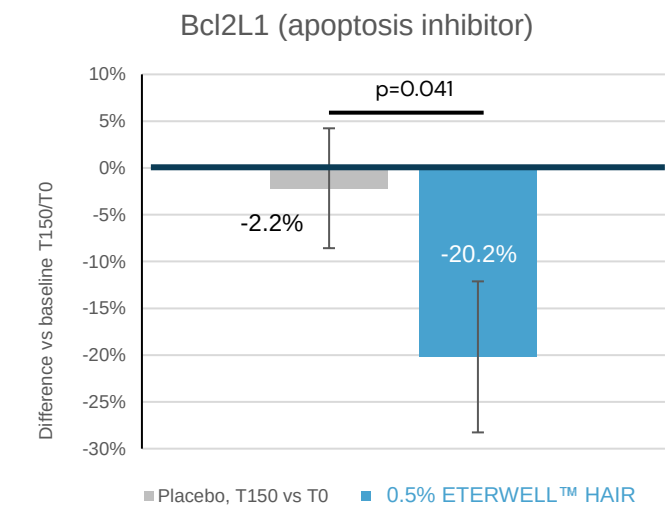
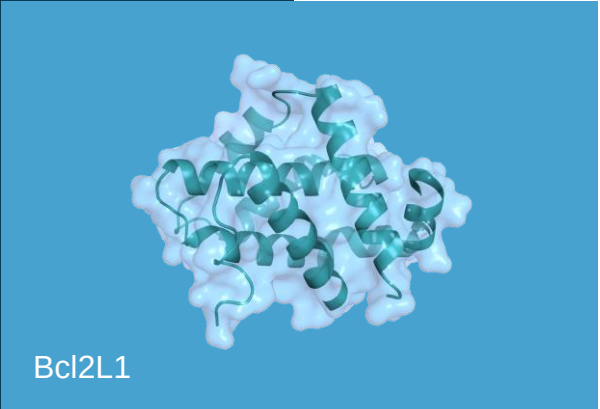


JAK2 inhibition reverses alopecia areata in mice (Xing et al. nature medicine VOLUME 20 | NUMBER 9 | SEPTEMBER 2014) | JAK2 inhibitor Baricitinib induced hair regrowth in alopecia patients (Freitas et al. Drugs (2023) 83:761–770)

Apoptosis markers

Here we can see a decrease in Bcl2L1 and HNRNPK, elements that plays a key role in the senescence process, forcing cells into their senescent, or "zombie" state.

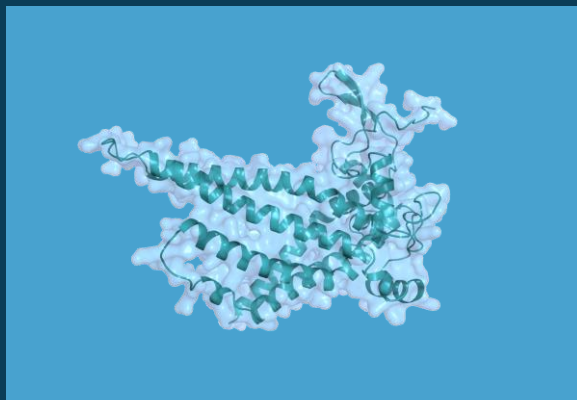
This finding confirms the BCL-2 pathway found previously *in vitro*.



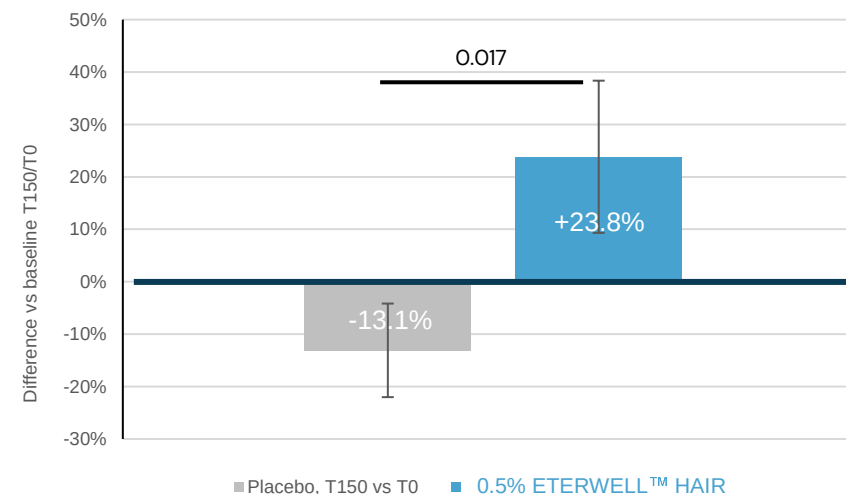
Apoptosis marker MTCH1

The results also indicate that ETERWELL™ HAIR works by triggering an increase in MTCH1, a mitochondrial protein that has the power to induce apoptosis by itself.

In other words, it affects a key mechanism for eliminating the senescent zombie cells.



MTCH1 (induces apoptosis in a Bcl2-independent way)



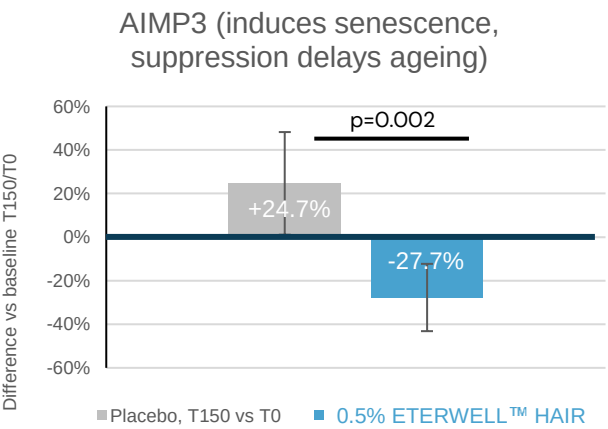
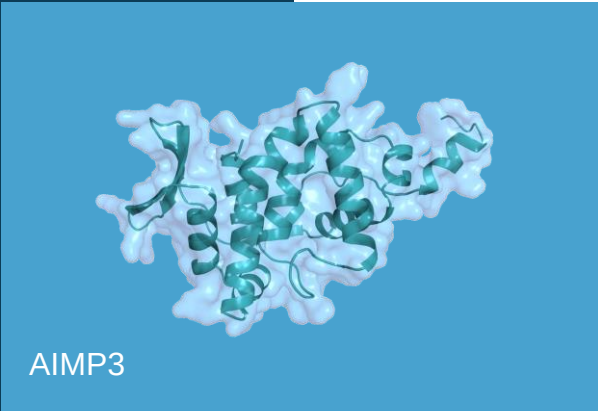
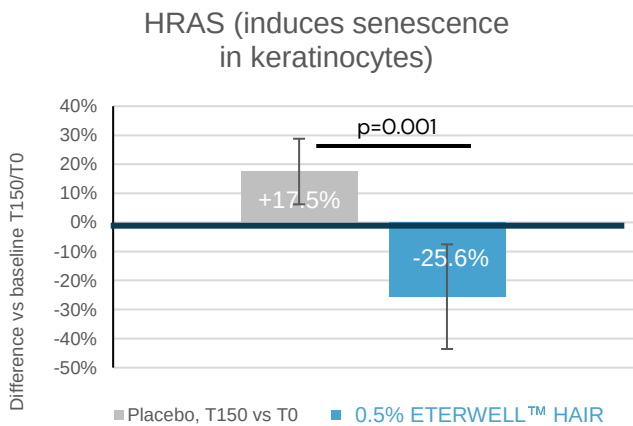
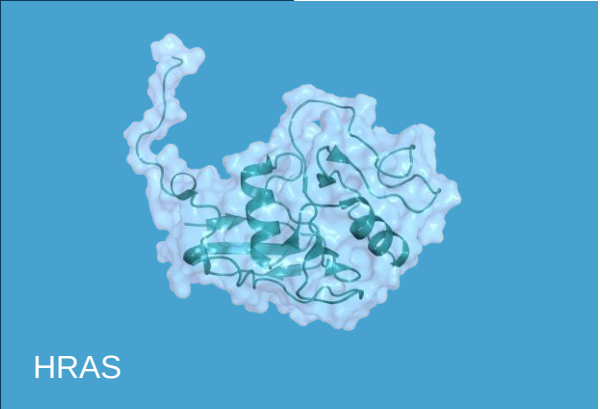
MTCH1 (aka presenilin-1 associated protein) is a mitochondrial protein that induces apoptosis in a Bcl-2 independent way (Li et al. Biochimica et Biophysica Acta 1832 (2013) 453–474) | MTCH1 is sufficient to induce apoptosis in a Bax/Bak independent manner (Lamarca et al. European Journal of Cell Biology 87 (2008) 325–334)

Senescence inducing markers

As a result of modulating apoptosis markers, there is a drop in senescent markers.

In other words:

ETERWELL™ HAIR is able to reprogram cells so that they enter apoptosis, eliminating zombie cells that harm the hair system!



ETERWELL™ HAIR

Outstanding Results

DIRECT SENOLYTIC EFFECT BOOSTING HAIR LONGEVITY

- **53% less senescent Follicle Dermal Papilla Cells** with 0.001%* ETERWELL™ HAIR *in vitro*
- Inhibition of Arginase 1 expression *in vivo*
- **Increase of Keratin and Keratin associated proteins** markers *in vivo*
- **Inhibition of Alopecia promotor JAK2** *in vivo*
- **Inhibition of Apoptosis inhibitors** *in vitro* and *in vivo*
- **Increase of Apoptosis promotor MTCH1** *in vivo*
- **Reduction of senescence inducing markers** *in vivo*

SCREENED WITH dsm-firmenich's FIRST IN CLASS SENOLYTIC MODEL

- Using Senescent Follicle Dermal Papilla Cells
- Relevant for hair care

A CLEARLY SELECTIVE MODE OF ACTION

- Specific re-programming of Zombie cells via specific modulation of Apoptosis markers
- Demonstrated direct Senolytic effect

SIGNIFICANT RESULTS AT LOW CONCENTRATION *IN VIVO* (0.5%, 150 DAYS)

- Average 5% hair density increase after 150 days. Up to 28% for the best volunteer.
- 70% positive response to ETERWELL™ HAIR with an increase of Anagen phase (growth phase)
- A/T ratio increased by 5.2 vs placebo
- Correlation between hair density and efficacy of ETERWELL™ HAIR
- Results strongly validated by Proteome analysis

And all of this is possible without harming people or the planet





And all of this is possible without harming people or the planet

ETERWELL™ HAIR combines advanced hair care with Sustainability: made with 100% natural ingredients and ethically sourced Alpine blue flax, it cares for the planet while transforming hair.

It's the right choice for those seeking effectiveness and beauty with awareness.

A Holistic Sustainable Solution

BIODIVERSITY PROTECTION

- Preserving Swiss alpine biodiversity through organic cultivation and sustainable land use.
- Cosmos/Natrue certified ingredients.

REGENERATIVE FARMING

- Aligned with the Union Ethical BioTrade (UEBT) Regenerative Farming (beyond responsible sourcing and ethical practices).
- Focuses on improved soil restoration, water purification, maintenance of biodiversity, and enhanced climate resilience.

RESPONSIBLE SOURCING

- Fair for Life fair trade certified. Transparent and traceable supply chain from seeds to bioactive.
- Ethical relationship with small stakeholders. Guaranteed minimum price for farmer, fixed before the harvesting season.

LIMITED ENVIRONMENTAL IMPACT

- Low carbon footprint with less than 3 kg CO₂eq/kg.
- Application of green chemistry principles and gentle extraction process using organic ethanol.

WATER-SAVING FORMULATION

- The formulas are designed for easy rinse-off, significantly reducing water consumption during use.



Organic, ethical and fully traceable bioactive

Plant: *LINUM ALPINUM* – Alpine blue flax

Parts of the plant: aerial parts

Harvest: May, July, September, full blooming

Standardization in Flavonoids: 40mg/100g
(UHPLC calculated as saponarin)

INCI Name: Glycerin, Water, *Linum Alpinum* Flower/Leaf/Stem
Extract, Citric Acid

INCI name China listing: *Linum Alpinum* Extract

China listing: IECSC listed, IECIC listing*

Natural origin content: 100% according to ISO16128

Suggested concentration: 0.5–3% ETERWELL™ HAIR

*Safe use level from 0.2 to 2% according to the Final list published to support China Safety Assessment issued in February 2025 without further regulatory requirements

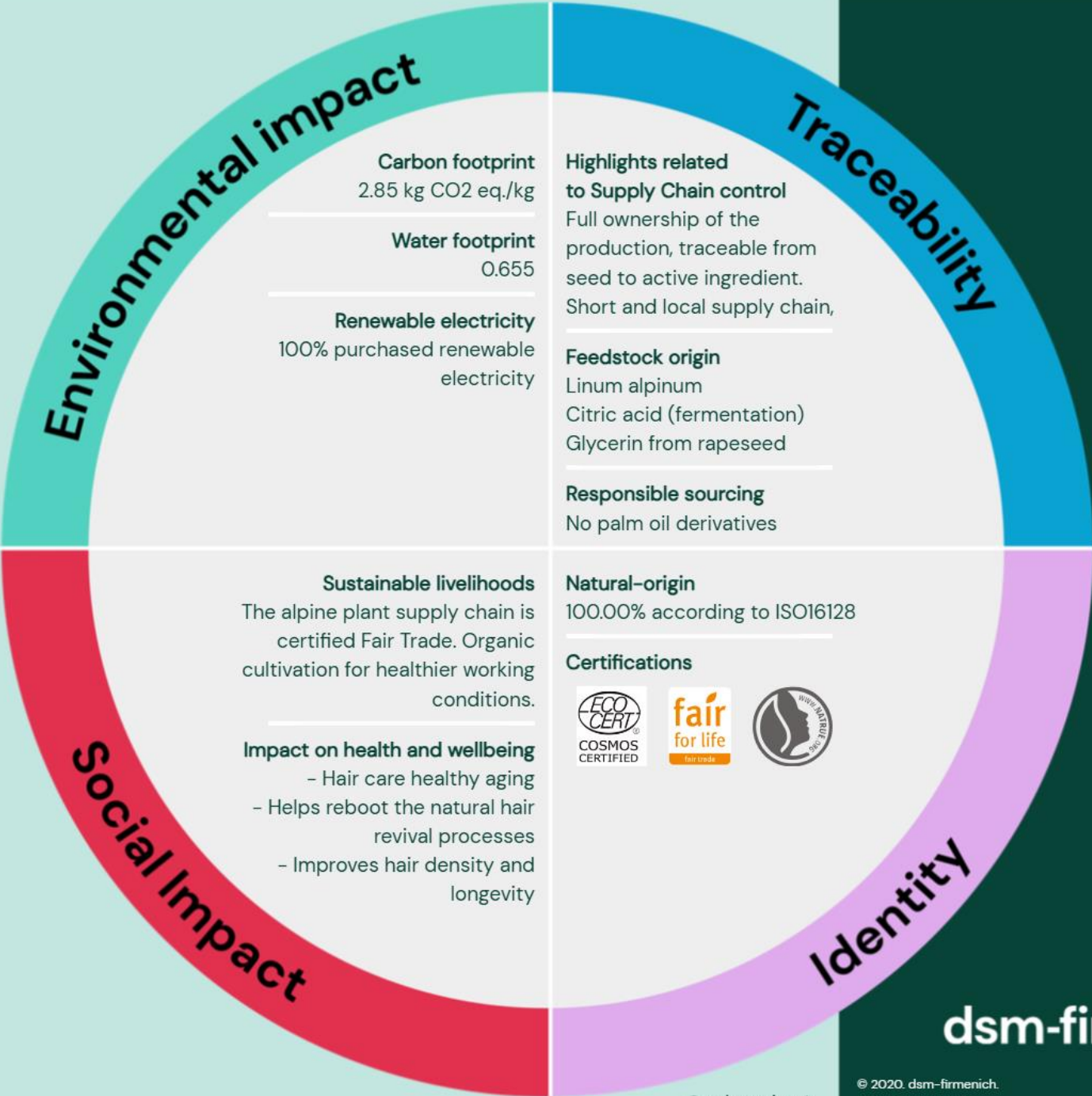


ETERWELL™ HAIR

INCI name: Glycerin, Aqua, Linum Alpinum Flower/Leaf/Stem
Extract, Citric Acid
Product codes: 5018441

FAIR TRADE CERTIFIED
A unique approach in Europe,
illustrating a historical and
transparent collaboration along
the value chain (Farming for
Beauty Program).

The carbon and water footprint calculations are based on internally
conducted LCA according to ISO 14040/44 guidelines, dsm-
firmenich LCA policy and validated by an internal reviewer.



Aligned with and
contributing to the
**SUSTAINABLE
DEVELOPMENT
GOALS**



dsm-firmenich

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Card version 1

2 THE ROOT

Hair longevity,
starting from the cells

Don't Mist Out

Leave on
anti-aging mist

Featuring
ETERWELL™ HAIR

With 97% natural-origin ingredients, this Leave On Hair Mist reinvigorates your hair and scalp by combining the power of ETERWELL™ HAIR, an eco-conscious solution powered by cutting-edge senolytic science, with a dream team of Hair Vitamins – Panthenol for deep hydration, Vitamin B3 for fuller, thicker hair, and Vitamin B6 for strength and nourishment. The formulation also contains PENTAVITIN®, our star moisturizer that acts like a Keratin magnet, locking in moisture while strengthening the scalp barrier.

Featuring Rejuven Hair, a science infused fragrance with emotiwaves® energy and clearsense® beauty technologies, designed to evoke emotions and provide a lasting feeling of freshness.



Rejuven Hair

A science
infused fragrance

emotiwaves® energy

dsm-firmenich neuroscience-
based fragrance technology
designed to drive emotions
through scents

+

clearsense® beauty

dsm-firmenich cutting-edge
technology designed to defend
against the perception of
unpleasant odors on hair & body

TOP NOTES

clean efficacy



Grapefruit - orange - ozonic accord

HEART NOTES

blooming & radiant



Peach - freesia - lily of the valley

BASE NOTES

caring & comforting



Musk - praline - soft woods

Beauty & Care

A House of Science beyond Wellbeing.

Disclaimer

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